Cost Comparison of Ergon Energy RIN Unit Costs to the NEM

In support of the Energex Regulatory Proposal 2025-30

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ERGON ENERGY NETWORK

Part of Energy Queensland

CONTENTS

1 PURPOSE AND SCOPE

The purpose of this document is to compare our historic unit rate performance, as revealed in our Regulatory Information Notices (RIN) with other Distribution Network Service Providers (DNSPs) in the National Electricity Market (NEM). The scope of this document is limited to the comparison of the unit costs associated with our replacement expenditure in the Ergon network.

2 RIN REPORTING

As part of RIN workbook 2.2, all DNSPs regulated by the Australia Energy Regulator (AER) are required to annually submit their replacement expenditure and units replaced. The majority of a DNSPs replacement expenditure tends to be the replacement of high volume, relatively low value assets such as pole, pole-top structures (cross-arms), pole-top and pad-mounted transformers, pole-top switches, and overhead conductor.

The RINs are reported at a granular level by asset category. That is, DNSPs are required to report on the cost associated with replacing an individual asset such as a pole, even if the pole was replaced with several other assets as the same time. Furthermore, each asset category broken down further by either voltage or function, providing a significant amount of data to assess the unit rates associated with replacement of individual assets.

As an example, Table 1 shows the 2.2 Repex workbook that Ergon Energy Network reported for poles for the financial year 2021-22[1].

Table 1 – 2.2 Repex Workbook for Pole Replacements 2021-22

Pole Type[2]	Expenditure ($m)	Asset Replacements	Asset Failures
Staking of a wooden pole	9,045,812	5,172	-
< = 1 kV; Wood	33,585,766	6,325	11
> 1 kV & < = 11 kV; Wood	21,888,782	3,703	17
> 11 kV & < = 22 kV; Wood	21,888,782	3,703	72
> 22 kV & < = 66 kV; Wood	7,534,581	780	14
> 66 kV & < = 132 kV; Wood	121,625	16	-

[1] Note that those asset categories without any expenditure or replacements for that asset category have been excluded from Table 1 for simplicity.
[2] It should be noted that RIN expenditure is reported as incurred, while replacement volumes are reported on project completion. This means that there are circumstances where expenditure is reported without a corresponding replacement volume.

Pole Type[2]	Expenditure ($m)	Asset Replacements	Asset Failures
> 1 kV & < = 11 kV; Concrete	409,726	53	-
> 11 kV & < = 22 kV; Concrete	51,313	2	-
> 66 kV & < = 132 kV; Concrete	143,352	-	-
> 132 kV; Concrete	193,360	-	-

Generally, our asset replacement programs involve the replacement of multiple assets as a bundled work package. For example, where we have identified a defective pole that requires replacement based on its condition, we are likely to replace other assets that are attached to the pole at the same time such as the cross-arms attached to that pole. This allows the for the prudent replacement of assets that may also be likely to fail in the short to medium term which would have required us to return to the same site to replace these in the future. It also allows a more efficient delivery of the pole replacement where it may be difficult and more time consuming to re-establish the existing asset rather than a new one, as well as reducing planned outage on our network for future replacements, and unplanned outages for in-service failure of assets in poor condition.

Given our delivery of programs in a more bundled way, our method of reporting our RIN by asset categories is to apportion our replacement expenditure in a program on a pro-rated basis with the material cost of the assets being replaced. This is a consistent and repeatable process for us to report on expenditure in individual categories. Hence, in assessing the efficiency of our program delivery it is important that we consider the way our program is constructed.

This is particularly important when comparing costs against other DNSPs. All DNSPs bundle work together for delivery efficiency and the method of apportioning costs will vary slightly by each business. However, if we were to reconstruct a typical program delivery element, we are better able to assess and compare the efficiency of delivery.

Section 3.1 outlines our estimations of program delivery and the typical set of replacement items that we undertake as our major programs of work.

3 PROGRAM APPROACH

3.1 Basket of Goods

Ergon Energy Network's expenditure in both the ex-post review period and the forward 2025-2030 regulatory control period has a significant portion of expenditure related to the replacement of defective poles, and the replacement of overhead conductors. Both programs have significant portions of "consequential" replacements. That is, when we replace a defective pole, we replace assets that are attached to the pole where prudent and efficient to do so.

