

AusNet



STPIS

Fitting probability distributions to
service component data

Friday, 31 October 2025

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1. Summary

We have applied the STPIS consistent with version 6 of the AER's STPIS guidelines for electricity transmission network service providers (AER's STPIS Guidelines). The purpose of this appendix is to supplement our regulatory proposals with detail on the calculations underpinning our proposed performance targets, floors and caps for the service component of the STPIS. This includes unplanned outage circuit event rate (fault and forced), loss of supply event frequency, average outage duration and proper operation of equipment.

Under the AER's STPIS Guidelines, the proposed performance targets must be equal to the TNSP's average performance history over the most recent five years. For AusNet, the most recent performance data relates to the 2020, 2021, 2022, 2023, and 2024 regulatory years. The proposed floors and caps have been set equal to the 5th and 95th percentiles of the probability distribution that provides the best fit to the relevant historical data. This approach aligns with the AER STPIS guidelines which require that the proposed floors and caps must be calculated by reference to the proposed performance targets and using a sound methodology. **Table 1.1** below summarises the performance targets, probability distributions and percentiles for each service component.

Table 1-1: Proposed Service Component targets, cap, floors and weightings

Parameter	Sub-parameter	Preferred distribution	Target	Floor	Cap	Weighting
Unplanned outage circuit event rate	Lines event rate - fault	Beta General	11.32%	5.30%	18.25%	0.20
	Transformer event rate - fault	Beta General	11.01%	4.80%	19.84%	0.20
	Reactive plant event rate - fault	Uniform	13.17%	0.95%	25.75%	0.10
	Lines event rate - forced	Exponential	8.24%	0.00%	21.67%	0.10
	Transformer event rate - forced	Uniform	9.28%	4.22%	14.87%	0.10
	Reactive plant event rate - forced	Inv Gauss	9.24%	4.04%	23.50%	0.05
Loss of supply event frequency	Number of events greater than 0.05 minutes per annum	Poisson	1.2	0.0	3.0	0.15
	Number of events greater than 0.30 minutes per annum	Poisson	0.2	0.0	1.0	0.15
Average outage duration	Average outage duration	Inv Gauss	70.29	36.97	188.08	0.20
Proper operation of equipment	Failure of protection system	Geometric	9.20	0.00	29.00	0.00
	Material failure of SCADA	Geometric	2.00	0.00	5.00	0.00
	Incorrect operation isolation of primary or secondary equipment	Geometric	2.00	0.00	7.00	0.00

2. Methodology

We have complied with the AER's STPIS Guidelines that prescription that proposed performance targets must be equal to the TNSP's average performance history over the most recent five years.

To determine the 'floor' and 'cap', we have applied the @Risk product, a risk analysis and simulation add-in tool for Microsoft Excel, to determine the types of probability distribution that best fits the 5 year performance data.

In testing for the best distribution fit, we have used continuous probability distributions for the unplanned outage circuit event rates and average outage duration parameters. This has been bounded at a lower limit of zero for the floor, recognising that negative performance is not possible. For loss of supply events, we have used discrete probability distributions.

In terms of continuous probability distributions, we have largely relied on the Kolmogorov-Smirnov (K-S) fit statistic to measure how well the probability distribution functions fit the input data. The KS statistic focuses on the differences between the middle of the fitted distribution and the input data. To provide an alternative view, we have also considered the Anderson-Darling (A-D) statistic which gives more weight to the tails than tests like the (K-S) statistic. However, we note that we have used the K-S test as the A-D statistic is more sensitive to deviations in the extremes. While we have provided visibility of the results for the chi-square test, we note that this statistic has some uncertainty in the fitted distribution for small sample sizes such as 5 data points.

For discrete probability distributions, we have relied on the Akaike Information Criterion (AIC) test primarily. The AIC is well suited to the trade-off between the goodness of fit of the model and the complexity of the model. We have also reported on the chi-square approximation, but similar to continuous data, this is not well suited to small samples. The Bayesian Information Criterion (BIC) is similar to the AIC but is likely to be inaccurate for small sample sizes.

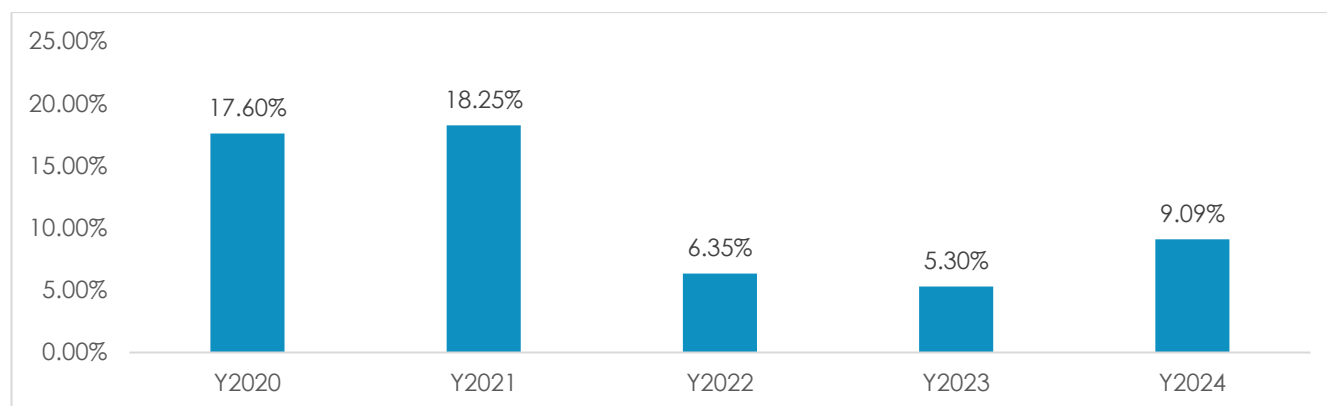
3. Unplanned outage circuit events

An unplanned outage circuit event is defined as the actual number of times transmission circuits are unavailable due to unplanned outages divided by the total number of defined circuits. The measures consider the fault and forced unplanned outages by defined elements including lines, transformers and reactive circuits.

