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**Terms of Reference (ToR)**

For the supply of self-supporting insulated wires for the needs of JSC Telasi.

**1. BRIEF DESCRIPTION OF GOODS PURCHASED**

**1.1. Name and volume of purchased goods**

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| **№** | Product Description | Technical requirements | Q-ty |
| 1 | Wire СИП 2А 3х35+54.6 | See S/P №2.2.1 | See Schedule №1 |
| 2 | Wire СИП 2А 3х50+54.6 | See S/P №2.2.2 | See Schedule №1 |
| 3 | Wire СИП 2А 3х70+54.6 | See S/P №2.2.3 | See Schedule №1 |
| 4 | Wire СИП 2А 3х95+70 | See S/P №2.2.4 | See Schedule №1 |
| 5 | Wire СИП 2А 3х150+70 | See S/P №2.2.4 | See Schedule №1 |
| 6 | Wire СИП 2А 4х25 | See S/P №2.2.5 | See Schedule №1 |
| 7 | Wire СИП 2А 4х16 | See S/P №2.2.5 | See Schedule №1 |
| 8 | Wire СИП 2А 2х16 | See S/P №2.2.6 | See Schedule №1 |
| 9 | Wire СИП 2А 3х50 +1x50 | See S/P №2.2.7 | See Schedule №1 |

**1.2. Dates of Deliveries**

Delivery – as per Schedule №1.

**1.3. Procurement justification:** AdjustedAnnual Comprehensive Procurement Program-2021.

**1.4. Possibility of supply of similar goods.**

It is allowed to supply similar products according to the definition of "analogue" specified in the note.

**\*\*\* Note:**

Definition of **“Analoque” -** Products that are similar or comparable to the product, having identical functional purpose, weight, size and installation characteristics and conditions of use.

**2. GENERAL REQUIREMENTS**

**2.1. Product application and use point.**

Within the networks of JSC "Telasi".

**2.2. Product Requirements**

The product must be new, put into circulation for the first time, previously unused / brand-new (in new condition) of factory production (commercially prepared/ not counterfeit or handicraft), with production period not more than 12 months (pointed where necessary) (not stale) and comply with all ToR requirements and provisions of the contract.

The wire must comply with the requirements established by GOST 31946-2012, or the requirements of similar regulatory documents of the country of origin of the product.

The wire must have the following characteristics:

№2.2.1

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| **№** | **Cable requirements** | **Required parameters** |
| 1 | Rated voltage | 0,6/1 kV |
| 2 | Number of cores | 4 |
| 3 | Conductor cross section, mm2 | 3х35+1х54,6 as per s/p №1.1 of ToR |
| 4 | Permissible continuous load current, A, at a temperature of 30 ° C, not less than | 160A for 35 |
| 5 | Frequency | 50 Hz |
| 6 | Phase core | aluminium, round, multi-wire, sealed |
| 7 | Strength member | made of aluminum alloy, round, multi-wire, sealed |
| 8 | Rated insulation thickness | As per GOST 31946-2012 |
| 9 | Core insulation | light stabilized cross-linked polyethylene (XLPE black) |
| 10 | Destructive force of the carrier neutral, not less than | 1660 kgf |
| 11 | Ambient temperature range during operation | from -20°С to +50°С |
| 12 | Long-term permissible operating temperature of cores | 90°С |
| 13 | Maximum allowable core heating temperature in emergency mode or overload mode | 130°С |
| 14 | The maximum heating temperature of the conductors in the event of a short circuit | 250°С |
| 15 | Minimum allowable bending radius when laying | 10 diam cable |
| 16 | Estimated weight per 1 km / kg, no more | 600 for 35 |
| 17 | Service life, not less | 30 years |
| 18 | Tagging | The neutral must bear the tagging "TELASI" and the footage in each meter |