As an example, replacing a pole involves re-establishing the existing equipment that exists on the pole. This means that the only incremental cost of also replacing a cross-arm or pole-top transformer with the pole is the material cost of the asset. We assess the condition of these assets, and where there is merit in establishing a new asset considering the risk of failure of the old asset, we install a new asset on the pole.

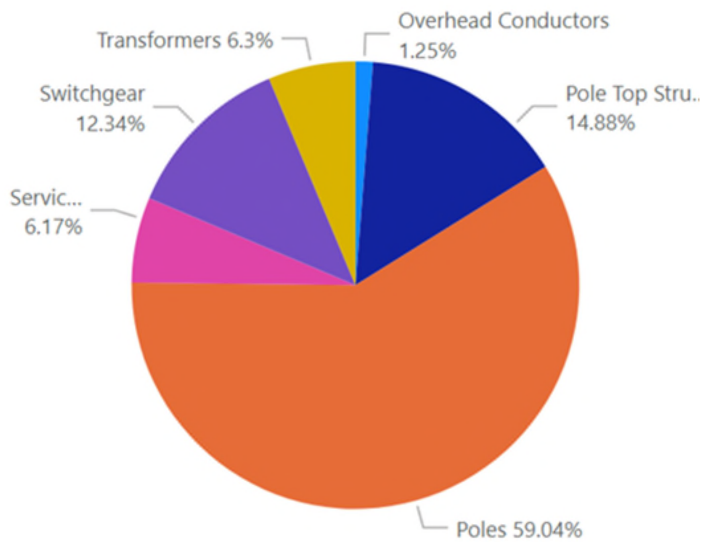
To test the efficiency of our costs for these key programs in our expenditure, we have assessed the average levels of consequential replacement for our three key programs and utilising the Repex RIN revealed unit rates for each DNSP to reconstruct a unit rate for the delivery of that basket of goods. In presenting these results we have de-identified individual DNSP data.

In undertaking this analysis, we have not been able to incorporate 2022/23 results as we didn't have access other DNSP RIN data at the time of writing. Furthermore, as a related party we have removed Energex from this assessment so as not to influence the results.

3.1.1 Pole Replacement Costs

The cost build-up for an average pole replacement is shown in Figure 1.

Figure 1 – Pole Replacement Cost Build-up

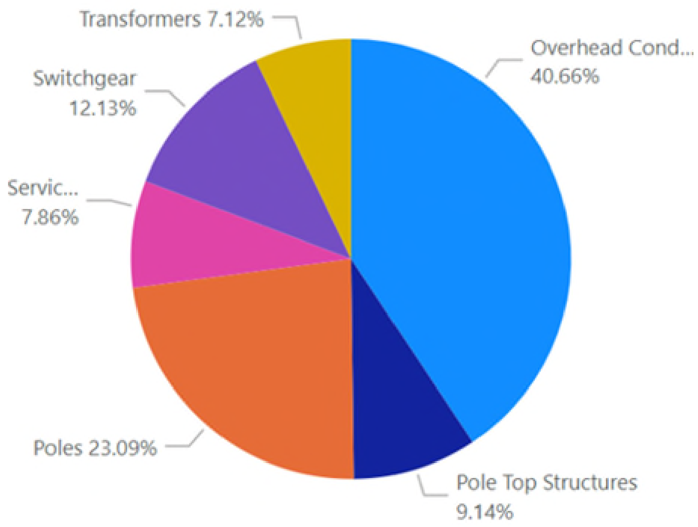


As Figure 1 shows, while almost 60% of the costs associated with pole replacements is for the pole itself, a significant portion of our costs are allocated to replacing the items of plant that are attached to the pole. Pole-top structures, mainly cross-arms, and switches such as fuses, and air-break switches and service cables also make up a reasonable portion of the costs.

3.1.2 Reconductoring Programs Replacement Costs

We have two major reconductoring programs as part of our Program of Work – namely Low Voltage and High Voltage (11kV and 22kV) reconductoring programs. The cost build-up for an average LV reconductoring program is shown in Figure 2.

