



City of Tacoma, WA

**TACOMA POWER**

**REQUEST FOR INFORMATION**

**15KV POWER AND URD PLUS 600V NETWORK EPR CABLE**

**SPECIFICATION NO. PT26-0026F**



**City of Tacoma  
Tacoma Power/Transmission & Distribution**

**REQUEST FOR INFORMATION PT26-0026F  
Power & URD Cable**

**Submittal Deadline: 11:00 a.m., Pacific Time, Monday, April 6, 2026**

Submittals must be received by the City’s Procurement and Payables Division by 11:00 a.m. Pacific Time.

For electronic submittals, the City of Tacoma will designate the time of receipt recorded by our email server, as the official time of receipt. This clock will be used as the official time of receipt of all parts of electronic bid submittals. Include the specification number in the subject line of your email. Your submittal must be sent as an attachment, links to your electronic submittal will not be accepted.

For in person submittals, the City of Tacoma will designate the time of receipt recorded by the timestamp located at the lobby security desk, as the official time of receipt. Include the specification number on the outside of the envelope. Late submittals will be returned unopened and rejected as non-responsive.

**Submittal Delivery:** Submittals will be received as follows:

<p><b>By Email:</b>  <a href="mailto:sendbid@tacoma.gov">sendbid@tacoma.gov</a>  Maximum email size, including attachments: 35 MB.  Multiple emails may be sent for each submittal.</p> <p><b>Note:</b> Email may pass through multiple servers before arriving at its destination. Please allow sufficient time for email delivery of submittals. Timely electronic delivery is at the risk of the supplier.</p>	<p><b>In Person:</b>  Tacoma Public Utilities Administration Building North,  Main Floor, Lobby Security Desk  3628 South 35<sup>th</sup> Street  Tacoma, WA 98409  Monday – Friday 8:00 am to 4:30 pm</p>
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**Solicitation Documents:** An electronic copy of the complete solicitation documents may be viewed and obtained by accessing the City of Tacoma Purchasing website at [www.TacomaPurchasing.org](http://www.TacomaPurchasing.org).

- [Register for the Bid Holders List](#) to receive notices of addenda, questions and answers and related updates.
- Click here to see a [list of vendors registered for this solicitation](#).

**Pre-Proposal Meeting:** A pre-proposal meeting will not be held.

**Project Scope:** The purpose of these Specifications is to define the scope of supply of items that meet the minimum requirements as to quality, function, and capacity as outlined in the Special & Technical Provisions.

**Estimate:** Request for Information – no purchases apply to this specification.

**Paid Sick Leave:** The City of Tacoma requires all employers to provide paid sick leave in accordance with Washington State law.

**Americans with Disabilities Act (ADA Information):** The City of Tacoma, in accordance with Section 504 of the Rehabilitation Act (Section 504) and the Americans with Disabilities Act (ADA), commits to nondiscrimination on the basis of disability, in all of its programs and activities. Specification materials can be made available in an alternate format by emailing the contact listed below in the *Additional Information* section.

**Title VI Information:** “The City of Tacoma” in accordance with provisions of Title VI of the Civil Rights Act of 1964, (78 Stat. 252, 42 U.S.C. sections 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin in consideration of award.

**Additional Information:** Requests for information regarding the specifications may be obtained by contacting Aaron Bratton by email to [abrattont@tacoma.gov](mailto:abrattont@tacoma.gov).

**Protest Policy:** City of Tacoma protest policy, located at [www.tacomapurchasing.org](http://www.tacomapurchasing.org), specifies procedures for protests submitted prior to and after submittal deadline.




**Meeting sites are accessible to persons with disabilities. Reasonable accommodations for persons with disabilities can be arranged with 48 hours advance notice by calling 253-502-8468.**

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## SUBMITTAL CHECK LIST

This checklist identifies items to be included with your submittal. Submittals must be received by the City of Tacoma Purchasing Division by the date and time specified in the Request for Information page.

<b>The following items make up your submittal package:</b>	
Proposal Pages – Appendix B	
Section 1.04 of Special Provisions – Content to be Submitted – Appendix A	
Substitution Request Form – Appendix A (if needed)	
Signature Page – Appendix B	

## 1. INTRODUCTION

Tacoma Public Utilities (TPU) is soliciting information for 15kV Power & URD plus 600V Network EPR Cable.

## 2. PURPOSE

Tacoma Public Utilities (TPU) is issuing this Request for Information to evaluate all available cables that meet the basic specification requirements to see current market offerings. Samples are required for testing for a variety of physical evaluations. TPU will also be partnering with NEETRAC for an unbiased, 3<sup>rd</sup> party evaluation of cable flexibility. Findings from these evaluations may be used to update the technical specifications for an upcoming RFB to establish a contract in late 2026 or early 2027.

## 3. CALENDAR OF EVENTS

This is a tentative schedule only and may be altered at the sole discretion of the City.

The anticipated schedule of events concerning this Solicitation is as follows:

Question Deadline:	<b>3/6/2026</b>
Questions and Answers Posted:	<b>3/20/2026</b>
Submittal Due Date:	<b>4/6/2026</b>

## 4. INQUIRIES

- 4.1 Questions can be submitted to *Aaron Bratton*, Senior Buyer, via email to [abratt@cityoftacoma.org](mailto:abratt@cityoftacoma.org). Subject line to read:  
PT26-0026F – EPR Cable, 15kV Power & URD, plus 600V Network – *VENDOR NAME*
- 4.2 Questions are due by 3 pm on the date included in the Calendar of Events section.
- 4.3 Questions marked confidential will not be answered or included.
- 4.4 The City reserves the discretion to group similar questions to provide a single answer or not to respond when the requested information is confidential.
- 4.5 The answers are not typically considered an addendum.
- 4.6 The City will not be responsible for unsuccessful submittal of questions.
- 4.7 Written answers to questions will be posted alongside these specifications at [www.tacomapurchasing.org](http://www.tacomapurchasing.org).

## **5. DISCLAIMER**

The City is not liable for any costs incurred by the Respondent for the preparation of materials or a submittal submitted in response to this RFQ, for conducting any presentations to the City, or any other activities related to responding to this RFQ, or related to the contract negotiation process.

Please note that this Request for Information is not a Request for Bids (RFB) or a Request for Proposals (RFP), and there is no guarantee that either a RFB or RFP will be issued. A Respondent's decision to respond, or not to respond, to this Solicitation will NOT be a factor in evaluating any later RFB or RFP.

While the intent of this Solicitation is to help identify vendors who meet various requirements for a competitive solicitation, there is no guarantee that any specific information presented by any Respondent will ultimately be included in any future solicitation issued by the City.

Each Respondent shall bear all expenses incurred by the preparation and presentation of its Solicitation response. The City will therefore reject any claim made against them in this matter, regardless of the results of the subsequent processes, if any.

## **6. QUALIFYING REQUIREMENTS**

**6.1 Equipment Requirements:** See Special Provisions provided in Appendix A.

**6.2 Technical Requirements:** See Technical Provisions provided in Appendix A.

## **7. CONTENT TO BE SUBMITTED**

### **7.1 Products Provided**

See the Special and Technical Provisions provided in Appendix A. Samples are required as part of this Request for Information. These samples will be utilized for testing to determine products that are approved for a future solicitation for products to be purchased for utilization by Tacoma Power in normal construction, repair, and maintenance operations.

### **7.2 Pricing Information**

Please provide as much general information as possible about your firm's pricing and fee structure. Include any and all indexes used for pricing changes as well as frequency for these changes. Example: Monthly metals adjustment on the 1<sup>st</sup> of each month. Additional annual adjustment based on PPI Series PCU 335931335931P.

If pricing documents contain sensitive information, respondents may mark them Confidential.

## 8. ENVIRONMENTALLY PREFERABLE PROCUREMENT

In accordance with the [City's Sustainable Procurement Policy](#) and [Climate Action Plan](#), it is the policy of the City of Tacoma to encourage the use of products or services that help to minimize the environmental and human health impacts of City Operations. Respondents are encouraged to incorporate environmentally preferable products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, products, manufacturing, packaging, distribution reuse, operation, maintenance or disposal of the product or service.

The City of Tacoma encourages the use of sustainability practices and desires any awarded contractor(s) to assist in efforts to address such factors when feasible for:

- Durability, reusability, or refillable
- Pollutant releases, especially persistent bioaccumulative toxins (PBTs), low volatile organic compounds (VOCs), and air quality and stormwater impacts
- Toxicity of products used
- Greenhouse gas emissions, including transportation of products and services, and embodied carbon
- Recycled content
- Energy and water resource efficiency

## 9. STANDARD TERMS AND CONDITIONS

City of Tacoma [Standard Terms and Conditions](#) apply.