№2.2.2

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| **№** | **Cable requirements** | **Required parameters** |
| 1 | Rated voltage | 0,6/1 kV |
| 2 | Number of cores | 4 |
| 3 | Conductor cross section, mm2 | 3х50+1х54,6 as per s/p №1.1 of ToR |
| 4 | Permissible continuous load current, A, at a temperature of 30 ° C, not less than | 195A |
| 5 | Frequency | 50 Hz |
| 6 | Phase core | aluminium, round, multi-wire, sealed |
| 7 | Strength member | made of aluminum alloy, round, multi-wire, sealed |
| 8 | Rated insulation thickness | As per GOST 31946-2012 |
| 9 | Core insulation | light stabilized cross-linked polyethylene (XLPE black) |
| 10 | Destructive force of the carrier neutral, not less than | 1660 kgf |
| 11 | Ambient temperature range during operation | from -20°С to +50°С |
| 12 | Long-term permissible operating temperature of cores | 90°С |
| 13 | Maximum allowable core heating temperature in emergency mode or overload mode | 130°С |
| 14 | The maximum heating temperature of the conductors in the event of a short circuit | 250°С |
| 15 | Minimum allowable bending radius when laying | 10 diam cable |
| 16 | Estimated weight per 1 km / kg, no more | 779 |
| 17 | Service life, not less | 30 years |
| 18 | Tagging | The neutral must bear the tagging "TELASI" and the footage in each meter. |

№2.2.3

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| **№** | **Cable requirements** | **Required parameters** |
| 1 | Rated voltage | 0,6/1 kV |
| 2 | Number of cores | 4 |
| 3 | Conductor cross section, mm2 | 3х70+54.6 |
| 4 | Permissible continuous load current, A, at a temperature of 30 ° C, not less than | 240А |
| 5 | Frequency | 50 Hz |
| 6 | Phase core | aluminium, round, multi-wire, sealed |
| 7 | Strength member | made of aluminum alloy, round, multi-wire, sealed |
| 8 | Rated insulation thickness | As per GOST 31946-2012 |
| 9 | Core insulation | light stabilized cross-linked polyethylene (XLPE black) |
| 10 | Destructive force of the carrier neutral, not less than | 1660 kgf |
| 11 | Ambient temperature range during operation | from -20°С to +50°С |
| 12 | Long-term permissible operating temperature of cores | 90°С |
| 13 | Maximum allowable core heating temperature in emergency mode or overload mode | 130°С |
| 14 | The maximum heating temperature of the conductors in the event of a short circuit | 250°С |
| 15 | Minimum allowable bending radius when laying | 10 diam cable |
| 16 | Estimated weight per 1 km / kg, no more | 945 |
| 17 | Service life, not less | 30 years |
| 18 | Tagging | The neutral must bear the tagging "TELASI" and the footage in each meter |

№2.2.4

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| **№** | **Cable requirements** | **Required parameters** |
| 1 | Rated voltage | 0,6/1 kV |
| 2 | Number of cores | 4 |
| 3 | Conductor cross section, mm2 | 3х95+1х70 mm2 and 3х150+1х70 mm2 as per s/p №1.1 of ToR |
| 4 | Permissible continuous load current, A, at a temperature of 30 ° C, not less than | 300A for 95 and 150 А for 50 |
| 5 | Frequency | 50 Hz |
| 6 | Phase core | aluminium, round, multi-wire, sealed |
| 7 | Strength member | made of aluminum alloy, round, multi-wire, sealed |
| 8 | Rated insulation thickness | As per GOST 31946-2012 |
| 9 | Core insulation | light stabilized cross-linked polyethylene (XLPE black) |
| 10 | Destructive force of the carrier neutral, not less than | 2050 kgf |
| 11 | Ambient temperature range during operation | from -20°С to +50°С |
| 12 | Long-term permissible operating temperature of cores | 90°С |
| 13 | Maximum allowable core heating temperature in emergency mode or overload mode | 130°С |
| 14 | Maximum heating temperature of the conductors in the event of a short circuit | 250°С |
| 15 | Maximum heating temperature of the conductors in the event of a short circuit | 10 diam cable |
| 16 | Minimum allowable bending radius when laying | 1310 for 95 and 1760 for 150. |
| 17 | Service life, not less | 30 years |
| 18 | Tagging | The neutral must bear the tagging "TELASI" and the footage in each meter |

