

# PRICE VARIATION FORMULA FOR CABLES-ANNEXURE-A

## EPR INSULATED FIRE SURVIVAL CABLE

Enquiry No.: -PE/PG/YAD/E-6196/2019 dated 09.05.2019  
5X800 MW YADADRI TPS

- Prices shall be variable as per Price Variation Formula given below (basis- IEEMA). The price variation shall be limited to +20% of Total ex-Works Prices actual supplied (cable size wise) and –ve price variation shall be unlimited. Rates for working out price variation shall be as per rates published by IEEMA.

| SL NO | CABLE SIZE                                                                                                                                                                                                                                                                                                  | APPLICABLE PVC FORMULAE WITH FACTORS                              | Remarks                                                  |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------|
| A     | 1.1 kV Stranded, Tinned annealed high conductivity, Class 2 Copper conductor Power cable, EPR insulated, HOFR Inner sheath, GS round wire armour for multicore cable & Aluminium round wire armour for single core cable, HOFR Outer sheath generally conforming to IS:9968, Part-I & BHEL specification.   |                                                                   |                                                          |
| A.1   | 2C-95 Sq. mm EPR-Cu (A) FS                                                                                                                                                                                                                                                                                  | $P=P_0+CuF(Cu-Cu_0)+CCFCu(PVCC-PVCC_0)+FeW(Fe-Fe_0)+AIF(Al-Al_0)$ | AIF=0 for Multicore cable & FeW=0 for Single core cable. |
| A.2   | 3C-240 Sq. mm EPR-Cu (A) FS                                                                                                                                                                                                                                                                                 |                                                                   |                                                          |
| A.3   | 1C-400 Sq. mm EPR-Cu (A) FS                                                                                                                                                                                                                                                                                 |                                                                   |                                                          |
| B     | 1.1 kV Stranded, Tinned annealed high conductivity, Class 2 Copper conductor Control cable, EPR insulated, HOFR Inner sheath, GS round wire armour for multicore cable & Aluminium round wire armour for single core cable, HOFR Outer sheath generally conforming to IS:9968, Part-I & BHEL specification. |                                                                   |                                                          |
| B.1   | 3C-2.5 Sq. mm EPR-Cu (A) FS                                                                                                                                                                                                                                                                                 | $P=P_0+CuF(Cu-Cu_0)+CCFCu(PVCC-PVCC_0)+FeW(Fe-Fe_0)$              |                                                          |
| B.2   | 5C-2.5 Sq. mm EPR-Cu (A) FS                                                                                                                                                                                                                                                                                 |                                                                   |                                                          |

### 2. Base date for prices:

#### Initial Price (As per IEEMA)

Base date shall be 1<sup>st</sup> working day of the previous month to the date of issue of Tender Enquiry.

#### Final Price (As per IEEMA)

The first working day of month, one month prior to the date on which cable is notified as being ready for inspection i.e. TPIA inspection call raise on web portal.

- PVC shall be payable within contractual delivery period (including any extension thereto).

*Sachin Gupta*  
Sr. Engr (Pg-2)