3.1 Lines Outage Rate – Fault

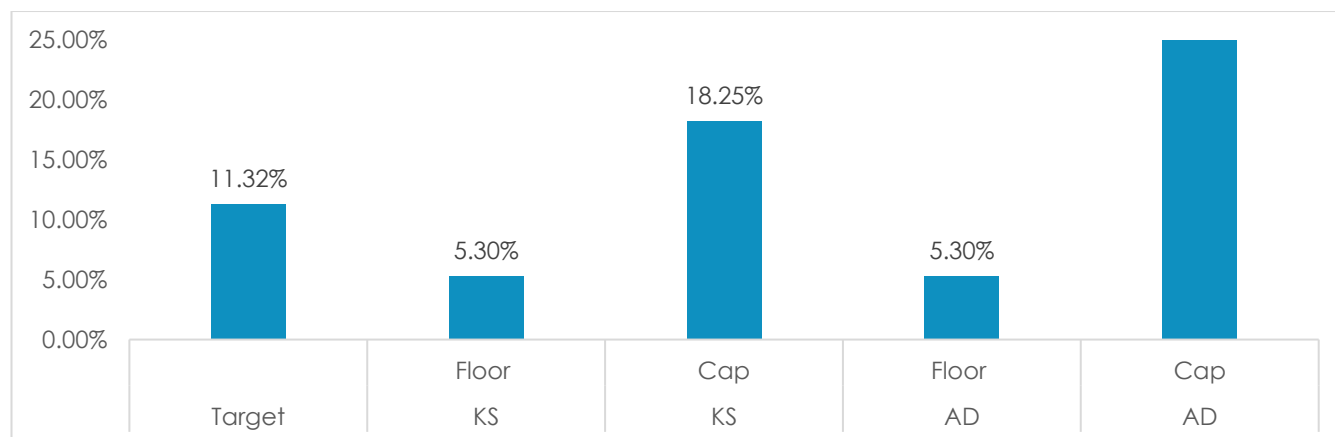
The historical performance data is set out in **Figure 3.1** below.

Figure 3.1: Line outage rate – fault – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we examined the K-S and A-D statistics for the best distribution fit. The K-S results indicated that the beta general is the best fit while the A-D indicated that the levy was the best fit. This is presented in **Figure 3.2** below.

Figure 3.2: Line outage rate – fault – comparison of tests of best fit distribution



We considered that the K-S is a superior statistic than A-D as it focuses on the differences between the middle of the fitted distribution and the input data. The proposed performance targets are set out in **Table 3.1** below. Figures 3.3 and 3.4 provide further description of the results. The attachment sets out full results.

Table 3.1 – Line outage rate – fault - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Line outage rate - fault	Beta General	11.32%	5.30%	18.25%

Figure 3.3: Lines outage rate - fault – distribution fit using K-S

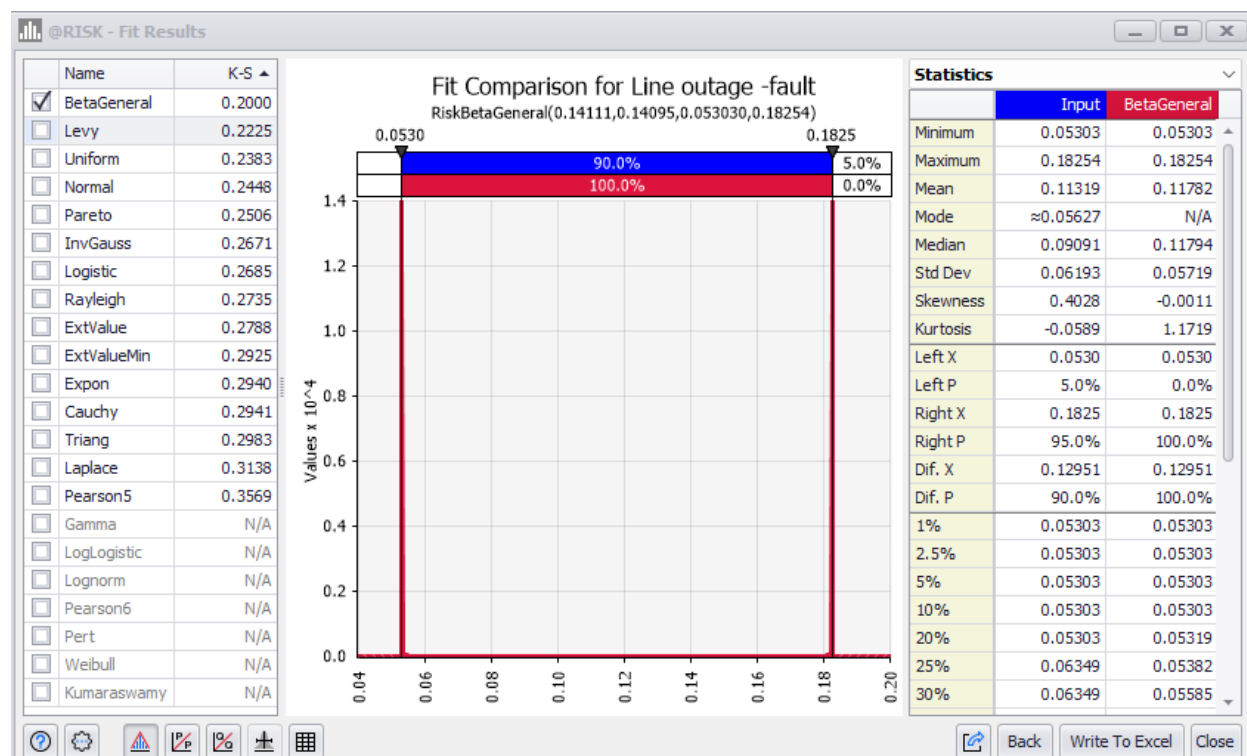
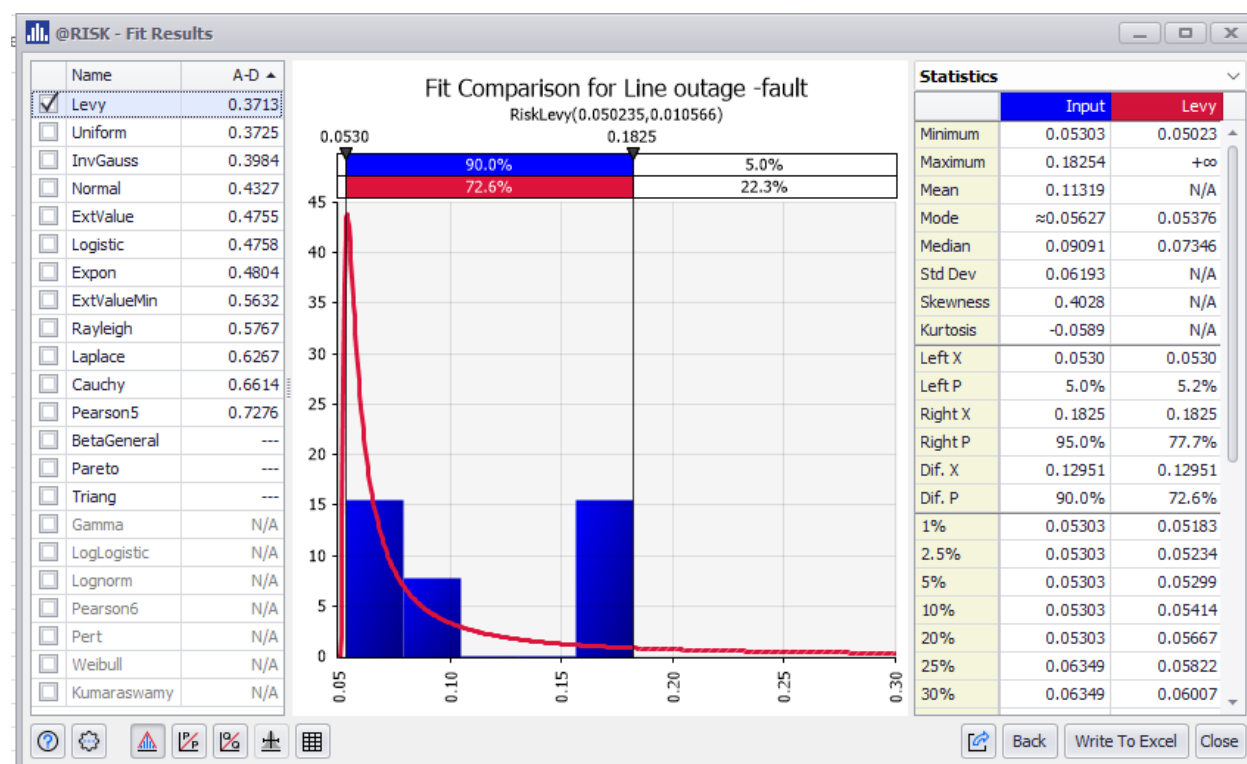