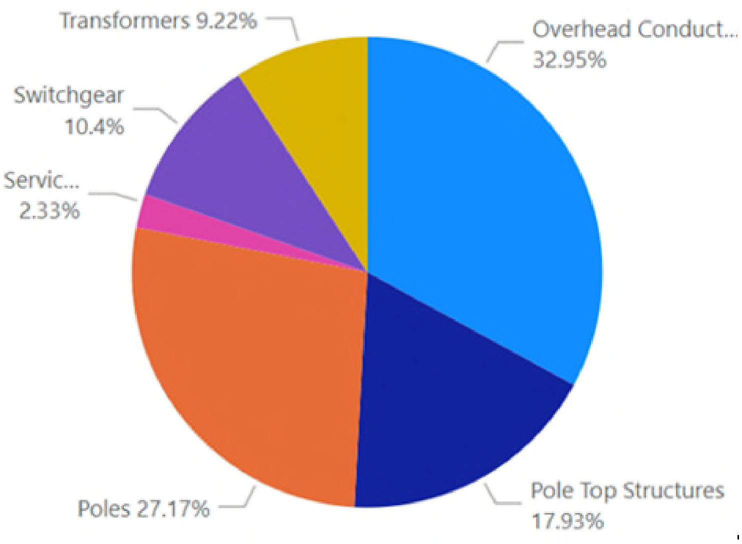
Figure 2 – LV Reconductoring Cost Build-up



As shown in Figure 2, for our LV reconductoring program, under half of the cost is allocated to the replacement of the conductor itself. In renewing our conductor assets, expenditure on pole replacements is the next largest component, with switches and pole-top structures also making up a reasonable amount of the expenditure.

Figure 3 shows the cost build-up for our HV reconductoring program.

Figure 3 – HV Reconductoring Cost Build-up



For HV reconductoring only 33% of the cost is allocated to overhead conductor replacement itself with the remainder of expenditure allocated to pole-top structures, poles, switchgear, transformers, and services.

3.2 Program Approach

Utilising the revealed Repex 2.2 RIN expenditure by asset category, pole replacements and HV and LV reconductoring make up around 33% of our total repex. This contrasts with the way our program of work is delivered, with our pole replacement, HV reconductoring and LV reconductoring programs being approximately 50% of our replacement expenditure. This means in assessing the efficiency of our program delivery, it is important to assess the way the work is bundled, particularly in the context of the complexity of the RIN allocation methods, and the different ways that each DNSP report their RINs. In addition to our pole and conductor replacement programs, our distribution transformer replacements as reported in the RIN account for around 15% of our repex.

For transparency and repeatability, our approach to comparing our costs utilises the reported RIN costs for each DNSP. Using these reported costs, we have constructed our typical delivery of the key programs outlined in section 3.1 using the unit rates of each element and proportionally incorporating these into a program cost. This ensures that there is a like-for-like comparison between our program delivery and the cost that other DNSPs would have delivered the same set of work for.

3.3 Results

3.3.1 Pole Replacements

We have constructed a DNSP Pole replacement overall delivery index to assess our relevant efficiency compared to other DNSPs. The basket of goods that these unit rates have been constructed on are outlined in Appendix A. Utilising these inputs, Table 2 outlines the basket of goods unit rates for each DNSP in the NEM. As discussed previously, Energex is not included in this analysis and does not appear in Table 2.

Table 2 – Pole Replacement DNSP Unit Rates ($2024-25)

DNSP	18/19	19/20	20/21	21/22
DNSP A	14,479	21,512	21,194	22,798
DNSP B			4,793	124,828
DNSP C	38,670	38,700	37,802	41,271
DNSP D	9,723	9,422	9,692	11,538
DNSP E	7,563	9,815	8,074	7,702
DNSP F	3,512	6,420	27,379	2,604
DNSP G			17,859	21,131
DNSP H	33,039	37,968	36,774	47,213
DNSP I	7,385	14,455	2,470	1,962
DNSP J	1,670	2,071	1,584	2,111
DNSP K	13,052	15,574	14,939	19,117
DNSP L	14,071	12,583	13,874	13,102

It should be noted that networks with limited overhead assets are unlikely to replace poles at a rate that would produce an accurate reflection of an efficient level of expenditure for that business. Because of this, we have provided the average cost with all DNSPs included, as well as with the highest and lowest excluded from the calculation.