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1<sup>st</sup> November 217

TABLE CUP

VARIATION FACTOR FOR COPPER CONDUCTOR (CUF)  
POWER CABLES WITH COPPER CONDUCTOR

| Nominal Cross Sectional Area (in Sq. mm.) | 1 core | 2 core | 3 core | 3.5 core | 4 core |
|-------------------------------------------|--------|--------|--------|----------|--------|
| 2.5                                       | 0.023  | 0.046  | 0.069  | -        | 0.092  |
| 4                                         | 0.036  | 0.076  | 0.112  | -        | 0.151  |
| 6                                         | 0.056  | 0.112  | 0.171  | -        | 0.227  |
| 10                                        | 0.095  | 0.174  | 0.286  | -        | 0.382  |
| 16                                        | 0.151  | 0.299  | 0.451  | -        | 0.602  |
| 25/16                                     | 0.240  | 0.480  | 0.720  | 0.862    | 0.960  |
| 35/16                                     | 0.332  | 0.664  | 0.993  | 1.135    | 1.329  |
| 50/25                                     | 0.451  | 0.898  | 1.348  | 1.572    | 1.799  |
| 70/35                                     | 0.648  | 1.299  | 1.950  | 2.260    | 2.602  |
| 95/50                                     | 0.901  | 1.802  | 2.700  | 3.121    | 3.601  |
| 120/70                                    | 1.138  | 2.273  | 3.407  | 4.016    | 4.545  |
| 150/70                                    | 1.398  | 2.806  | 4.207  | 4.815    | 5.611  |
| 185/95                                    | 1.753  | 3.519  | 5.279  | 6.121    | 7.038  |
| 225/120                                   | 2.154  | 4.309  | 6.463  | 7.522    | 8.617  |
| 240/120                                   | 2.312  | 4.605  | 6.904  | 7.963    | 9.206  |
| 300/150                                   | 2.891  | 5.779  | 8.667  | 9.976    | 11.558 |
| 400/185                                   | 3.703  | 7.397  | 11.097 | 12.738   | 14.794 |
| 500                                       | 4.664  | 9.334  | 13.998 | -        | 18.665 |
| 630                                       | 6.012  | 12.048 | 18.070 | -        | 24.095 |
| 800                                       | 7.696  | 15.389 | 23.082 | -        | 30.775 |
| 1000                                      | 9.706  | 19.372 | 29.055 | -        | 38.741 |

TABLE CUsdc

VARIATION FACTOR FOR COPPER CONDUCTOR (CUF)  
1.0 & 1.5KV Solar PV DC Cables with Copper Conductor

| Cable Size in sq.mm. | Copper content in MT/km |
|----------------------|-------------------------|
| 2.5                  | 0.023                   |
| 4                    | 0.038                   |
| 6                    | 0.058                   |
| 10                   | 0.090                   |

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1<sup>st</sup> November 217

TABLE CUC

VARIATION FACTOR FOR COPPER CONDUCTOR (CUF) ✓  
CONTROL CABLES WITH COPPER CONDUCTOR

| No of Cores | Core size 1.5 sq mm | Core size 2.5 sq mm |
|-------------|---------------------|---------------------|
| 2           | 0.026               | 0.047               |
| 3           | 0.039               | 0.070               |
| 4           | 0.052               | 0.094               |
| 5           | 0.065               | 0.117               |
| 6           | 0.078               | 0.141               |
| 7           | 0.091               | 0.164               |
| 8           | 0.110               | 0.182               |
| 9           | 0.117               | 0.205               |
| 10          | 0.130               | 0.235               |
| 12          | 0.157               | 0.282               |
| 14          | 0.183               | 0.329               |
| 16          | 0.209               | 0.376               |
| 18          | 0.246               | 0.410               |
| 19          | 0.248               | 0.446               |
| 20          | 0.260               | 0.456               |
| 24          | 0.313               | 0.563               |
| 27          | 0.352               | 0.634               |
| 30          | 0.391               | 0.704               |
| 37          | 0.483               | 0.869               |
| 44          | 0.573               | 1.033               |
| 52          | 0.678               | 1.221               |
| 61          | 0.796               | 1.432               |

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1<sup>st</sup> November 217

TABLE P4

VARIATION FACTOR FOR ALUMINIUM (AIF)  
PVC INSULATED 1.1 KV POWER CABLES WITH COPPER CONDUCTOR

| Nominal Cross Sectional Area<br>(in Sq. mm) | Aluminium Factor for Aluminium armoured cable with copper conductor |
|---------------------------------------------|---------------------------------------------------------------------|
| 4                                           | 0.058                                                               |
| 6                                           | 0.063                                                               |
| 10                                          | 0.073                                                               |
| 16                                          | 0.084                                                               |
| 25                                          | 0.096                                                               |
| 35                                          | 0.108                                                               |
| 50                                          | 0.123                                                               |
| 70                                          | 0.139                                                               |
| 95                                          | 0.183                                                               |
| 120                                         | 0.198                                                               |
| 150                                         | 0.218                                                               |
| 185                                         | 0.241                                                               |
| 240                                         | 0.271                                                               |
| 300                                         | 0.379                                                               |
| 400                                         | 0.424                                                               |
| 500                                         | 0.478                                                               |
| 630                                         | 0.537                                                               |
| 800                                         | 0.591                                                               |
| 1000                                        | 0.816                                                               |