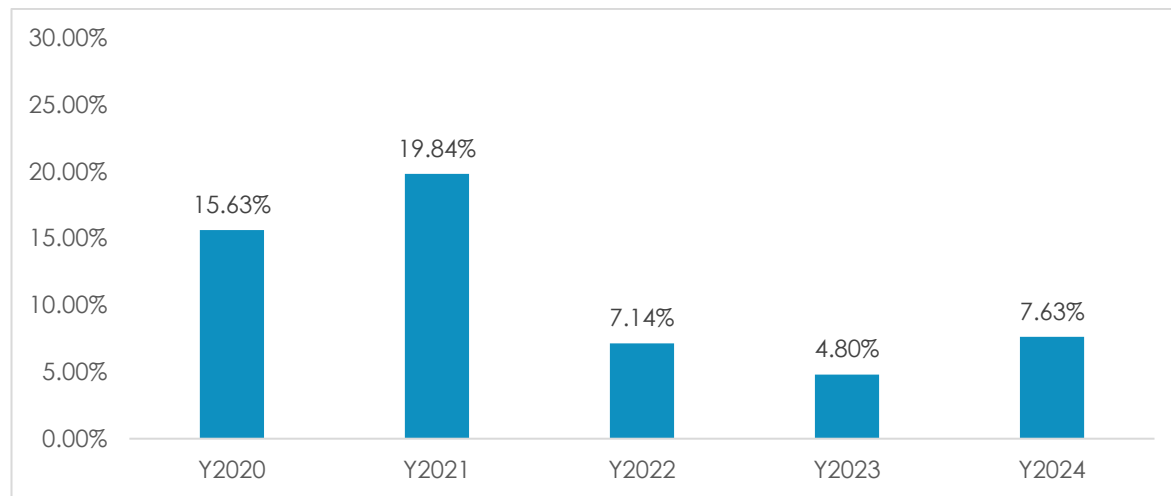
Figure 3.4 : Lines outage rate - fault – distribution fit using A-D



3.2 Transformer Outage Rate – Fault

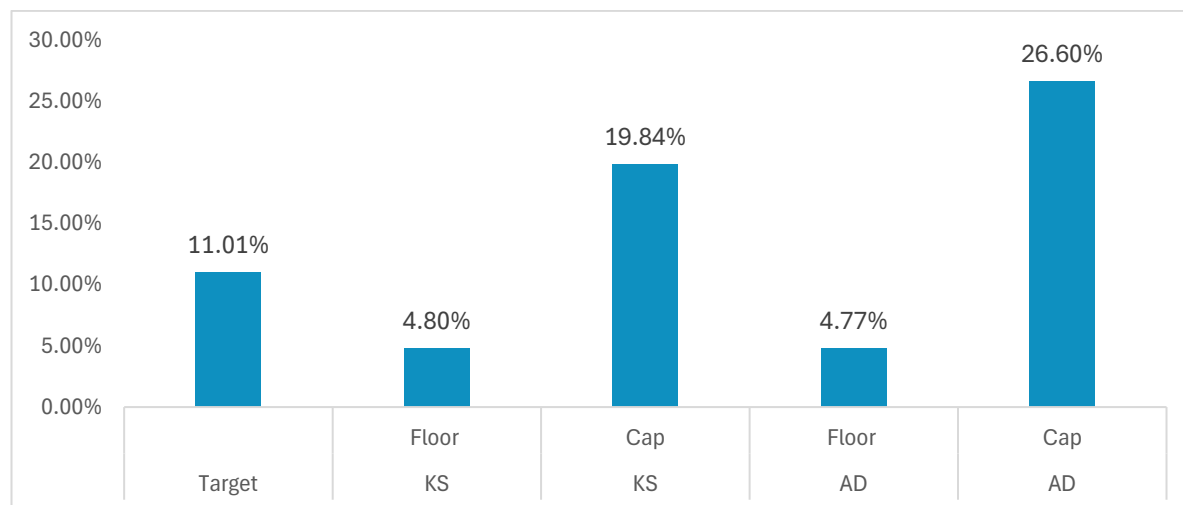
The historical performance data is set out in **Figure 3.5** below.

Figure 3.5: Transformer outage rate – fault – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we examined the K-S and A-D statistics for the best distribution fit. The K-S results indicated that beta general is the best fit while the A-D indicated that the inverse gauss was the best fit. This is presented in **Figure 3.6** below.

Figure 3.6: Transformer outage rate – fault – comparison of tests of best fit distribution



We considered that the K-S is a superior statistic than A-D as it focuses on the differences between the middle of the fitted distribution and the input data. The proposed performance targets are set out in **Table 3.2** below. **Figures 3.7 and 3.8** provide further description of the results. The attachment sets out full results.