## 10. ADDENDUMS

In the event it becomes necessary to revise any part of this Solicitation, an addendum will be issued.

## 11. WASHINGTON APEX

Washington APEX Accelerator offers government contracting assistance for Washington firms. View services available on their website for locations, ability to register as a client, and view schedules for in-person classes and networking events. [Home - Washington APEX Accelerator](#)

Prime Contractors can also use Washington Apex Accelerator to connect with small business to promote equity in contracting practices. [Prime Information Resource - Washington APEX Accelerator](#)

# Appendix A

Special Provisions

Technical Provisions

Substitution Request Form

## **SECTION I – SPECIAL PROVISIONS**

### **1.01 - SCOPE OF WORK**

#### **1.01.1 - PURPOSE**

The purpose of these Specifications is to define the scope of supply of items that meet the minimum requirements as to quality, function, and capacity as outlined in the Special & Technical Provisions that follow.

#### **1.01.2 - DEFINITIONS**

For the purposes of this specification, the following definitions shall apply:

<b>Term</b>	<b>Definition</b>
<b>RESPONDENT</b>	A potential Supplier offering a submittal to supply equipment in accordance with these Specifications.
<b>SPECIFICATION</b>	This document, detailing the scope of supply.
<b>SUPPLIER/CONTRACTOR</b>	The Respondent(s) awarded a contract pursuant to these Specifications.
<b>SUB-VENDOR</b>	Any vendor providing parts, materials, and/or services to the Supplier under these Specifications.
<b>EQUIPMENT/ MATERIAL</b>	A fully functional piece of equipment/material supplied and tested in accordance with these Specifications.
<b>MANUFACTURER</b>	The original manufacturer of the equipment/material.
<b>ENGINEER</b>	The project engineer and/or contract administrator.
<b>CITY</b>	The City of Tacoma, Tacoma Power.
<b>DELIVERY TIME</b>	The length of time starting at the date of Supplier receipt of a purchase order or notice to proceed and ending at the time that the item(s) are received at Tacoma Power.

**1.02 – PRICING INFORMATION**

**1.02.1 – ITEM PRICING ADJUSTMENT**

Price increases/decreases are expected for this type of commodity product. Below are examples of the previously used processes. Information on which type of adjustment is preferable for contract purchases will be requested on the Proposal Pages.

Price adjustment the unit price has previously been separated by weight into two parts according to the table below.

<b>Part</b>	<b>Definition</b>	<b>Schedule of Adjustment</b>
<b>A</b>	Bid items #1& #3-10: The content of Copper	<b>Monthly</b> – Per Section 1.02.6A referencing the average Platt’s COMEX Copper (High Grade 1 <sup>st</sup> Position) price for the previous month
	Bid item #2: The content of Aluminum for stranded wire & content of Copper for neutral wire	<b>Monthly</b> – Per Section 1.02.6A referencing the Platt’s MW US Week Average Transaction Aluminum price for the previous month + referencing the average Platt’s COMEX Copper.
<b>B</b>	The remaining elements of the unit price that includes the insulation, jacket, filler, reel, overhead, transportation, profit, etc.	<b>Annually</b> - Per Section 1.02.6B referencing the PPI Series PCU 335931335931P.

Examples of previous adjustment schedules:

**1.02.1A - “A” ADJUSTMENT – METALS PRICE**

Within the first week of each month, the Tacoma Contract Program Manager has utilized the S&P Global Platts Metals information provided via email. The listing shall show the metal price used and how the item prices are adjusted. This was emailed to contact at the supplier for verification.

**1.02.1B - PART “B” ADJUSTMENT - PPI**

Annually on the anniversary date of contract, to accommodate the commodity adjustments of the remaining components, excluding the metals, prices were adjusted per **Industry Code #335931335931P – “Current Carrying wiring device mfg Primary Products” series of the Producers Price Index** by calculating the percent change for the prior **twelve** months.

**1.02.1C – APPLICATION OF PRICING EXAMPLE**

The price to be paid by Tacoma Power will be based on the metals price & PPI in effect within the month of the purchase order creation, NOT THE MONTH OF SHIPMENT. Purchase orders received within the first 3 business days of the month, provided they were created at the end of the prior month, shall be billed at the prior month rate.

**1.02.1D - UNIT PRICE ADJUSTMENT METHOD EXAMPLE**

Step	Action						
1	<p><b>PART "A"</b> – Monthly obtain the average price of metals <b>for the previous month</b>. The supplier will be provided a copy of the adjusted unit price sheet via email as outlined in Step 3 below.</p> <table border="1"> <thead> <tr> <th>Metal</th> <th>Price Source</th> </tr> </thead> <tbody> <tr> <td align="center">Copper</td> <td align="center"><u>COMEX</u></td> </tr> <tr> <td align="center">Aluminum</td> <td align="center"><u>Platt's MW Week US Transaction</u></td> </tr> </tbody> </table>	Metal	Price Source	Copper	<u>COMEX</u>	Aluminum	<u>Platt's MW Week US Transaction</u>
Metal	Price Source						
Copper	<u>COMEX</u>						
Aluminum	<u>Platt's MW Week US Transaction</u>						
2	<p><b>PART "B"</b> – Annually to accommodate the commodity adjustments of the remaining cable components pricing may be adjusted per the percent change in <b><u>Industry Code #335931335931P - Producers Price Index</u></b></p>						
3	<p>Adjusted unit price is executed on the contract and a copy of the updated pricing will be emailed to the supplier for confirmation.</p>						

**1.02.1E – EXAMPLE OF UNIT PRICE ADJUSTMENTS**

The following is an example of how the unit price adjustment would be applied.

<b>Conditions at Time of Bid</b>	
Unit Price In Effect	\$2000.00 / 1000 ft.
Price of Copper at time of contract award	\$3.00 / lb.
Weight of Copper / 1000ft	400 lbs
Value of copper in Unit Price ("A")	\$1,200 / 1000 ft.
Value of Remaining Components ("B")	\$800.00 / 1000 ft.
<b>Market Conditions @ 12 months from last adjustment</b>	
Prior months average price of Copper per COMEX	\$3.20 / lb.
Sum of adjustments for prior 12 months of PPI series #335931335931P	1.20%
<b>Unit Price Adjustment Calculation</b>	
Copper Adjustment	$\$3.20 - \$3.00 = \$0.20$
Copper Component Adjustment ("A")	$400\text{lbs} \times \$0.20 + \$1,200.00 = \$1,280.00$
Adjustment of Remaining components ("B")	$(1.0 + 0.012) \times \$800.00 = \$809.60$
Adjusted Unit Price ("A"+"B")	$\$1,280.00 + \$809.60 = \$2,089.60 / 1000 \text{ ft.}$

## **1.03 – SUBMITTAL PREPARATION INFORMATION**

### **1.03.1 - ENGLISH LANGUAGE REQUIREMENTS**

All drawings, correspondence, catalogs, submittals, nameplates, etc., shall be in the English language as used in the U.S. Dimensions and tolerances shall conform to ANSI Y14.5M and shall be in the U.S. customary units. If units are fabricated utilizing SI units (metric system), both units shall be shown on the drawings, nameplate, etc. U.S. units shall be shown above the SI units. Conversion tolerances shall have a maximum tolerance of 1/32-inch (2.70 mm) and/or one ounce (28.4 grams).

### **1.03.2 – COSTS TO PREPARE SUBMITTAL**

The City is not liable for any costs incurred by the Respondent for the preparation of materials, or a proposal submitted in response to this RFI, conducting presentations to the City, or any other activities related to responding to this RFI.

## **1.04 - CONTENT TO BE SUBMITTED**

Some of this information will be submitted via the Proposal Pages in Appendix B. If more room is needed than provided on those pages, separate pages can be submitted. If the information is omitted from the Proposal Pages, submit separate pages with the information requested. All information must be submitted either on the Proposal Pages or with separate pages included in the submittal to be considered responsive and for samples to move forward for evaluation.

### **1.04.1 – QUALIFICATIONS AND EXPERIENCE**

Respondent shall include a record of successful completion of contracts similar in scope to that outlined in this specification. Proposal must also confirm that products offered are from manufacturers experienced in the supply of materials as detailed within this specification over a period of thirty-five (35) years or more.

### **1.04.2 – REFERENCES**

Each Respondent shall complete the “References Data Sheet.” A minimum of ten (10) Utility references over the past five (5) years is required. Only those utilities that have purchased material/equipment as the Respondent proposes to offer to the City, from these Specifications, shall be listed.