As Table 2 shows, the constructed unit rates vary significantly, with the lowest rate at $1,670 / pole, with the highest rate at $124,000 / pole. Key metrics for pole replacement costs include:

- Ergon Energy Network average unit rate: $10,111 / pole
- Average median rate: $14,038 / pole
- Average rate: $18,455 / pole

- Average rate, excluding best and worst performers: $15,532 / pole. This was typically DNSP J as the lowest and DNSP B or C as the highest.

Table 3 shows Ergon Energy Network's performance against the median and average cost metrics shown in Table 2.

Table 3 – Pole Replacement Comparison of Costs ($2024-25)

Cost Comparison	18/19	19/20	20/21	21/22
Ergon	10,293	10,235	9,860	10,056
Median	13,052	12,583	14,407	16,109
Mean inclusive of outliers	14,316	16,852	16,369	26,281
Mean exclusive of outliers	12,139	15,425	15,705	18,859

As Table 3 outlines, we have been below the median unit cost for our pole replacements for all four years of the ex-post period. Our average performance across the four years is below the average and median cost throughout the NEM. Furthermore, we have been consistently below the average unit cost for the NEM, as well as the average unit cost excluding the highest and lowest values. This analysis demonstrates that the delivery of pole replacements compares favourably with other DNSPs across the NEM, being below both the median and average unit costs across the NEM.

3.3.2 LV Conductor Replacement Results

We have constructed a DNSP LV Conductor program overall delivery index to assess our relevant efficiency compared to other DNSP. The basket of goods that these unit rates have been constructed on are outlined in Appendix A. Utilising these inputs, Table 4 outlines the unit rates for each DNSP in the NEM. As discussed previously, Energex is not included in this analysis and does not appear in Table 4.

Table 4 – LV Conductor Replacement DNSP Unit Rates ($2024-25)

DNSP	18/19	19/20	20/21	21/22
DNSP A	208,416	415,024	296,663	391,009
DNSP B			141,783	1,001,576
DNSP C	1,184,232	1,211,700	1,134,940	1,203,615
DNSP D	179,117	190,203	192,503	192,555
DNSP E	191,127	272,315	144,486	135,708
DNSP F	84,769	118,745	259,051	70,006
DNSP G			615,828	405,817
DNSP H	1,002,976	1,249,314	1,473,042	1,548,778
DNSP I	203,590	562,577	74,660	41,953
DNSP J	86,596	114,471	42,958	97,016
DNSP K	3,676,589	2,346,675	599,546	315,970
DNSP L	143,079	126,849	137,224	127,066

It should be noted that networks with limited overhead assets are unlikely to replace conductor at a rate that would produce an accurate reflection of an efficient level of expenditure for that business. Because of this, we have provided the average cost with all DNSPs included, as well as with the highest and lowest excluded from the calculation. As Table 4 shows, the constructed unit rates vary significantly, with the lowest rate at $41,953 / km, with the highest rate at $3.6 million / km. Key metrics for LV conductor replacement include:

- Ergon Energy Network average unit rate: $215,494 / km
- Average median unit rate: $255,267 / km
- Average unit rate: $560,954 / km
- Average unit rate, excluding best and worst performers: $417,850 / km. This was typically DNSP F and J as the lowest and DNSP K H as the highest.

Table 5 outlines Ergon performance against the median and average cost metrics shown in Table 4.

Table 5 – LV Reconductoring Comparison of Costs ($2024-25)

Cost Comparison	18/19	19/20	20/21	21/22
Ergon	220,986	216,880	189,654	234,456
Median	197,358	343,669	225,777	254,262
Mean, inclusive of outliers	696,049	660,787	426,057	460,922
Mean, exclusive of outliers	399,891	517,807	359,668	394,034

As Table 5 outlines, we have been below the median unit cost for our LV reconductoring program for three of the four years of the ex-post period. Our average performance across the four years is below the average median cost throughout the NEM. The year we were above the median cost we were above by less than 15%. We are also significantly below the average unit rates for all four years of the period, and significantly below the average when we exclude the outliers from the analysis. This analysis demonstrates that our delivery of our LV reconductoring program compares favourably with other DNSPs across the NEM, being below both the median and average unit costs across the NEM for the first four years of the ex-post review period.