Table 3.2: Transformer outage rate – fault - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Transformer outage rate -fault	Beta General	11.01%	4.80%	19.84%

Figure 3.7: Transformer outage rate – fault – distribution fit using K-S

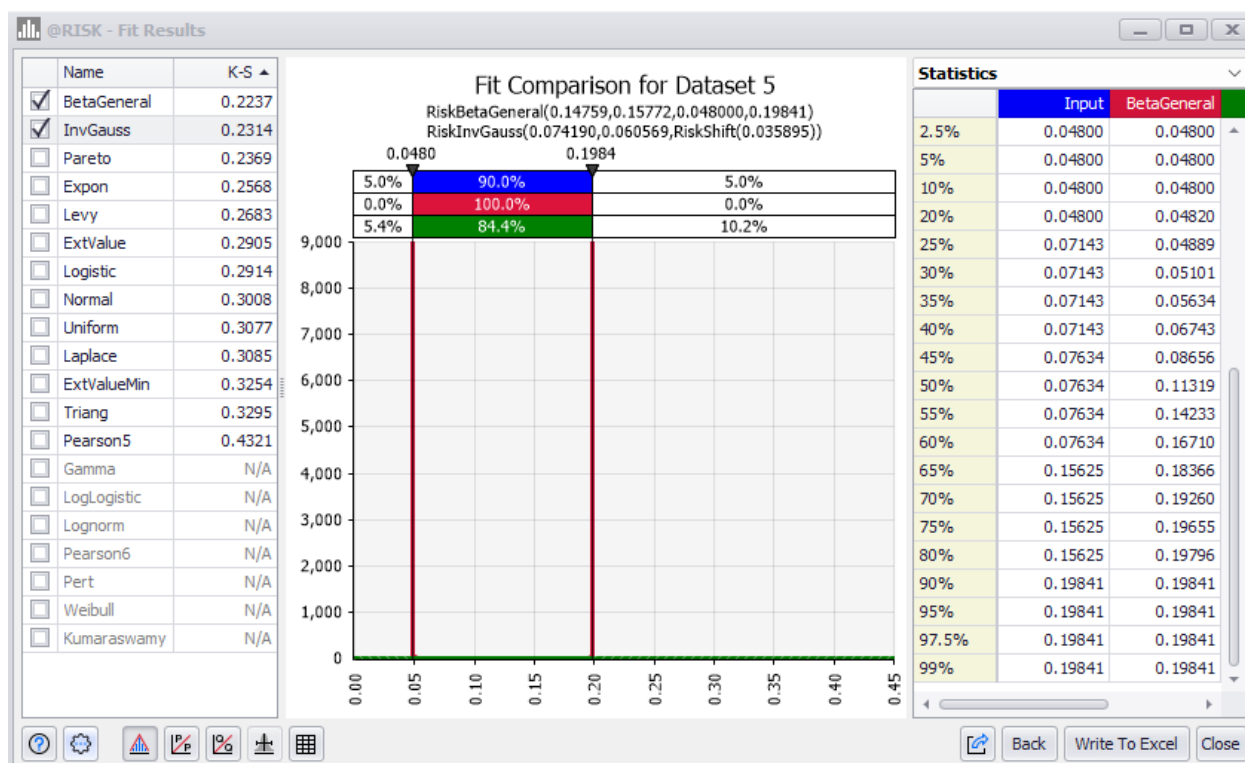
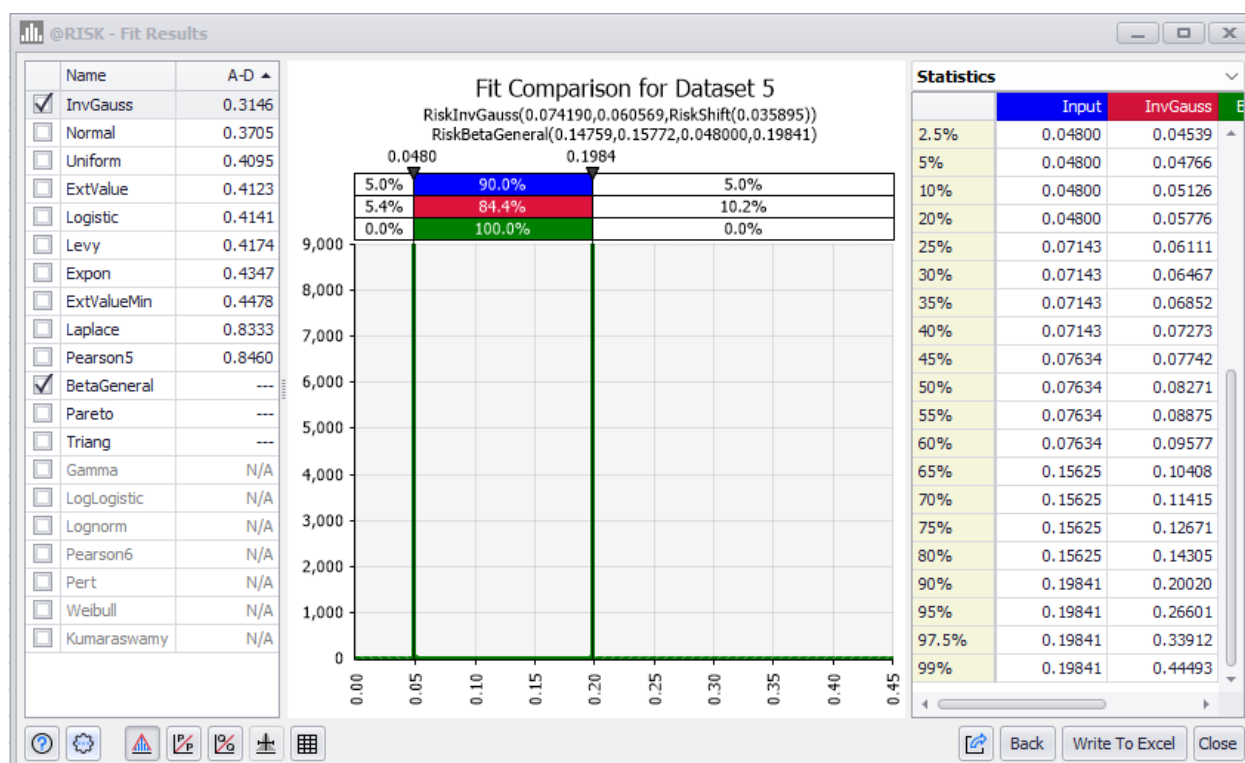