References are intended to be for material/equipment currently supplied under the proposed manufacturer’s name. References for material/equipment that has been previously supplied under a different Company’s name shall be clearly noted on the reference list.

### **1.04.3 – SUB-VENDORS**

Respondent shall list, on the form provided, all sub-vendors it intends to use to fulfill requirements in any part of this Specification. Included in the listing shall be the sub-vendor’s name, address, and telephone number; contact name; and description of work they will perform. It shall be the responsibility of the awarded Supplier to police, enforce, and ensure that all work performed by any sub-vendor shall be in accordance with this Specification.

### **1.04.4 – CABLE EVALUATION AND REQUIREMENTS**

To perform a balanced evaluation of the materials offered, Tacoma Power will require the following to be submitted:

1. Two (2) **30-foot** hand coils of 1/0 Al, 220 mil, EPR URD cable (Proposal Pricing Sheet line **item #2**) and 350 Cu 1/3 Neutral 220mil (Proposal Pricing Sheet line **item #4**). This will total two samples of each item – 4 samples total. Submission of only one sample – regardless of type will not reflect negatively on potential bidders in the later specification. This is for testing purposes only and to assist in gauging if suppliers can provide both or one type only. The sample(s) shall meet the technical requirements listed in Section 2 of this specification.

- a. Samples w/ CTR & AEIC Qual to be sent to:  
Tacoma Power Warehouse  
Attn: PT26-0026F Sample / Alex Hamlin  
3628 South 35<sup>th</sup> Street  
Tacoma, WA 98409
- 2. **A copy of the Certified Test Report (CTR)** for the master reel of the sample cable. This CTR must be the same report that would be submitted for approval prior to shipping. A copy of the partial discharge test results should also be included. Refer to Section 2.09 of the Technical Provisions for report requirements.
- 3. **AEIC Qualification Test Report** for the sample cable design.
- 4. **Instruction Sheet** for preparation of cable ends for terminations and splices.
- 5. If an item is close to the technical specs but does not match in its entirety, please fill out the Substitution Request Form in Appendix A and include with submittal documents. These will be evaluated by the Engineering team to determine items included in upcoming solicitation. Items 1 – 4 should still be submitted for items on the Substitution Request Form. See Section 1.07 for additional language regarding this practice.

**1.04.4A - PHYSICAL EVALUATION METHODOLOGY**

A physical evaluation will be performed on the cable sample. The evaluation will be performed by journey-level operations staff based on the five criteria identified below. sample will be evaluated on a scale of 0 to 10 for each criterion. An evaluation designation of 10 would be the highest given in any area on an individual sample. Scores for each of the five criteria will be added together and a credit applied per the table below. A maximum of 50 points is attainable for the physical evaluation of the cable sample.

Physical Evaluation Score	Evaluation Credit Applied (points)
45 or greater	4
40 - 44	3
35 - 39	2
30 - 34	1
Less than 30	0

Following are the criteria that will be utilized for the physical evaluation of the cable sample:

**1) Flexibility – To be performed by NEETRAC**

- ✓ Flexibility will be tested by measuring the amount of force required to deflect the cable at a 90 deg angle. All methods of testing will be applied equally to all samples.
  - A section of cable will be cut from the provided sample.
  - A cable grip will be secured to last 5 inches of the sample.
  - The opposite end of the cable will be secured in a holding device.
  - A round mandrel that is approximately equal to the minimum bend radius of the cable will be secured adjacent to the exit point of the vice.
  - A digital force gauge will be attached to the cable grip on the free end of the cable. The gauge will document the amount of force required to deflect the cable at a 90 deg angle around the mandrel. The test will be

performed (3) three consecutive operations on the same sample. The evaluation will consider the average of the three figures.

**2) Factory requirements – to be performed by Tacoma Power staff such as:**

**(a) for the attachment of cable accessories**

- ✓ Process of preparing cable for accessories
- ✓ Required cable cleaners
- ✓ Cable preparation tools
- ✓ Evaluation will consider the information submitted on the instruction sheet requested with the cable sample.

**b) Stripability of**

- ✓ Cable Jacket
- ✓ Insulation Shield
- ✓ Conductor Shield

**c) Jacket marking**

- ✓ Legibility
- ✓ Durability
- ✓ Applicable information

**d) Overall quality of manufacture**

- ✓ Evaluation will consider data submitted on the requested Certified Test Report, Partial Discharge test results and meeting the technical requirements as stated in Section 2.

**1.04.4B - MANUFACTURER'S QUALITY ASSURANCE POLICY**

One (1) copy of the manufacturer's internal "Quality Assurance" policy for the material to be supplied shall be included with the submittal. The information shall include descriptions of the quality control measures utilized to insure supply of a reliable product.

**1.04.4C – PRODUCT DATA SHEET**

The Respondent shall include with their submittal a product data sheet of each material to be supplied. Manufacturer data furnished **must be sufficient in detail and clarity** to enable making a complete and positive check with compliance of the Technical Provisions of this Specification.

**1.04.4D – PLANT QUALITY CERTIFICATION**

Documentation for achievement of certification of quality plant system for each facility intended to provide product for this contract shall be included in the submittal. ISO 9000 series qualifications would be an example of desired certifications.

**1.04.5 – PRICING**

Respondents are requested to provide pricing for each line item on the Proposal Pricing Sheet. Line-item prices shall be summed for a subtotal price.

**1.04.6 – REQUIREMENTS PLANNING PROGRAM**

Respondent shall include details of the quarterly planning coordination meeting the respondent intends to offer Tacoma Power in the area provided in the "Requirements Planning Program" Proposal Sheet.

**1.04.7 – PRICING ADJUSTMENT METHOD**

Respondent shall include details of the pricing adjustment method utilized for contract purchases. See Section 1.02 for previous examples of pricing adjustments utilized under previous contracts. If an alternative method is proposed, please be as descriptive as possible and include any math equations used. This information may also be marked Confidential in the submittal documents.



**Material Specification PT26-0026F  
EPR Cable, 15kV Power & URD, plus 600V Network**

**1.05 - SAFETY AND STANDARDS**

The Items supplied shall meet appropriate ANSI, OSHA, WISHA, and all federal, state, and local standards for its intended use. Refer to Section 2 for specific industry standards that apply to the specifications of this bid.

**1.06 - MATERIALS, DESIGN, WORKMANSHIP, AND TRADE NAMES**

Unless otherwise noted in this Specification, all materials and equipment incorporated into any item covered by the Specifications shall be new and of the most suited of their respective kinds for their intended use. All workmanship shall be in accordance with accepted industry practices.

**1.06.1 - MANUFACTURING REQUIREMENTS**

All major components of the Electric Supply Cable must be compounded and manufactured by the original manufacturer in an ISO certified facility. The major components are:

- Insulation Compound

**1.07 - APPROVED EQUAL**

The term "approved equal" shall mean that the quality and characteristics of equipment or materials intended for use must be equal to the listed items.

**1.07.1 - DETERMINATION OF EQUALITY**

The City or its designee will determine the suitability, reliability, and serviceability of a proposed substitute. Refer to Section 1.36 of the Standard Terms and Conditions.

**1.07.1A - REQUIRED MATERIALS**

For evaluation, the request for substitution shall be accompanied with the complete physical data, technical data, certified test results, manufacturer's catalog data, photographs, user's lists, failure data, samples, and the address of the nearest authorized service representative. Any other information, as required by the Engineer, shall be promptly provided upon request. The City shall be the sole arbiter in the determination of equality.

**1.08 – EVALUATION CRITERIA FOR FUTURE SOLICITATION(S)**

After the Request for Information (RFI) process, Tacoma Power will conduct a formal solicitation to award a contract for the items included in these documents. Future solicitation submittals will be evaluated on the following criteria:

<b>Weight</b>	<b>Score</b>	<b>Evaluation Criteria</b>	<b>Section Reference</b>
<b>30%</b>	<b>0-10</b>	<b>Qualifications and Experience</b>	1.04.1
<b>30%</b>	<b>0-4</b>	<b>Cable Evaluation and Requirements</b>	1.04.4
<b>20%</b>	<b>0-10</b>	<b>Pricing</b>	1.04.5
<b>10%</b>	<b>0-10</b>	<b>Requirements Planning Program</b>	1.04.6
<b>5%</b>	<b>0-10</b>	<b>Warranty</b> <ul style="list-style-type: none"> <li>• One year per Section 1.10.3</li> <li>• Coverage beyond the required one year and meeting all requirements of Section 1.10</li> </ul>	1.10



**Material Specification PT26-0026F  
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**1.09 - PACKING AND SHIPPING**

**1.09.1 - PACKING REQUIREMENTS**

The Supplier shall be responsible for industry standard packing that conforms to requirements of carrier's tariffs and ICC regulations.