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1<sup>st</sup> November 2017

TABLE P5

VARIATION FACTOR FOR PVC COMPOUND (CCFCu)  
PVC INSULATED CONTROL CABLES WITH COPPER CONDUCTOR

| No of cores | Core size 1.5 sq mm |       | Core size 2.5 sq mm |       |
|-------------|---------------------|-------|---------------------|-------|
|             | Unarm               | Arm   | Unarm               | Arm   |
| 2           | 0.118               | 0.121 | 0.125               | 0.139 |
| 3           | 0.121               | 0.131 | 0.141               | 0.157 |
| 4           | 0.137               | 0.152 | 0.161               | 0.179 |
| 5           | 0.157               | 0.174 | 0.187               | 0.206 |
| 6           | 0.179               | 0.199 | 0.234               | 0.260 |
| 7           | 0.179               | 0.199 | 0.234               | 0.260 |
| 8           | 0.193               | 0.215 | 0.292               | 0.325 |
| 9           | 0.216               | 0.241 | 0.300               | 0.335 |
| 10          | 0.236               | 0.262 | 0.303               | 0.337 |
| 12          | 0.249               | 0.277 | 0.334               | 0.371 |
| 14          | 0.311               | 0.327 | 0.389               | 0.409 |
| 16          | 0.344               | 0.362 | 0.435               | 0.458 |
| 18          | 0.352               | 0.371 | 0.474               | 0.500 |
| 19          | 0.375               | 0.395 | 0.476               | 0.501 |
| 20          | 0.391               | 0.412 | 0.519               | 0.546 |
| 24          | 0.457               | 0.481 | 0.584               | 0.615 |
| 27          | 0.491               | 0.517 | 0.631               | 0.664 |
| 30          | 0.529               | 0.557 | 0.706               | 0.743 |
| 37          | 0.615               | 0.647 | 0.835               | 0.879 |
| 44          | 0.739               | 0.778 | 1.019               | 1.026 |
| 52          | 0.845               | 0.889 | 1.100               | 1.158 |
| 61          | 0.952               | 1.002 | 1.246               | 1.312 |

IEEMA (PVC)/CABLE(R-1)/2017  
TABLE P6 (Additional)

Effective from: 1<sup>st</sup> November 217

VARIATION FACTOR FOR ROUND WIRE 'W' STEEL (FeF).  
PVC INSULATED CONTROL CABLES WITH COPPER CONDUCTOR

| No. of Cores | Core size 1.5 sq mm | Core size 2.5 sq mm |
|--------------|---------------------|---------------------|
| 2            | 0.243               | 0.273               |
| 3            | 0.257               | 0.289               |
| 4            | 0.277               | 0.314               |
| 5            | 0.303               | 0.342               |
| 6            | 0.329               | 0.379               |
| 7            | 0.329               | 0.379               |
| 8            | 0.341               | 0.456               |
| 9            | 0.383               | 0.508               |
| 10           | 0.408               | 0.535               |
| 12           | 0.510               | 0.572               |
| 14           | 0.546               | 0.625               |
| 16           | 0.581               | 0.660               |
| 19           | 0.608               | 0.696               |
| 24           | 0.714               | 0.819               |
| 25           | 0.679               | 0.798               |
| 27           | 0.732               | 0.837               |
| 28           | 0.696               | 0.815               |
| 30           | 0.758               | 0.881               |
| 33           | 0.747               | 0.883               |
| 37           | 0.820               | 1.217               |
| 44           | 0.926               | 1.355               |
| 48           | 1.122               | 1.308               |
| 50           | 1.122               | 1.308               |
| 52           | 1.149               | 1.361               |
| 56           | 1.202               | 1.388               |
| 61           | 1.299               | 1.520               |