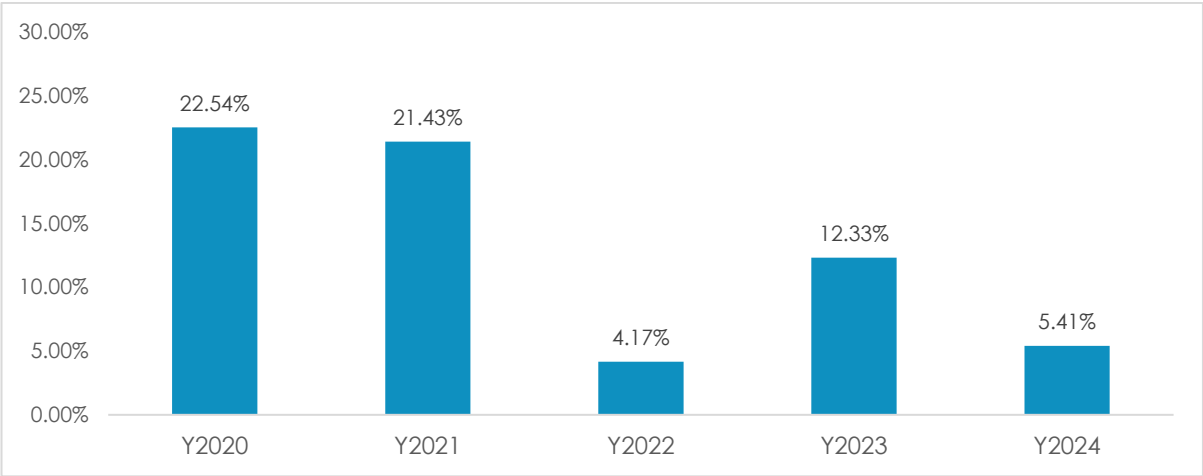
Figure 3.8: Transformer outage rate – fault – distribution fit using A-D



3.3 Reactive Plant Fault

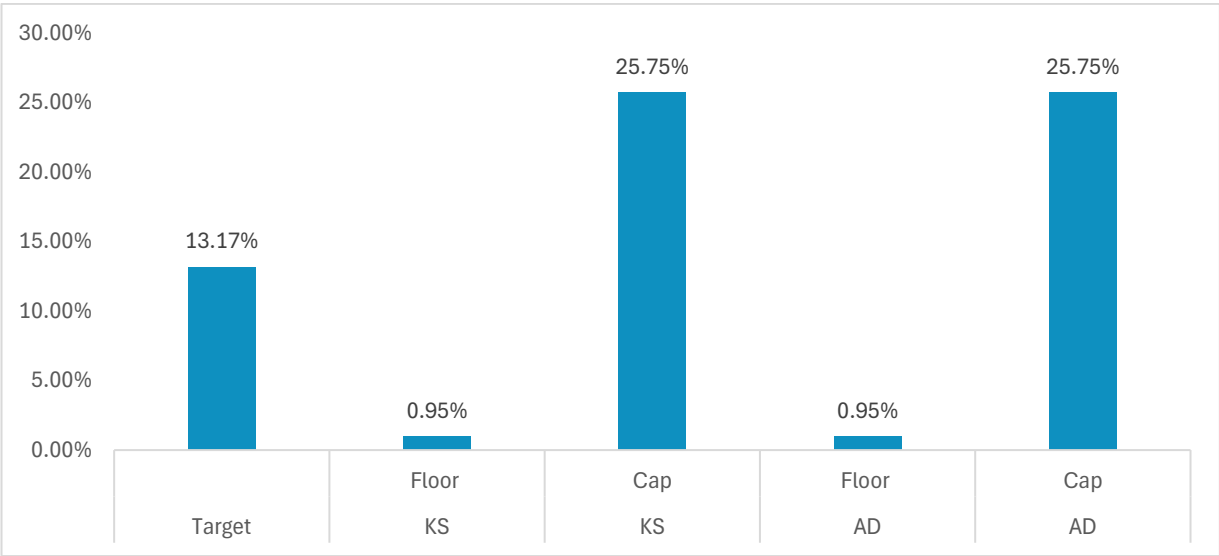
The historical performance data is set out in **Figure 3.9** below.

Figure 3.9: Reactive plant - fault – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we examined the K-S and A-D statistics for the best distribution fit. The K-S results indicated that the uniform is the best fit while the A-D also indicated that uniform was the best fit. This is presented in **Figure 3.10** below.

Figure 3.10: Reactive plant– fault – comparison of tests of best fit distribution



The proposed performance targets are set out in Table 3.3 below. **Figures 3.11 and 3.12** provide further description of the results. The attachment sets out full results.

Table 3.3 – Reactive plant– fault - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Reactive plant– fault	Uniform	13.17%	0.95%	25.75%