**1.09.1A - REEL REQUIREMENTS**

All shipping reels must be **newly** manufactured Class 1 or better NEMA WC 26 standard **wood** reels with the manufacturer's logo clearly painted on one or both sides. Each reel must be free of any protrusions, e.g., nails, staples, splintering, etc.

**No previously used reels will be accepted unless approved by Tacoma Power.**

**1.09.1B - REEL DIMENSIONS & CABLE QUANTITY**

Shipping reels must meet the requirements of NEMA WC 26. The table below lists the cable quantity and the nominal dimensional requirements for Tacoma Power's shipping reels. Additional reel sizes may be allowed upon approval by Tacoma Power.

<b>Item #</b>	<b>Description</b>	<b>Diameter Of Drum</b>	<b>Width of Drum (Traverse)</b>	<b>Diameter of Flange</b>	<b>Cable Quantity (+/- 5%)</b>
1	#2 Cu CN	24"	32"	50"	2500 ft.
2	1/0 Alum CN	26"	32"	54"	2500 ft.
3	1/0 Cu CN	26"	32"	54"	2500 ft.
4	350 Cu CN	26"	32"	54"	1500 ft.
5	750 Cu CN	24"	39"	50"	1000 ft.
6	#2 Cu TS	24"	32"	50"	2500 ft.
7	350 Cu TS	26"	32"	54"	1500 ft.
8	750 Cu TS	24"	39"	50"	1000 ft.
9	2/0 Network	17"	12"	24"	500 ft.
10	250 Network	17"	24"	40"	1700 ft.
11	350 Network	17"	24"	40"	1500 ft.
12	500 Network	14"	24"	32"	500 ft.

<b>Dimension</b>	<b>Requirement</b>
Arbor Holes	3" Diameter
Braking Holes	1-1/4" Holes minimum – 2 per side of reel directly opposite of each other, minimum 6" from center

**1.09.1C - REEL LABELING**

Reels must be labeled on paper and include labeling information required by AEIC CS6-96 Section J.3, plus the Cable manufacturing location.

**1.09.2 - SHIPPING REQUIREMENTS**

Shipping, as detailed under this paragraph, will constitute the only shipping instructions under these specifications. All items shall be shipped F.O.B. to the destinations stated herein. A complete packing list must be included.

**1.09.3 - SHIPPING NOTICES**

The shipper shall notify the Tacoma Power Warehouse a minimum of **24** hours prior to arriving at delivery destination. This notice may be sent via phone or email and is required to convey final delivery information and ensure sufficient staff available to unload cargo.

<b>Tacoma Power Warehouse</b>	
Phone Number	(253) 502-8760
Email Address	kwawrin@cityoftacoma.org

**1.10 – INSPECTION & WARRANTY – INFORMATION ONLY**

All goods are subject to final inspection and acceptance by the Tacoma Power engineer and the appropriate warehouse personnel. This section is included for information purposes only to illustrate the normal process Tacoma Power follows for these items. If these are not acceptable terms, please advise the proposal documents with detailed information on proposed changes.

**1.10.1 - FAILURE OF INSPECTION**

Material failing to meet the requirements of this contract will be held at supplier’s risk and may be returned to Supplier. If so returned, the cost of transportation, unpacking, inspection, repacking, reshipping, or other like expenses are the responsibility of the Supplier.

Charges for dismantling and reinstallation of materials furnished pursuant to this Contract will be the responsibility of the Supplier only when a change out or replacement is required because of a suspected or known design defect or large-scale failure of manufacturer’s quality control system.

**1.10.2 - FACTORY INSPECTION**

The Engineer/Contract manager shall be permitted to have an authorized representative present, provided by Tacoma Power, to witness the manufacture of Items and/or perform a “quality audit” of the facility.

**1.10.2A - FACTORY INSPECTION TRAVEL COSTS**

City of Tacoma personnel shall visit the factory location of the successful Respondent during the term of the contract. The purpose of the trip will be for a factory inspection and to observe the manufacturing process of the materials supplied. The successful Respondent shall bear all costs for meals, lodging (Best Western or equal), airfare, and transportation of City personnel. Each Respondent shall incorporate into their total proposal price the travel related expenses for two (2) City personnel for one trip to the factory location for a maximum of two (2) nights.

**1.10.2B - QUALITY ASSURANCE AUDITS**

The City or its representative may audit the quality assurance program at any time prior to and during the contract period or its extensions.

### **1.10.2C - QUALITY ASSURANCE DOCUMENTATION**

The manufacturer shall provide, when requested, access to and copies of quality assurance documents such as material certificates, inspection and test results obtained during quality assurance, control charts, and other quality documents compiled during the work.

### **1.10.2D - FACTORY ASSISTANCE DURING INSPECTION**

The manufacturer shall have engineering, manufacturing, quality control, and operational factory personnel available who speak technical and conversational English without the need of an interpreter.

### **1.10.3 - WARRANTY**

Unless a longer period is specified, the Supplier and/or manufacturer of the supplies, materials and/or equipment furnished pursuant to this Contract agrees to correct any defect or failure of the supplies, materials and/or equipment which occurs within one year from the date of energization or commencement of use, however, said guarantee period shall not extend beyond eighteen months after date of receipt by the City.

When the Supplier is not the manufacturer of the item of equipment, Supplier agrees to be responsible for this warranty and Supplier is not relieved by a manufacturer's warranty.

### **1.10.3A - WARRANTY PERIOD EXTENSION**

The Contract warranty period shall be suspended from the time a significant defect is first documented by the City until the work or equipment is repaired or replaced by Supplier and accepted by the City. In addition, in the event less than ninety (90) days remain on the guarantee period (after recalculating), the warranty period shall be extended to allow for at least ninety (90) days from the date the work or equipment is repaired or replaced and accepted by the City.

### **1.10.4 - WARRANTY WORK**

Tacoma Power considers the repairing of Electric Supply Cable under warranty can best be done at the manufacturer's current manufacturing facility.

### **1.10.4A - RETURN OF CABLE**

All Electric Supply Cable requiring warranty work will be returned to the manufacturer at its expense or the manufacturer may replace the defective units. All replaced materials will be held for pick up (no more than) 30 days after the arrival of replacement materials. Tacoma Power at its discretion will dispose of any reel of cable not picked up within 30 days.

### **1.10.4B - RETURN TIME FRAME**

All warranty repair work on returned cable shall be accomplished within the specified lead-time for delivery listed in the Supplier's bid submittal plus three weeks. Warranty repair time will be calculated from the time the material/equipment defect or failure is reported to the Supplier. Should delivery not be completed on or before the date stipulated, the Supplier shall be subject to liquidated damages per Section 1.15 - LIQUIDATED DAMAGES.

#### **1.10.4B.1 - TEST REPORTS**

Should the repair work include the handling of the cable, standard production tests meeting the requirements of Section 2.09 of these specifications shall be resubmitted including partial discharge results.

## **SECTION II - TECHNICAL PROVISIONS**

**THESE TECHNICAL SPECIFICATIONS HAVE BEEN PREPARED  
BY A LICENSED PROFESSIONAL ENGINEER  
REGISTERED IN THE STATE OF WASHINGTON.**

### **2.01 - SCOPE**

These specifications cover the requirements of 15 kV Medium Voltage Cable and 600 V Secondary Network Cable.

#### **2.01.1 - APPLICATION**

The 15 kV cable purchased per this specification will be used to distribute electricity on both 12.5 kV multi-grounded (4-wire) and 13.8 kV single-point grounded (3-wire) systems. The Secondary Network Cable is used within the 120/216 Volt secondary networks and 277/480 spot networks.

#### **2.01.2 - INSTALLATION PRACTICE**

Most of the installations will be installed within PVC conduit.

#### **2.01.3 - OPERATIONS REQUIREMENTS**

The workability of the cable has been a significant factor in the past and continues to be so. The more flexible the cable the easier it is to operate the cable and install accessories. Smaller handholes and vaults are also acceptable to accommodate multiple cables.