3.3.3 HV Conductor Replacement

We have constructed a DNSP HV Conductor program overall delivery index to assess our relevant efficiency compared to other DNSP. The basket of goods that these unit rates have been constructed on are outlined in Appendix A. Utilising these inputs, Table 6 outlines the unit rates for each DNSP in the NEM. As discussed previously, Energex is not included in this analysis and does not appear in Table 6.

Table 6 – HV Conductor Replacement DNSP Unit Rates ($2024-25)

DNSP	18/19	19/20	20/21	21/22
DNSP A	140,070	206,288	179,307	230,308
DNSP B			99,378	884,669
DNSP C	338,647	244,154	307,895	330,720
DNSP D	133,342	142,496	144,469	144,342
DNSP E	159,714	223,634	107,106	104,425
DNSP F	54,934	93,769	177,220	16,890
DNSP G			304,436	187,245
DNSP H	254,797	282,252	248,537	307,026
DNSP I	221,998	125,207	104,168	21,522
DNSP J	75,601	82,150	57,571	62,214
DNSP K	698,293	514,431	914,941	377,104
DNSP L	103,394	90,681	99,684	91,612

It should be noted that networks with limited overhead assets are unlikely to replace conductor at a rate that would produce an accurate reflection of an efficient level of expenditure for that business. Because of this, we have provided the average cost with all DNSPs included, as well as with the highest and lowest excluded from the calculation. As Table 6 shows, the constructed unit rates vary significantly, with the lowest rate at $57,571 / km, with the highest rate at $914,941 / km. Key metrics for HV conductor replacement include:

- Average Ergon Energy Network unit rate: $125,204 / km
- Average NEM median unit rate: $162,731 / km
- Average unit rate: $221,294 / km
- Average rate, excluding best and worst performers: $175,798 / km. This is typically DNSP I and J as the lowest and DNSP B or K as the highest.

Table 7 outlines Ergon performance against the median and average cost metrics shown in Table 6.

Table 7 – HV Reconductoring Comparison of Costs ($2024-25)

Cost Comparison	18/19	19/20	20/21	21/22
Ergon	121,096	123,258	125,374	131,088
Median	149,892	174,392	160,845	165,794
Mean, inclusive of outliers	226,747	199,864	228,726	229,840
Mean, exclusive of outliers	164,722	176,060	177,220	185,189

As Table 7 outlines, we have been below the median unit cost for our HV reconductoring program for all four years of the ex-post period. Our average performance across these four years is also below the average median cost throughout the NEM, and the overall average cost for the same collection of work. This analysis demonstrates that our delivery of our HV reconductoring program compares favourably to other DNSPs in the NEM, being below both the median and average unit costs across the NEM for each year of the ex-post period for which we have data.

3.3.4 Transformer Replacement Results

We have constructed a DNSP Distribution transformer program overall delivery index to assess our relevant efficiency compared to other DNSP. The unit rates that we have constructed are based on:

- The unit costs of one distribution transformer replacement, weighted by the level of replacement for each DNSP.
- 160% of the unit cost of fuse replacement: this represents the fuse holders and associated equipment, with 20% of the costs are associated with fuses themselves, which are expendable items and not generally associated with the replacement of the transformer itself. We have then assumed that two fuse sets will be required for a transformer replacement – HV and LV sides of the transformer.

Utilising these inputs, Table 8 outlines the unit rates for each DNSP in the NEM.

Table 8 – Transformer Replacement DNSP Unit Rates ($2024-25)

DNSP	18/19	19/20	20/21	21/22
DNSP A	609,957	590,749	219,011	233,156
DNSP B	-	-	12,558	20,434
DNSP C	156,850	156,697	132,310	-
DNSP D	187,267	106,887	118,853	30,542
DNSP E	51,052	63,390	48,518	61,877
DNSP F	64,694	50,018	38,927	42,320
DNSP G	33,542	13,663	14,214	11,872
DNSP H	353,971	117,911	143,586	-
DNSP I	-	-	99,576	59,208
DNSP J	22,951	25,195	21,326	10,195
DNSP K	78,762	60,734	46,964	-
DNSP L	42,487	57,042	53,067	-

It should be noted that networks with limited overhead assets are unlikely to replace a conductor at a rate that would produce an accurate reflection of an efficient level of expenditure for that business. Because of this, we have provided the average cost with all DNSPs included, as well as with the highest and lowest excluded from the calculation. As Table 8 shows, the constructed unit rates vary significantly, with the lowest rate at $9k / transformer and fuse set, with the highest rate $490k / transformer and fuse set. Key metrics for LV conductor replacement include:

- Ergon Energy Network average unit rate: $48,990 / transformer
- Average median unit rate: $55,253 / transformer
- Average unit rate: $105,540 / transformer
- Average unit rate, excluding best and worst performers: $77,564 / transformer. These were typically DNSP G and J as the lowest, and DNSP H as the highest.