Figure 3.11: Reactive plant- fault – distribution fit using K-S

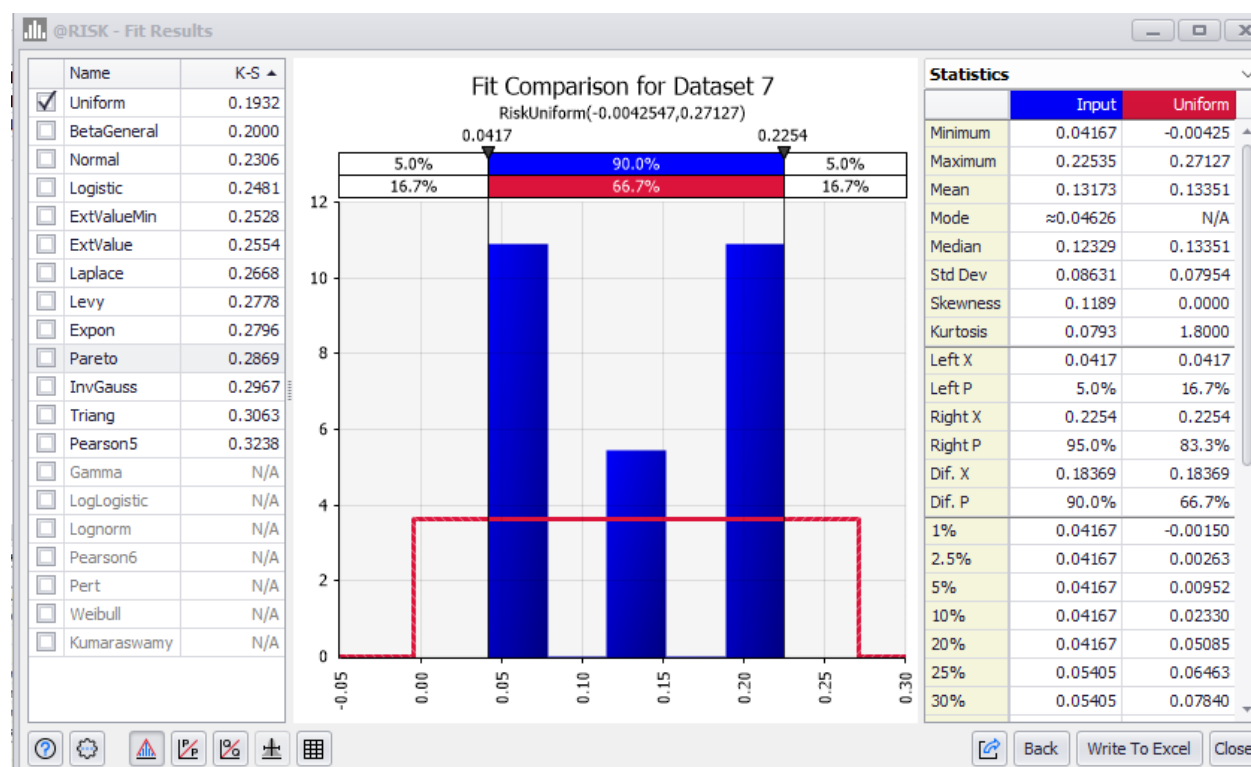
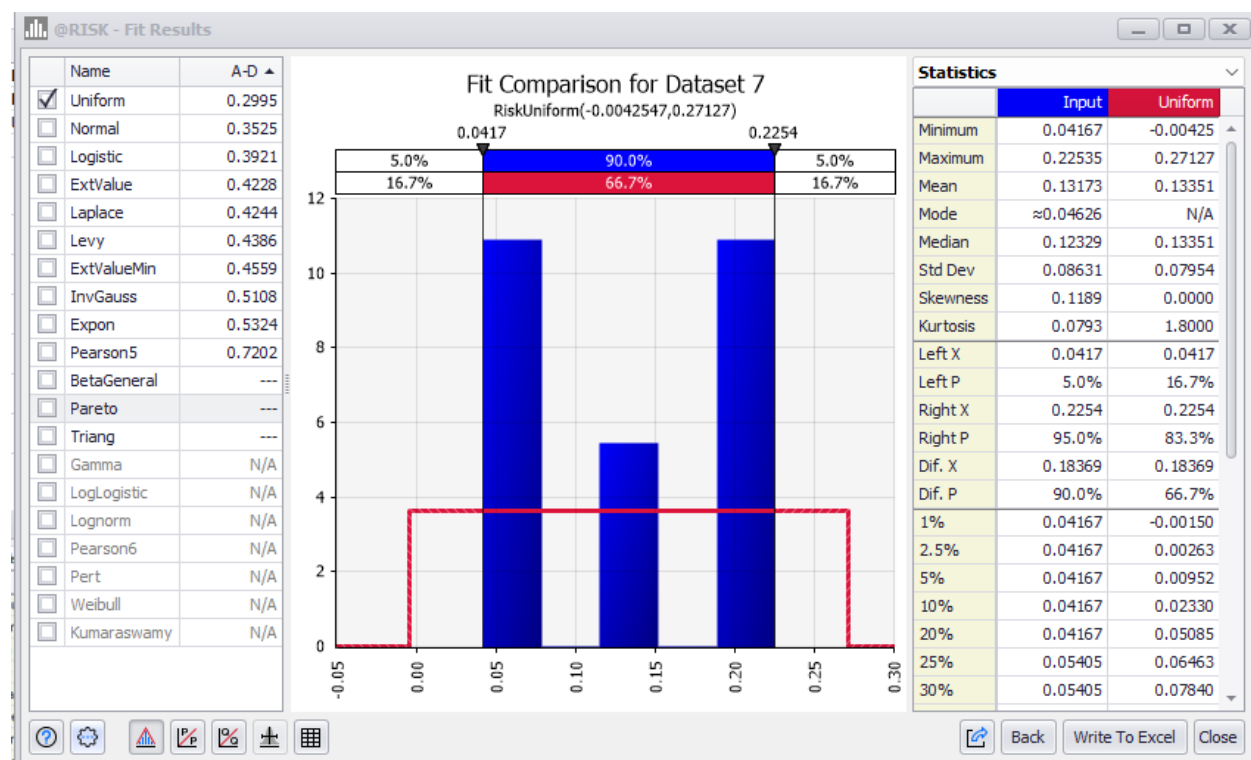


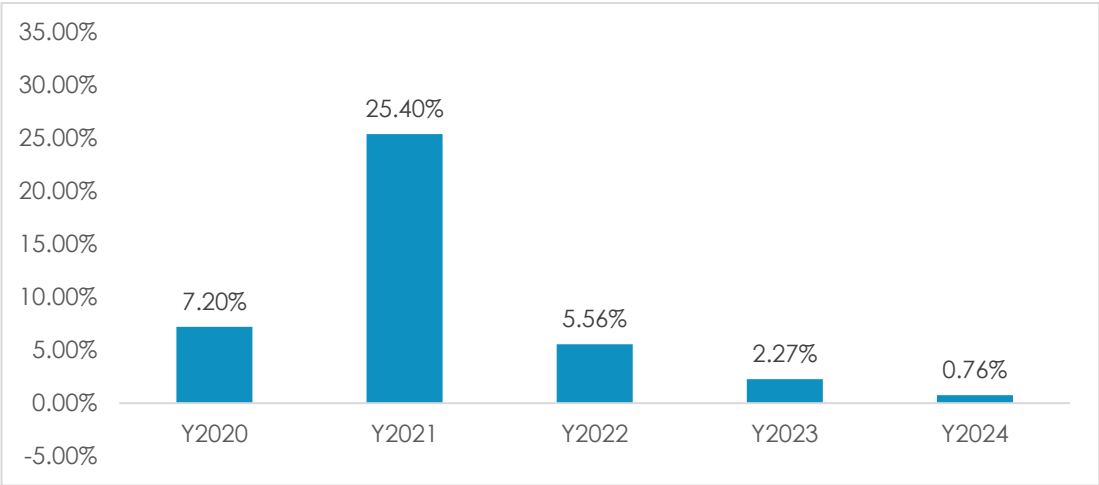
Figure 3.12: Reactive plant- fault – distribution fit using A-D