**2.01.4 - STANDARDS**

All cables shall meet the most recent editions of the following standards and all others that are applicable as referenced in these specifications:

<b>Standard Number</b>	<b>Standard Title</b>
AEIC CS8	Specifications for Ethylene Propylene Rubber Insulated Cables Rated 5 through 46 kV.
ANSI/NESC C2	National Electric Safety Code
ANSI/ICEA S-94-649	Concentric Neutral Cables Rated 5 – 46KV
ICEA S-97-682	Standards Publication for Utility Shielded Power Cables Rated 5 – 46 kV
ANSI/ICEA T-31-610	Test Method for Conducting Longitudinal Water Penetration Resistance Tests on Blocked Conductors
ICEA T-32-645	Guide for Establishing Compatibility of Sealed Conductor Filler Compounds with Conducting Stress Control Materials
NEMA WC 70	Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
NEMA WC 26	Wire and Cable Packaging
ASTM B3	Specification for Soft or Annealed Copper Wire
ASTM B8	Specification for Class A, B, C, & D Stranded Copper Conductors
ASTM B230	Specification for Aluminum 1350-H19 Wire for Electrical Purposes
ASTM B231	Specification for Concentric Lay Stranded Aluminum 1350 Conductors
ASTM B496	Specification for Compact-Round Stranded Copper Conductors
ASTM B609	Specification for Aluminum 1350 Round Wire. Annealed and Intermediate Tempers, for Electrical Purposes
ASTM D747	Standard Test Method for Apparent Bending Modulus of Plastics by Means of a Cantilever Beam
ASTM D2275	Voltage Endurance of Solid Electrical Insulating Materials Subjected to Partial Discharges (Corona) on the Surface

## **2.02 - CABLE CHARACTERISTICS**

### **2.02.1 - OPERATING CHARACTERISTICS**

The cable constructed per this specification shall meet the following operating characteristics:

Characteristic	Minimum Requirement	
	15kV - Items 1-8	600V - Items 9-12
Maximum Normal Operating Temperature	105 <sup>0</sup> C	90 <sup>0</sup> C
Minimum Normal Operating Temperature	-12 <sup>0</sup> C	-12 <sup>0</sup> C
Emergency Operating Temperature	140 <sup>0</sup> C	130 <sup>0</sup> C
Short Circuit Operating Temperature	250 <sup>0</sup> C	250 <sup>0</sup> C
Life expectancy	40 years	40 years
Design	Discharge Free or Discharge Resistant per ICEA S-93-639	
Insulation Level	133%	133%
BIL (Basic Impulse Level)	110 kV	

## **2.03 - ENERGIZED CONDUCTOR**

### **2.03.1 - ENERGIZED CONDUCTOR**

The energized conductor shall be constructed as.

#### **2.03.1A - ROD**

The conductor rod from which the conductor is drawn prior to the drawing process shall be:

- Free of defects and corrosion
- Cleaned of oil and any other contaminants
- Purged of cleaning solvents

#### **2.03.1B - STRANDING OF CONDUCTOR**

The material used shall be as Class B Concentric Lay Compressed Strand per the following standards:

Conductor Material	Standards
Copper	ASTM B3
	ASTM B8
Aluminum	ASTM B231
	ASTM B609



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At no time prior to the extrusion process shall the stranded energized conductor be exposed to:

- outside weather, or
- standing water

### **2.03.1B.1 - ACCEPTABLE ALTERNATE**

The copper conductor stranding may be compact round per ASTM B496

### **2.03.1C - TYPE OF CONDUCTOR**

The conductor shall be as listed below. The numbers of strands are listed below per Item number:

Item #	AWG Size	Conductor	Number of Strands
<b>15 kV Cable</b>			
1	#2	Soft Drawn Copper	7
2	1/0	1350 Aluminum	19
3	1/0	Soft Drawn Copper	19
4	#2	Soft Drawn Copper	7
5	350 kcmil	Soft Drawn Copper	37
6	750 kcmil	Soft Drawn Copper	61
<b>600 V Cable</b>			
7	2/0	Soft Drawn Copper	19
8	250 kcmil	Soft Drawn Copper	37
9	350 kcmil	Soft Drawn Copper	37
10	500 kcmil	Soft Drawn Copper	37

### **2.03.1D - CONDUCTOR IDENTIFICATION**

The center strand of the conductor shall be indented with the name and year of the manufacturer a minimum of every 12 inches through the entire conductor.

### **2.03.1E – WATER BLOCKED OF ALUMINUM CONDUCTOR**

The aluminum conductor shall be blocked in accordance with ANSI/ICEA S-94-649 Part 2.3 to prevent water from migrating longitudinally down the conductor. Blocking fill shall be able to withstand 5 psig water pressure for one hour when subjected to ICEA T-31-610 testing.

The water blocking shall be compatible with the conductor shield in accordance with ICEA T-32-645. The outer surface of the conductor shall be free from the sealant material. The water blocking must be evenly applied throughout the conductor length.

**2.04 - CONDUCTOR SHIELD – 15KV CABLE**

The conductor shield for items 1 thru 6 shall be as follows:

**2.04.1 - MATERIAL**

The conductor shield shall be a black-colored extruded layer of:

<b>Design Type</b>	<b>Minimum Tension</b>
Class III - Discharge Free	non-metallic semi-conducting thermosetting compound
Class IV - Discharge Resistant	Non-conducting high permittivity compound

It shall be electrically, chemically, and thermally compatible with the insulation material and conductor meeting the requirements of ICEA S-94-649 Part 3, ICEA S-97-682 Part 3; and AEIC CS8 section 3.0.

**2.04.2 - THICKNESS**

The minimum thickness at any point throughout the cable shall be within the requirements of AEIC CS8, and the appropriate ICEA Standards as listed. Reduced shield thicknesses are not permitted.

<b>Item #</b>	<b>AWG Size</b>	<b>Minimum Thickness</b>	<b>Standard</b>
1	#2 Cu	12 mils	ICEA S-94-649 Table 3-1
2	1/0 Alum	12 mils	ICEA S-94-649 Table 3-1
3	1/0 Cu	12 mils	ICEA S-94-649 Table 3-1
4	350 Cu	16 mils	ICEA S-94-649 Table 3-1
5	750 Cu	20 mils	ICEA S-94-649 Table 3-1
6	#2 Cu	12 mils	ICEA S-97-682 Table 3-1
7	350 Cu	16 mils	ICEA S-97-682 Table 3-1
8	750 Cu	20 mils	ICEA S-97-682 Table 3-1

**2.04.3 - OPERATING TEMPERATURE**

The operating temperature of the conductor shield shall be equal to or exceed the operating temperature of the insulation per AEIC CS8 Section 1.8 requirements.

**2.04.4 - INSULATION INTERFACE**

The conductor shield shall be cylindrical, and firmly bonded to the overlying insulation with a smooth interface.

**2.04.5 - CONDUCTOR INTERFACE**

The conductor shield shall be free stripping from the conductor.

**2.04.6 - VOIDS AND PROTRUSIONS**

The material shall meet the requirements for voids and protrusions per Section 2 of AEIC CS8 and the appropriate ICEA Standards as listed.

Type of Imperfection	Maximum Size	Items	Standards
Voids	3 mils at the Insulation Surface	1, 2, 3, 4,5	ICEA S-94-649 Section 3.4
		6, 7, 8	ICEA S-97-682 Section 3.4
Protrusions	5 mils into the Insulation	1, 2, 3, 4, 5	ICEA S-94-649 Section 3.3
		6, 7, 8	ICEA S-97-682 Section 3.3
	7 mils into the Conductor Shield	1, 2, 3, 4, 5	ICEA S-94-649 Section 3.3
		6, 7, 8	ICEA S-97-682 Section 3.3

**2.04.7 - PERMITTIVITY AND DIELECTRIC STRENGTH**

Refer to standards:

Items	Standards
1, 2, 3, 4, 5	ICEA S-94-649 Sub-Section 3.6.2
6, 7, 8	ICEA S-97-682 Sub-Section 3.6.2

**2.05 - CABLE INSULATION**

The Insulation shall be as follows:

**2.05.1 - INSULATION COMPOUND**

The insulation compound shall be high-quality, heat, moisture, impact, deformation, and ozone resistant Ethylene Propylene Rubber (EPR) meeting the requirements of AEIC CS8 & ICEA S-93-639 part 3. It shall be classified as Class III or Class IV EPR per ICEA S-97-682.

**2.05.2 - VOIDS, CONTAMINANTS, GELS AND AGGLOMERATES**

The cable insulation shall not contain voids, contaminants, gels, and agglomerates larger than those listed in the appropriate ICEA Standards.

Type of Imperfection	Maximum Size	Items	Standards
Voids	4 mils	1, 2, 3, 4, 5	ICEA S-94-649 Sub-Section 4.3.3.2 (a)
		6, 7, 8	ICEA S-97-682 Sub-Section 4.3.4.2 (a)
Contaminates, Gels & Agglomerates	10 mils	1, 2, 3, 4, 5	ICEA S-94-649 Sub-Section 4.3.3.2 (b)
		6, 7, 8	ICEA S-97-682 Sub-Section 4.3.4.2 (b)



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**2.05.3 - INSULATION THICKNESS, MAXIMUM ECCENTRICITY, AND WITHSTAND VOLTAGE**

**15kV Cable**

The cable items listed in the table below shall meet the following requirements for 133 percent insulation level (Column B) per Table C-1 of AEIC CS8, and those listed in the appropriate ICEA Standards.