Table 8 outlines Ergon performance against the median and average cost metrics shown in Table 9.

Table 9 – Transformer Replacement Comparison of Costs ($2024-25)

Cost Comparison	18/19	19/20	20/21	21/22
Ergon	64,694	50,018	38,927	42,320
Median	71,728	62,062	50,792	36,431
Mean, inclusive of outliers	160,153	124,229	79,076	58,700
Mean, exclusive of outliers	121,078	79,734	71,734	37,709

As Table 9 outlines, we have been below the median unit cost for our transformer replacements for two of the four years of the ex-post period. Our average performance across the four years is below the average median cost throughout the NEM. The two years we were above the median cost we were above by less than 10% in 18/19, with 21/22 being an outlier year where 5 of the DNSPs in the NEM replaced no distribution transformers for the financial year. We are also significantly below the average unit rates for all four years of the period, and significantly below the average even excluding outliers from the analysis.

This analysis demonstrates that our delivery of our transformer replacement compares favourably to other DNSPs in the NEM, being below both the median and average unit costs across the NEM across the ex-post review period.

4 PROJECT COST REVIEW

To assess the efficiency of our costs on discrete projects in our program of work, we asked Turner and Townsend to assess our standard estimates for key pieces of work with industry benchmarks. Turner and Townsend undertook an assessment of the ratio of labour to non-labour ratios across these projects. Turner and Townsend found: *"that execution packages as a whole package is well within industry standard benchmarks".*

5 CONCLUSION

Through this analysis, we have assessed the major contributors to our program of work and how we compare against other DNSPs in the NEM. On all major programs of work, we are below the median and average unit rates across the NEM in delivering our bundles of work. The work selected in this analysis makes up a significant portion of our network and encompasses the replacement of all major distribution lines assets. This shows that we have been efficient in the delivery of our works program for Ergon Energy Network across the ex-post review period for which data was available. We will update this work to incorporate the final year of the period when this becomes available.

Furthermore, our forecast work for 2025-2030 utilises our average unit rates delivered across this period. By ensuring that our forecast costs are in line with our historic efficient delivery of work, we have demonstrated that our regulatory proposal utilises efficient costs for the 2025-2030 regulatory control period. The unit rate review conducted by Turner and Townsend has also demonstrated that our costs for discrete project work is also within industry benchmarks, reflecting that our overall program costs are efficient.

6 APPENDIX A – CONSTRUCTION OF UNIT RATES

The construction of unit rates for our LV conductor replacement program, HV conductor replacement program and our Pole replacement program is shown in Table 10 to Table 12.

Table 10 – Construction of Pole Replacement

Copperleaf Resource Code	Units
Pole: < = 1 kV; Wood	0.272945335
Pole: > 1 kV & < = 11 kV; Wood	0.651180407
Pole: > 22 kV & < = 66 kV; Wood	0.051887388
Pole: > 66 kV & < = 132 kV; Wood	0.00037874
Pole Top Structure: < = 1 kV	0.264234314
Pole Top Structure: > 11 kV & < = 22 kV	0.214240626
Pole Top Structure: > 1 kV & < = 11 kV	0.340992299
Pole Top Structure: > 22 kV & < = 66 kV	0.038757733
Pole Top Structure: > 66 kV & < = 132 kV	0.00113622
Overhead Conductor: < = 1 kV	0.000889303
Overhead Conductor: > 11 kV & < = 22 kV ; SWER	0.000139208
Overhead Conductor: > 11 kV & < = 22 kV ; Multiple-Phase	4.20822E-06
Overhead Conductor: > 1 kV & < = 11 kV	0.001298068
Overhead Conductor: > 22 kV & < = 66 kV	2.90367E-06
Service Lines: < = 11 kV ; Commercial & Industrial ; Simple Type	0.048268319
Service Lines: < = 11 kV; Residential; Simple Type	0.319378254
Transformers: Pole Mounted ; < = 22kV ; < = 60 kVA ; Multiple Phase	0.004797374
Transformers: Pole Mounted ; < = 22kV ; < = 60 kVA ; Single Phase	0.014139629
Transformers: Pole Mounted ; < = 22kV ; > 60 kVA and < = 600 kVA ; Multiple Phase	0.009342255
Switchgear: < = 11 kV ; Switch	0.00302992
Switchgear: < = 11 kV ; FUSE	0.091023861
Switchgear: > 11 kV & < = 22 kV ; Switch	0.026890544
Switchgear: > 22 kV & < = 33 kV ; Switch	0.0018937