3.4Line Outage Rate – Forced

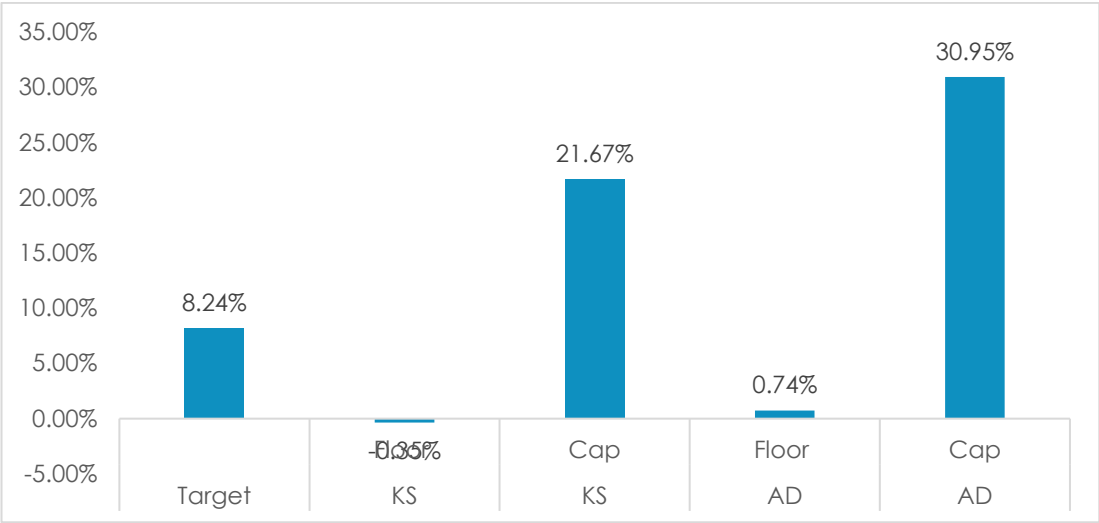
The historical performance data is set out in **Figure 3.13** below.

Figure 3.13: Line outage rate – forced – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we examined the K-S and A-D statistics for the best distribution fit. The K-S results indicated that the exponential is the best fit while the A-D indicated that the inverse gauss was the best fit. This is presented in **Figure 3.14** below.

Figure 3.14: Line outage rate – forced – comparison of tests of best fit distribution



We considered that the K-S is a superior statistic than A-D as it focuses on the differences between the middle of the fitted distribution and the input data. However, we note that the floor is a negative amount, and as such we have bounded the floor to zero to produce sensible results. The proposed performance targets are set out in **Table 3.4** below. **Figures 3.15 and 3.16** provide further description of the results. The attachment sets out full results.

Table 3.4 – Line outage rate – forced - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Line outage rate – forced	Exponential	8.24%	0.00%	21.67%

Figure 3.15: Lines outage rate - forced – distribution fit using K-S

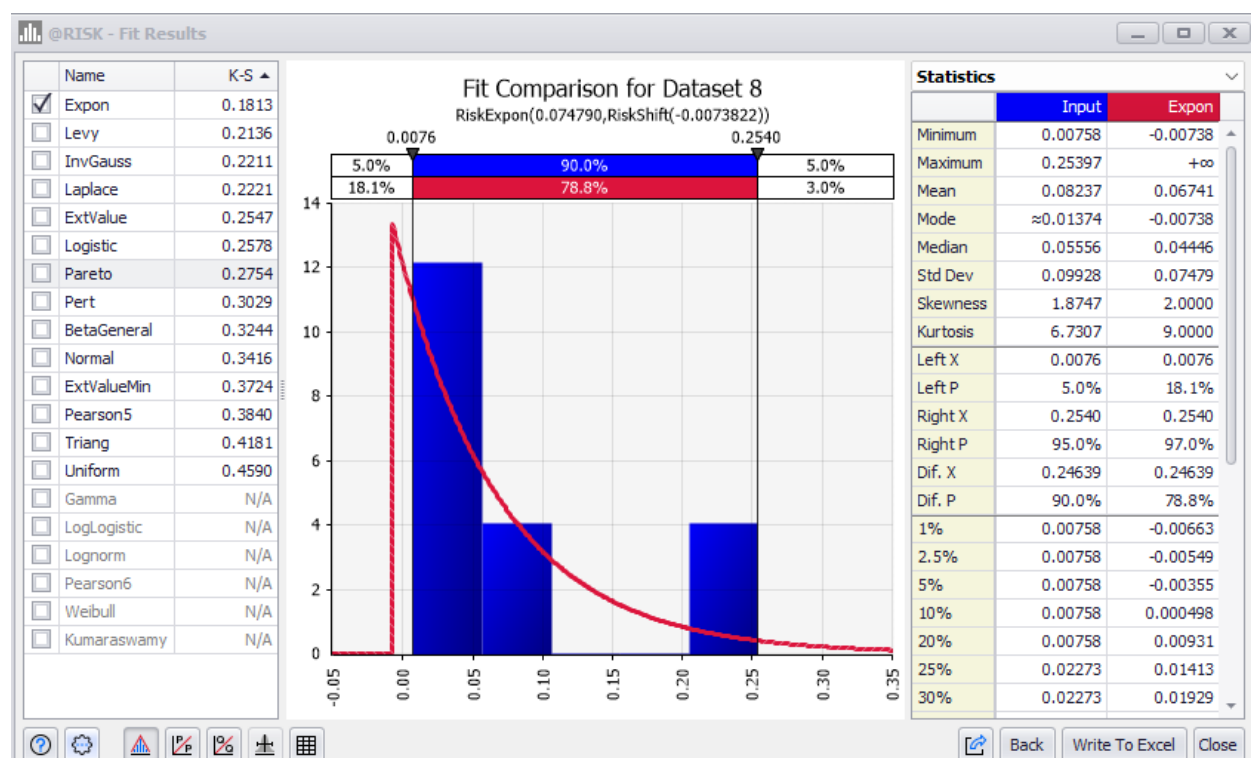
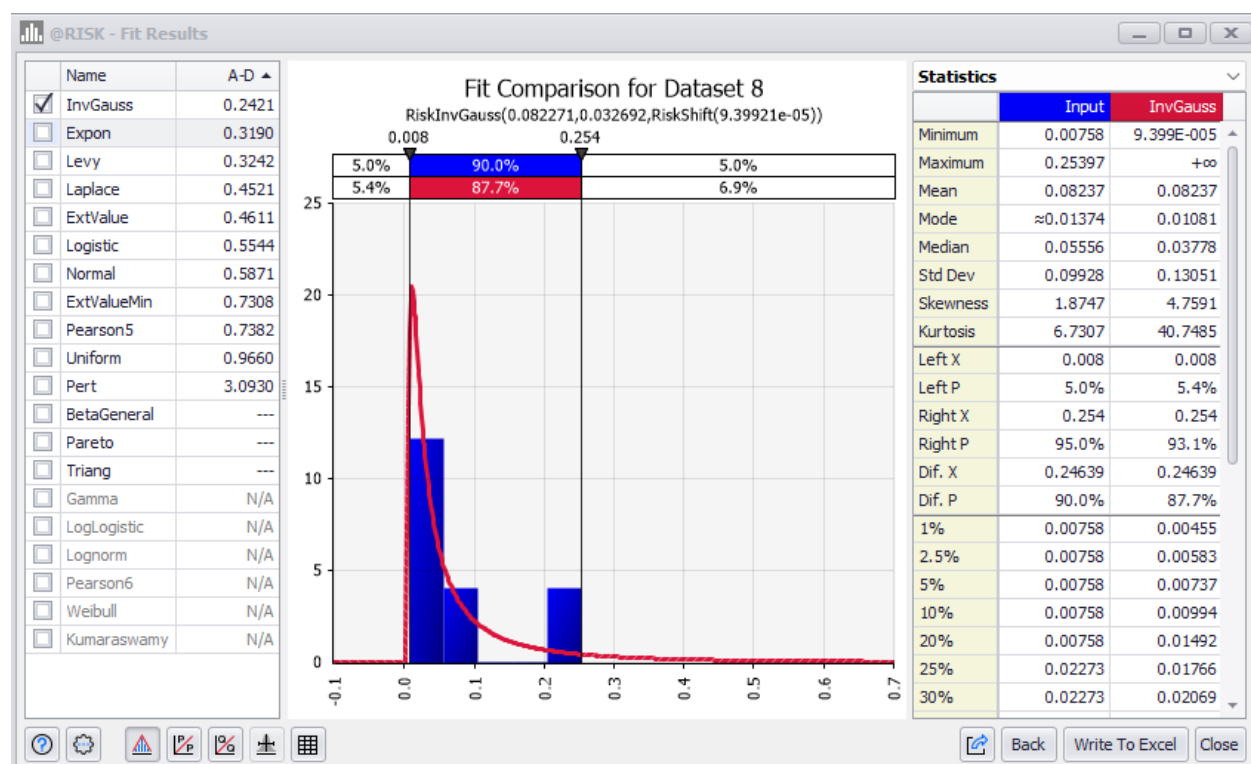