Items	Nominal Insulation Thickness	Minimum Insulation Thickness	Maximum Insulation Thickness	Maximum Eccentricity	ac Withstand Voltage	Table 4.7 of Standards
1, 2, 3, 4, 5	220 mils	210 mils	250 mils	35 mils	44 kV	ICEA S-94-649
6, 7, 8	220 mils	210 mils	250 mils	35 mils	44 kV	ICEA S-97-682

**600 V Cable**

The cable items listed in the table below shall meet the following requirements for 133 percent insulation level (Column B) per Table 3-4 of ICEA S-95-658, and those listed in the appropriate ICEA Standards.

Items	Nominal Insulation Thickness	Minimum Insulation Thickness	ac Withstand Voltage	Table 3.1 of Standard
9	55 mils	50 mils	600V	NEMA WC-70
10, 11, 12	65 mils	60 mils	600V	NEMA WC-70

**2.05.4 - INSULATION RESISTANCE – 15KV CABLE**

The insulation resistance of a completed cable shall meet the requirements of the appropriate ICEA Standards.

Items	Standards
1, 2, 3, 4, 5	ICEA S-94-649 Sub-Section 4.3.2.4
6, 7, 8	ICEA S-97-682 Sub-Section 4.3.2.4

**2.05.5 - HOT CREEP REQUIREMENTS – 15KV CABLE**

The hot creep and set properties shall be in accordance with ICEA T-28-562 and those listed in the appropriate ICEA Standards.

Maximum Elongation	Maximum Set	Items	Standards
50%	5%	1, 2, 3, 4, 5	ICEA S-94-649 Sub-Section 4.3.1 & Table 4-2
		6, 7, 8	ICEA S-97-682 Sub-Section 4.3.1 & Table 4-2

**2.06 - INSULATION SHIELD – 15KV CABLE**

The insulation shield for items 1 thru 6 shall be as follows:

**2.06.1 - MATERIAL**

The conductor shield shall be a black-colored extruded layer of non-metallic semi-conducting thermosetting material. It shall be electrically, chemically, and thermally compatible with the insulation material, concentric neutral or tape shield, and jacket material meeting the requirements of ICEA S-97-682; and AEIC CS8 section 5.0.

**2.06.2 - THICKNESS**

The minimum thickness at any point throughout the cable shall be within the requirements of ICEA S-94-649, for items 1 – 5, and IECA S-97-682 for items 6 – 8 for compressed stranding of conductor.

Item #	AWG Size	Calculated Minimum Diameter over Insulation	Minimum Thickness	Maximum Thickness	Standard
1	#2 Cu	725 mils	30 mils	60 mils	ICEA S-94-649 Table 5-1
2	1/0 Alum	805 mils	30 mils	60 mils	ICEA S-94-649 Table 5-1
3	1/0 Cu	805 mils	30 mils	60 mils	ICEA S-94-649 Table 5-1
4	350 Cu	1115 mils	40 mils	75 mils	ICEA S-94-649 Table 5-1
5	750 Cu	1430 mils	40 mils	75 mils	ICEA S-94-649 Table 5-1
6	#2 Cu	725 mils	24 mils	60 mils	ICEA S-97-682 Table 5-1
7	350 Cu	1115 mils	24 mils	60 mils	ICEA S-97-682 Table 5-1
8	750 Cu	1430 mils	24 mils	60 mils	ICEA S-97-682 Table 5-1

**2.06.3 - OPERATING TEMPERATURE**

The operating temperature of the conductor shield shall be equal to or exceed the operating temperature of the insulation per AEIC CS8 Section 1.8 requirements.

**2.06.4 - STRIPPABILITY FROM INSULATION SURFACE**

The insulation shield shall be cylindrical, and meet the following stripping tension limits:

Design Type	Minimum Tension	Maximum Tension	Items	Standards
Class III - Discharge Free	3- lbs.	24 lbs.	1, 2, 3, 4, 5	ICEA S-94-649 Sub-Section 5.4.1.1
			6, 7, 8	ICEA S-97-682 Sub-Section 5.5.1.1
Class IV - Discharge Resistant	No minimum	24 lbs	1, 2, 3, 4, 5	ICEA S-94-649 Sub-Section 5.4.2.1
			6, 7, 8	ICEA S-94-649 Sub-Section 5.4.2.1



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**2.06.5 - JACKET INTERFACE**

The insulation shield shall be free stripping from the cable jacket.

**2.06.6 - VOIDS AND PROTRUSIONS**

The material shall meet the requirements for voids and protrusions per Section 5.0 of AEIC CS8.

<b>Type of Imperfection</b>	<b>Maximum Size</b>	<b>Items</b>	<b>Standards</b>
Voids	5 mils at the Insulation Surface	1, 2, 3, 4, 5	ICEA S-94-649 Sub-Section 5.4.1.2
		6, 7, 8	ICEA S-97-682 Sub-Section 5.5.1.2
Protrusions	5 mils into the Insulation	1, 2, 3, 4, 5	ICEA S-94-649 Section 5.3
		6, 7, 8	ICEA S-97-682 Section 5.3

**2.06.7 - VOLUME RESISTIVITY**

The volume resistivity shall meet the requirements of Section 5.5.2.3 of ICEA S-97-682.

**2.06.8 - HOT CREEP**

The physical properties of the insulation shield shall meet the requirements referenced below.

<b>Cable Type</b>	<b>Items</b>	<b>Standards</b>
Type III – Discharge Free	1, 2, 3, 4, 5	ICEA S-94-649 Table 5-3
	6, 7, 8	ICEA S-97-682 Table 5-3
Type IV – Discharge Resistant	1, 2, 3, 4, 5	ICEA S-94-649 Table 5-4
	6, 7, 8	ICEA S-97-682 Table 5-4

**2.07 - GROUNDED OUTER CONDUCTOR – 15KV CABLE**

**2.07.1 - CONCENTRIC NEUTRAL**

For items #1 thru #5 (URD Cable) of this specification the cables shall meet the requirements of Part 6 of ICEA S-94-649.

**2.07.1A - CONDUCTOR MATERIAL**

The concentric neutral wires shall be annealed, uncoated copper wires per ICEA S-94-649 Sections 6.1 & 6.4.

**2.07.1B - APPLICATION**

The concentric neutral wires shall be evenly spaced with a left hand lay of not less than six (6) nor more than ten (10) times the diameter of the cable as measured over the concentric neutral wires as required by ICEA S-94-649 Section 6.3.

**2.07.1C - NUMBER OF WIRES**

The number of copper wires for the conductor shall be as below:

Item #	Cable AWG Size	Type of Neutral	Number of wires	CN AWG Size	Standard
1	#2 Cu	Full	16	14 Cu	ICEA S-94-649 Table 6-2
2	1/0 Alum	Full	16	14 Cu	ICEA S-94-649 Table 6-3
3	1/0 Cu	1/3	9	14 Cu	ICEA S-94-649 Table 6-4
4	350 Cu	1/3	18	12 Cu	ICEA S-94-649 Table 6-4
5	750 Cu	1/3	24	10 Cu	ICEA S-94-649 Table 6-4

**2.07.1D - INSULATION INDENT**

The concentric neutral wires shall not cause an indent into the insulation after jacketing greater than **15 mils**.

**2.07.2 - TAPE SHIELD**

Items #6 thru #8 (Power Cable) shall include a copper tape shield

**2.07.2A - CONDUCTOR**

The tape shield shall be bare Copper, nominal of 5 mils.

**2.07.2B - OVERLAP**

The tape shield shall be helically wrapped with an overlap as follows:

Minimum Overlap	Nominal Overlap	Maximum Overlap
10%	12.5%	25%



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**2.07.2C - WIDTH**

The width of the tape shield shall be 1 ¼ inches (+1/2" / -1/4")

**2.08 - CABLE JACKET**

The outer jacket of the cables within this specification shall be non-conducting.