IEEMA (PVC)/CABLE(R-1)/2017

Effective from: 1<sup>st</sup> November 217

TABLE L2

VARIATION FACTOR FOR POLYMER (CCFAI / CCFCu)  
XLPE INSULATED 1.1 KV POWER CABLES WITH COPPER / ALUMINIUM CONDUCTOR

| Nominal Cross Sectional Area (In Sq. mm) | 1 core | 2 core |       | 3 core |       | 3.5 core |       | 4 core |       |
|------------------------------------------|--------|--------|-------|--------|-------|----------|-------|--------|-------|
|                                          | Unarm  | Unarm  | Arm   | Unarm  | Arm   | Unarm    | Arm   | Unarm  | Arm   |
| 2.5                                      | 0.055  | 0.163  | 0.175 | 0.166  | 0.177 | -        | -     | 0.177  | 0.188 |
| 4                                        | 0.075  | 0.201  | 0.204 | 0.205  | 0.213 | -        | -     | 0.218  | 0.213 |
| 6                                        | 0.085  | 0.213  | 0.234 | 0.205  | 0.230 | -        | -     | 0.242  | 0.232 |
| 10                                       | 0.082  | 0.252  | 0.280 | 0.217  | 0.251 | -        | -     | 0.285  | 0.298 |
| 16                                       | 0.089  | 0.278  | 0.341 | 0.289  | 0.246 | -        | -     | 0.300  | 0.279 |
| 25                                       | 0.101  | 0.307  | 0.278 | 0.276  | 0.247 | 0.295    | 0.264 | 0.331  | 0.290 |
| 35                                       | 0.109  | 0.330  | 0.319 | 0.305  | 0.270 | 0.328    | 0.292 | 0.368  | 0.319 |
| 50                                       | 0.124  | 0.482  | 0.685 | 0.348  | 0.311 | 0.372    | 0.335 | 0.422  | 0.394 |
| 70                                       | 0.146  | 0.354  | 0.335 | 0.469  | 0.397 | 0.489    | 0.420 | 0.528  | 0.464 |
| 95                                       | 0.163  | 0.436  | 0.389 | 0.504  | 0.441 | 0.544    | 0.471 | 0.591  | 0.523 |
| 120                                      | 0.176  | 0.475  | 0.421 | 0.556  | 0.498 | 0.599    | 0.538 | 0.722  | 0.656 |
| 150                                      | 0.217  | 0.510  | 0.490 | 0.690  | 0.611 | 0.717    | 0.633 | 0.840  | 0.762 |
| 185                                      | 0.236  | 0.631  | 0.608 | 0.836  | 0.738 | 0.854    | 0.756 | 1.007  | 0.899 |
| 240                                      | 0.273  | 0.750  | 0.726 | 1.002  | 0.842 | 1.079    | 0.952 | 1.238  | 1.119 |
| 300                                      | 0.303  | 0.919  | 0.887 | 1.161  | 1.012 | 1.170    | 1.031 | 1.457  | 1.414 |
| 400                                      | 0.372  | 1.093  | 1.040 | 1.376  | 1.283 | 1.545    | 1.379 | 1.778  | 1.626 |
| 500                                      | 0.413  | 1.342  | -     | 1.568  | 1.400 | 1.806    | 1.456 | -      | -     |
| 630                                      | 0.469  | 1.546  | -     | -      | -     | -        | -     | -      | -     |
| 800                                      | 0.569  | -      | -     | -      | -     | -        | -     | -      | -     |
| 1000                                     | 0.667  | -      | -     | -      | -     | -        | -     | -      | -     |

225  
removed

L2 < L82