Table 11 – Construction of LV Conductor Replacement

Copperleaf Resource Code	Units
Pole: < = 1 kV; Wood	2.801538776
Pole: > 1 kV & < = 11 kV; Wood	3.85969069
Pole: > 22 kV & < = 66 kV; Wood	0.271940236
Pole Top Structure: < = 1 kV	3.302815445
Pole Top Structure: > 11 kV & < = 22 kV	2.469092757
Pole Top Structure: > 1 kV & < = 11 kV	3.681934943
Pole Top Structure: > 22 kV & < = 66 kV	0.164557274
Overhead Conductor: < = 1 kV	0.804193463
Overhead Conductor: > 11 kV & < = 22 kV ; SWER	0.008432644
Overhead Conductor: > 11 kV & < = 22 kV ; Multiple-Phase	0.048245224
Overhead Conductor: > 1 kV & < = 11 kV	0.281561539
Service Lines: < = 11 kV ; Commercial & Industrial ; Simple Type	0.39805126
Service Lines: < = 11 kV; Residential; Simple Type	12.23297408
Transformers: Pole Mounted ; < = 22kV ; < = 60 kVA ; Multiple Phase	0.073821649
Transformers: Pole Mounted ; < = 22kV ; < = 60 kVA ; Single Phase	0.085563504
Transformers: Pole Mounted ; < = 22kV ; > 60 kVA and < = 600 kVA ; Multiple Phase	0.262592706
Switchgear: < = 11 kV ; Switch	0.027133462
Switchgear: < = 11 kV ; FUSE	1.763754178
Switchgear: > 11 kV & < = 22 kV ; Switch	0.268127839

Table 12 – Construction of HV Conductor Replacement

RIN Asset Category	Units Included
Pole: < = 1 kV; Wood	0.269133429
Pole: > 1 kV & < = 11 kV; Wood	3.623858878
Pole: > 22 kV & < = 66 kV; Wood	0.215045697
Pole Top Structure: < = 1 kV	1.393796237
Pole Top Structure: > 11 kV & < = 22 kV	1.551609868
Pole Top Structure: > 1 kV & < = 11 kV	5.915778178
Pole Top Structure: > 22 kV & < = 66 kV	0.199731483
Overhead Conductor: < = 1 kV	0.101996265
Overhead Conductor: > 11 kV & < = 22 kV ; SWER	0.107581699
Overhead Conductor: > 11 kV & < = 22 kV ; Multiple-Phase	0.142373892
Overhead Conductor: > 1 kV & < = 11 kV	0.529979144
Overhead Conductor: > 22 kV & < = 66 kV	0.000153411
Service Lines: < = 11 kV ; Commercial & Industrial ; Simple Type	0.143410343
Service Lines: < = 11 kV; Residential; Simple Type	1.376968455
Transformers: Pole Mounted ; < = 22kV ; < = 60 kVA ; Multiple Phase	0.113444431
Transformers: Pole Mounted ; < = 22kV ; < = 60 kVA ; Single Phase	0.079168481
Transformers: Pole Mounted ; < = 22kV ; > 60 kVA and < = 600 kVA ; Multiple Phase	0.146245339
Switchgear: < = 11 kV ; Switch	0.041008827
Switchgear: < = 11 kV ; FUSE	0.678570218
Switchgear: > 11 kV & < = 22 kV ; Switch	0.312556178