**2.08.1 - JACKET COMPOUND**

The jacket compound shall be the following for the items of this specification:

<b>Item #</b>	<b>Cable</b>	<b>Jacket Compound</b>
<b>15kV Cable</b>		
<b>Per Table 7-10 of ICEA S-94-649</b>		
1	<b>#2 AWG Cu URD</b> , 15 kV, 220 mil EPR, Full CN, Jacketed	linear, low-density polyethylene compound (LLDPE)
2	<b>1/0 AWG Alum URD</b> , 15 kV, 220 mil EPR, Full CN, Jacketed	linear, low-density polyethylene compound (LLDPE)
3	<b>1/0 AWG Cu URD</b> , 15 kV, 220 mil EPR, 1/3 CN, Jacketed	linear, low-density polyethylene compound (LLDPE)
4	<b>350 kcmil Cu Power</b> , 15 kV, 220 mil EPR, 1/3 CN, Jacketed	Poly-Vinyl Chloride (PVC)
5	<b>750 kcmil Cu Power</b> , 15 kV, 220 mil EPR, 1/3 CN, Jacketed	Poly-Vinyl Chloride (PVC)
<b>Per Table 7-10 of ICEA S-97-682</b>		
6	<b>#2 AWG Cu Power</b> , 15 kV, 220 mil EPR, Tape Shield, Jacketed	Poly-Vinyl Chloride (PVC)
7	<b>350 kcmil Cu Power</b> , 15 kV, 220 mil EPR, Tape Shield, Jacketed	Poly-Vinyl Chloride (PVC)
8	<b>750 kcmil Cu Power</b> , 15 kV, 220 mil EPR, Tape Shield, Jacketed	Poly-Vinyl Chloride (PVC)
<b>600 V Cable</b>		
<b>Per NEMA WC-70</b>		
9	<b>2/0 Cu</b> , 600V, 55 mil EPR, 45 mil TS-CPE Jacket, RHW-2	Thermoset Chlorinated Polyethylene (TS-CPE)
10	<b>250 kcmil Cu</b> , 600V, 65 mil EPR, 65 mil TS-CPE Jacket, RHW-2	Thermoset Chlorinated Polyethylene (TS-CPE)
11	<b>350 kcmil Cu</b> , 600V, 65 mil EPR, 65 mil TS-CPE Jacket, RHW-2	Thermoset Chlorinated Polyethylene (TS-CPE)
12	<b>500 kcmil Cu</b> , 600V, 65 mil EPR, 65 mil TS-CPE Jacket, RHW-2	Thermoset Chlorinated Polyethylene (TS-CPE)



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Alternates to the jacket compound for items #7- #10 will be considered and evaluated based on the criteria listed in the following table. A designation of 10 represents the highest (best) given in any area. The evaluation will be based upon the jacket properties that best meets the installation requirements for Tacoma Power.

Jacket Material	Thermal Stability	Ruggedness	Flexibility	Flame Retardancy	Smoke & Acid	Oil Resistance	Acid Resistance	Weathering	Friction	Low Temperature	Water Resistance	Relative Price
LSHF	8	6	6	6	10	6	8	8	6	6	6	4
CPE (TP)	4	8	2	8	2	6	6	8	4	6	8	6
PVC	4	6	4	10	2	6	8	6	6	4	8	8

### **2.08.2 - JACKET LABELING**

The jacket shall be labeled per Section I of AEIC CS8 and is to include sequential footage marking. It shall also include the requirements for marking found in Section 35 of ANSI C2, National Electric Safety Code.

### **2.08.3 - JACKET MARKING**

For Cables supplied as Items 1, 2, 3 and 5 per this specification shall include 3 red stripes extruded as part of the jacket. The stripes shall meet the following requirements:

Aspect	Dimension		
Separation of Stripes	120° apart		
Width of stripe	Nominally 0.25 inches	Min	0.20"
		Max	0.40"
Thickness of stripe	0.010 to 0.025 inches		

## **2.09 - CABLE TESTING**

Cable manufactured per this specification shall be tested and reported per the requirements of AEIC CS8.

### **2.09.1 - CLASS III – DISCHARGE FREE - EPR CABLE**

Partial discharge testing shall be performed on each master reel of cable supplied. The results shall be included with the physical and electrical tests performed on the cable.

#### **2.09.1A - PARTIAL DISCHARGE TESTING WAITING PERIOD**

The cable shall not be partial discharge tested until the waiting period of 7 days as specified in Section G.9 of AEIC CS8 have been met.

#### **2.09.1B - PARTIAL DISCHARGE TEST REQUIREMENTS**

The cable shall not have an apparent charge transfer exceeding a value of 5 pC at 200 V/mil per Section F.2 of AEIC CS8 20.

### **2.09.2 - CLASS IV - DISCHARGE RESISTANT - EPR CABLE**

Cable insulation shall be tested to assure discharge resistance and compliance with the material requirements specified in AEIC CS8 (ASTM D2275). For each shipment of cable, the test results of the insulation compound batch used shall be included with the physical and electrical tests performed on the cable.

### **2.09.3 - CERTIFIED TEST REPORTS**

All certified test reports shall include results of standard production tests and partial discharge tests. The reports shall be signed and notarized at the manufacturing facility prior to shipment. The reports shall be provided prior to shipment.

### **2.09.4 - GENERAL**

Cable made to this specification shall meet the requirements stated herein along the entire cable length.

The manufacturer shall guarantee that the cable furnished under this specification is of first class material and workmanship throughout and that it is of essentially of the same quality as lots previously supplied, that it has been tested according to this specification, and that the results of the tests comply with the requirements of this specification.

This specification shall be interpreted by the lead Cable Engineer at Tacoma Power.



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**SUBSTITUTION REQUEST FORM**

Specification No. PT26-0026F

Prospective bidders may request the use of substitute equipment below.

All requests must be submitted electronically, via e-mail to [abratton@tacoma.gov](mailto:abratton@tacoma.gov) by the submittal deadline. If multiple forms and samples will be submitted for this Request for Information (RFI), please make sure to mark the separate items either with a number or a letter. For examples, samples 1 – 5 or samples A – E. The identifier should be clearly marked on both sample pieces for easy matching/identification with form prior to testing.

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Manufacturer/Model: \_\_\_\_\_

Manufacturer Contact Information

Name/Title: \_\_\_\_\_

Phone Number: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Describe the differences between the proposed substitution and specified equipment:

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Please attach documentation from manufacturer that certifies the equipment meets all the criteria outlined in Technical Specifications of this bid specification.

Contractor Name: \_\_\_\_\_

Preparer Name/Title: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Signature: \_\_\_\_\_



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**INTERNAL USE ONLY**

- Approved as Substitute\*
- Rejected – Equipment Not Acceptable
- Rejected – Inadequate Information
- Rejected – Request Received After Deadline

*\*Subject to review and approval of submittal documents*

**Remarks**

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Reviewer Name/Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Appendix B

Signature Page

Proposal Pages

**SIGNATURE PAGE**

**CITY OF TACOMA  
TACOMA POWER/TRANSMISSION & DISTRIBUTION**

All submittals must be in ink or typewritten, executed by a duly authorized officer or representative of the bidding/proposing entity, and received and time stamped as directed in the **Request for Information page near the beginning of the specification**. If the bidder/proposer is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.

**REQUEST FOR INFORMATION SPECIFICATION NO. PT26-0026F  
Power & URD Cable**

The undersigned bidder/proposer hereby agrees to execute the proposed contract and furnish all materials, labor, tools, equipment and all other facilities and services in accordance with these specifications.

The bidder/proposer agrees, by submitting a bid/proposal under these specifications, that in the event any litigation should arise concerning the submission of bids/proposals or the award of contract under this specification, Request for Bids, Request for Proposals or Request for Qualifications, the venue of such action or litigation shall be in the Superior Court of the State of Washington, in and for the County of Pierce.

**Non-Collusion Declaration**

*The undersigned bidder/proposer hereby certifies under penalty of perjury that this bid/proposal is genuine and not a sham or collusive bid/proposal, or made in the interests or on behalf of any person or entity not herein named; and that said bidder/proposer has not directly or indirectly induced or solicited any contractor or supplier on the above work to put in a sham bid/proposal or any person or entity to refrain from submitting a bid/proposal; and that said bidder/proposer has not, in any manner, sought by collusion to secure to itself an advantage over any other contractor(s) or person(s).*

\_\_\_\_\_  
Bidder/Proposer's Registered Name

\_\_\_\_\_  
Signature of Person Authorized to Enter      Date  
into Contracts for Bidder/Proposer

\_\_\_\_\_  
Address

\_\_\_\_\_  
Printed Name and Title

\_\_\_\_\_  
City, State, Zip

\_\_\_\_\_  
(Area Code) Telephone Number / Fax Number

\_\_\_\_\_  
Authorized Signatory E-Mail Address

\_\_\_\_\_  
State Business License Number  
in WA, also known as UBI (Unified Business Identifier) Number

\_\_\_\_\_  
E.I.No. / Federal Social Security Number Used on Quarterly  
Federal Tax Return, U.S. Treasury Dept. Form 941

\_\_\_\_\_  
State Contractor's License Number  
(See Ch. 18.27, R.C.W.)