№2.2.5

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| **№** | **Cable requirements** | **Required parameters** |
| 1 | Rated voltage | 0,6/1 kV |
| 2 | Number of cores | 4 |
| 3 | Conductor cross section, mm2 | 4X25 mm2 and 4X16 mm2 as per s/p №1.1 of ToR |
| 4 | Permissible continuous load current, A, at a temperature of 30 ° C, not less than | 130A for 25 and 100 А for 16 |
| 5 | Frequency | 50 Hz |
| 6 | Strength member | made of aluminum alloy, round, multi-wire, sealed |
| 7 | Rated insulation thickness | As per GOST 31946-2012 |
| 8 | Core insulation | light stabilized cross-linked polyethylene (XLPE black) |
| 9 | Ambient temperature range during operation | from -20°С to +50°С |
| 10 | Long-term permissible operating temperature of cores | 90°С |
| 11 | Maximum allowable core heating temperature in emergency mode or overload mode | 130°С |
| 12 | Maximum heating temperature of the conductors in the event of a short circuit | 250°С |
| 13 | Maximum allowable core heating temperature in emergency mode or overload mode | 7.5 diam cable |
| 14 | Service life, not less | 30 years |
| 15 | Tagging | The neutral must bear the tagging "TELASI" and the footage in each meter |
| 16 | Construction length, not less than | 1000 m (cable reel) |

№2.2.6

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| **№** | **Cable requirements** | **Required parameters** |
| 1 | Rated voltage | 0,6/1 kV |
| 2 | Number of cores | 2 |
| 3 | Conductor cross section, mm2 | 16 |
| 4 | Permissible continuous load current, A, at a temperature of 30 ° C, not less than | 100 |
| 5 | Frequency | 50 Hz |
| 6 | Strength member | made of aluminum alloy, round, multi-wire, sealed |
| 7 | Rated insulation thickness | As per GOST 31946-2012 |
| 8 | Core insulation | light stabilized cross-linked polyethylene (XLPE black) |
| 9 | Ambient temperature range during operation | from -20°С to +50°С |
| 10 | Long-term permissible operating temperature of cores | 90°С |
| 11 | Maximum allowable core heating temperature in emergency mode or overload mode | 130°С |
| 12 | Maximum heating temperature of the conductors in the event of a short circuit | 250°С |
| 13 | Minimum allowable bending radius when laying | 7.5 diam cable |
| 14 | Service life, not less | 30 years |
| 15 | Tagging | The neutral must bear the tagging "TELASI" and the footage in each meter |
| 16 | Construction length, not less than | 1000 m (cable reel) |

№2.2.7

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| **№** | **Cable requirements** | **Required parameters** |
| 1 | Rated voltage | 0,6/1 кВ |
| 2 | Number of cores | 4 |
| 3 | Conductor cross section, mm2 | 3х50+1x50 |
| 4 | Permissible continuous load current, A, at a temperature of 30 ° C, not less than | 195А |
| 5 | Frequency | 50 Hz |
| 6 | Phase core | aluminium, round, multi-wire, sealed |
| 7 | Strength member | made of aluminum alloy, round, multi-wire, sealed |
| 8 | Rated insulation thickness | As per GOST 31946-2012 |
| 9 | Core insulation | light stabilized cross-linked polyethylene (XLPE black) |
| 10 | Destructive force of the carrier neutral, not less than | 14,20 kN |
| 11 | Ambient temperature range during operation | from -20°С to +50°С |
| 12 | Long-term permissible operating temperature of cores | 90°С |
| 13 | Maximum allowable core heating temperature in emergency mode or overload mode | 130°С |
| 14 | Maximum heating temperature of the conductors in the event of a short circuit | 250°С |
| 15 | Minimum allowable bending radius when laying | 10 diam cable |
| 16 | Estimated weight per 1 km / kg, no more | 520 |
| 17 | Service life, not less | 30 years |
| 18 | Tagging | The neutral must bear the tagging "TELASI" and the footage in each meter |

**2.3. Requirements for materials and equipment used in production**

The materials used must be new, not being in use, date of manufacture not earlier than the previous year, of the latest or advanced model, as well as take into account the latest developments in the field of structures and materials.

**2.4. Requirements for the conformity of the goods with the mandatory requirements of the legislation on technical regulation**

Procurement participants in their proposals must submit certificates of conformity of the proposed goods with the requirements established by GOST 31946-2012, or the requirements of similar regulatory documents of the country of origin of the product. ISO IEC 17025:2005 – General requirements for the competence of testing and calibration laboratories (or equivalent);

2.4.1. **Voluntary certification requirements**:

ISO 9001-2015 Quality Management System Certificate; ISO 14001-2015 Environmental Management System Certificate; EN 50575:2014/2016.