\_\_\_\_\_  
E-Mail Address for Communications

Addendum acknowledgement #1 \_\_\_\_\_ #2 \_\_\_\_\_ #3 \_\_\_\_\_ #4 \_\_\_\_\_ #5 \_\_\_\_\_

***THIS PAGE MUST BE SIGNED AND RETURNED WITH SUBMITTAL.***



**Material Specification PT26-0026F  
EPR Cable, 15kV Power & URD,  
plus 600V Network**

Respondent

**PRICING SHEET**

**LISTED BELOW ARE THE METALS PRICES THAT SHALL BE USED FOR THIS PROPOSAL.**

**THIS PROPOSAL IS BEING USED FOR INFORMATIONAL PURPOSES ONLY – RESPONDING FIRMS MAY MARK THESE PAGES AS CONFIDENTIAL IN THEIR SUBMITTAL DOCUMENTS.**

The value of the Platt's COMEX Copper to be used for calculation of the unit prices offered on the Proposal Pricing Sheet.	<b>\$5.85 per lb</b>
The value of the Platt's MW US Aluminum to be used for calculation of the unit prices offered on the Proposal Pricing Sheet for bid item #2.	<b>\$2.40 per lb</b>

<b>Item #</b>	<b>Description (Refer to Section 2 for Technical Details)</b>	<b>MID #</b>	<b>Typical Single Order Quantity</b>	<b>Unit Price Per 1000 ft** (FOB Destination)</b>	<b>Extended Price (Qty x Unit Price)</b>
<b>15 kV URD Cable, 220 mil EPR, Concentric Neutral, Jacketed</b>					
1	#2 AWG Cu, Full CN	22295	40,000 ft	\$	\$
2	1/0 AWG Alum, Full CN	55932	40,000 ft	\$	\$
3	1/0 AWG Cu, 1/3 CN	22306	40,000 ft	\$	\$
<b>15 kV Feeder 1/3 Neut Cable, 220 mil EPR, Concentric Neutral, Jacketed</b>					
4	350 kcmil Cu	82494	40,000 ft	\$	\$
5	750 kcmil Cu	82495	5,000 ft	\$	\$
<b>15 kV Power Cable, 220 mil EPR, Tape Shield, Jacketed</b>					
6	#2 AWG Cu	22297	5,000 ft	\$	\$
7	350 kcmil Cu	22334	30,000 ft	\$	\$
8	750 kcmil Cu	41092	5,000 ft	\$	\$



**Material Specification PT26-0026F  
EPR Cable, 15kV Power & URD,  
plus 600V Network**

\_\_\_\_\_  
**Respondent**

<b>600V Secondary Network Cable, 600V, TS-CPE Jacket, RHW-2</b>					
9	<b>2/0 AWG Cu</b>	60177	<b>5,000 ft</b>	\$	\$
10	<b>250 kcmil Cu</b>	22327	<b>17,000 ft</b>	\$	\$
11	<b>350 kcmil Cu</b>	22333	<b>4,500 ft</b>	\$	\$
12	<b>500 kcmil Cu</b>	22344	<b>1,000 ft</b>	\$	\$

**NOTES:**

1. Quantities listed on the Pricing Proposal Sheets are an estimate only. These numbers are based on several years of usage and the average size of the order for each item.
2. All prices shall be submitted as F.O.B. Destination, freight prepaid and allowed (included in the unit price).

**MATERIALS PLANNING**

**Respondent's Statement for Replenishment of Stock:**

The re-stocking lead time is defined as the maximum period of time from receipt of notice to schedule production to finished material available for shipment. This can be an average over the past 3 years or can be the standard based on a set production schedule. Please include whether this item is an average or based on current production schedules.

<b>Item No.</b>	<b>Description</b>	<b>Re-Stocking Quantity</b>	<b>Re-Stocking Lead Time (in weeks)</b>
1	#2 Cu, 15 kV, 220 mil EPR, Full CN, Jacketed	40,000 feet	Wks
2	1/0 Alum, 15 kV, 220 mil EPR, Full CN, Jacketed	40,000 feet	Wks
3	1/0 Cu, 15 kV, 220 mil EPR, 1/3 CN, Jacketed	40,000 feet	Wks
4	350 Cu, 15 kV, 220 mil EPR, 1/3 CN Jacketed	24,000 feet	Wks
5	750 Cu, 15 kV, 220 mil EPR, 1/3 CN Jacketed	12,000 feet	Wks
6	#2 Cu, 15 kV, 220 mil EPR, Tape Shield, Jacketed	5,000 feet	Wks
7	350 Cu, 15 kV, 220 mil EPR, Tape Shield, Jacketed	30,000 feet	Wks



**Material Specification PT26-0026F  
EPR Cable, 15kV Power & URD,  
plus 600V Network**

**Respondent**

<b>8</b>	750 Cu, 15 kV, 220 mil EPR, Tape Shield, Jacketed	5,000 feet	Wks
<b>9</b>	2/0 Cu, 600V, 55 mil EPR, 45 mil TS-CPE Jacket, RHW-2	5,000 feet	Wks
<b>10</b>	250 kcmil, Cu, 600V, 65 mil EPR, 65 mil TS-CPE Jacket, RHW-2	17,000 feet	Wks
<b>11</b>	350 kcmil, Cu, 600V, 65 mil EPR, 65 mil TS-CPE Jacket, RHW-2	4,500 feet	Wks
<b>12</b>	500 kcmil, Cu, 600V, 65 mil EPR, 65 mil TS-CPE Jacket, RHW-2	1,000 feet	Wks

**FREIGHT CHARGES LESS THAN FULL LOAD**

Freight charges will be allowed on orders considered less than a full truckload. For the purpose of calculating these allowed freight charges the following quote is being requested.

<b>1/2 load quantity</b>	<b>Additional Freight Charge</b>
8 reels of 54" inch diameter	\$





**TECHNICAL INFORMATION CONT.**

<b>Cable Construction Data</b>	
Insulation Compound Name / Number	
Number of years that compound formulation offered per this specification has been supplied to electrical utility customers:	Years
Number of feet of 15 kV cable supplied to electrical utility customers with the insulation compound offered per this specification:	Feet
Insulation Compounding Facility: <b>(REFER TO SUB-SECTION 1.06.1)</b>	
Supplier of EPR Base Polymer:	
Conductor Shield Name / Number:	
Insulation Shield Name / Number:	
Are the conductors offered in your bid submittal compatible with accessories meeting the latest requirements of ANSI/IEEE Standard 386?	<input checked="" type="checkbox"/> <b>Check your response</b>
	Yes
	No



**Material Specification PT26-0026F  
EPR Cable, 15kV Power & URD,  
plus 600V Network**

\_\_\_\_\_  
**Respondent**

**CONDITIONS SHEET**

1. Do all items submitted per this Specification meet and/or exceed the requirements of the Technical Provisions (Section 2)?

<b>YES</b>	
<b>NO</b>	

Identify below any factors that do not meet the requirements of the Technical Provisions section of this Specification.

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**VENDOR INFORMATION**

Acknowledge each question with a checkmark  to indicate your response.

1. State the number of years your firm has been manufacturing Ethylene Propylene Rubber (EPR) products of a similar scope to those outlined in this Specification.

	<b>Years</b>
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2. Do you have in place a quality assurance program that conforms to ISO 9001, ISO 9002, ANSI/ASQC Q91, ANSI/ASQC Q92 or equivalent?

<b>YES</b>	
<b>NO</b>	

List the standard used by your firm:

\_\_\_\_\_

3. If your firm has a quality assurance program that conforms to one of the above standards, is it third party certified?

<b>YES</b>	
<b>NO</b>	

4. Can your firm provide "Manufacturer Representation"

<b>YES</b>	
<b>NO</b>	

5. Does your firm maintain an "Emergency Response Program" for supply of the material listed on this bid? If yes, include the details of the program in your response and clearly label this information.

<b>YES</b>	
<b>NO</b>	



**REFERENCES DATA SHEET**

(AS DESCRIBED IN SECTION 1.04.2)

Ten (10) Utility references are the absolute minimum allowed

UTILITY NAME AND ADDRESS	YEAR PRODUCT SOLD	CONTACT NAME	TELEPHONE NUMBER

**SUB-VENDOR DATA SHEET**

(AS DESCRIBED IN SECTION 1.04.3)

SUB-VENDOR NAME AND ADDRESS	CONTACT NAME	TELEPHONE NUMBER	DESCRIPTION OF WORK PROVIDED