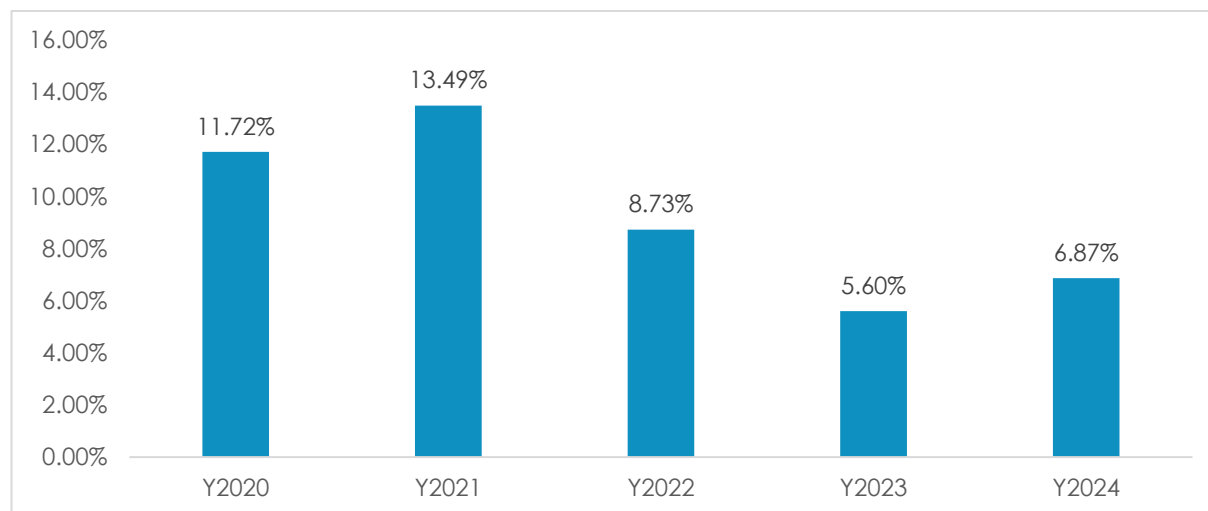
Figure 3.16: Lines outage rate - forced – distribution fit using A-D



3.5 Transformer Outage Rate - Forced

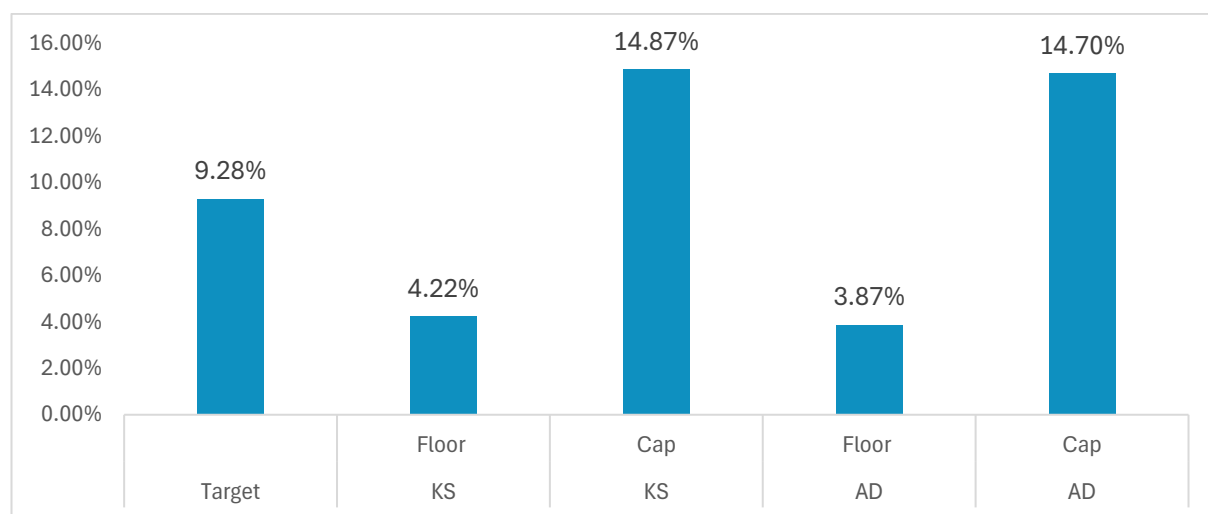
The historical performance data is set out in **Figure 3.17** below.

Figure 3.17: Transformer outage rate – forced – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we examined the K-S and A-D statistics for the best distribution fit. The K-S results indicated that uniform is the best fit while the A-D indicated that normal was the best fit. This is presented in **Figure 3.18** below.

Figure 3.18: Transformer outage rate – forced – comparison of tests of best fit distribution



We considered that the K-S is a superior statistic than A-D as it focuses on the differences between the middle of the fitted distribution and the input data. The proposed performance targets are set out in **Table 3.5** below. **Figures 3.19 and 3.20** provide further description of the results. The attachment sets out full results.

Table 3.5: Transformer outage rate – forced - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Transformer outage rate - forced	Uniform	9.28%	4.22%	14.87%

Figure 3.19: Transformer outage rate – forced – distribution fit using K-S

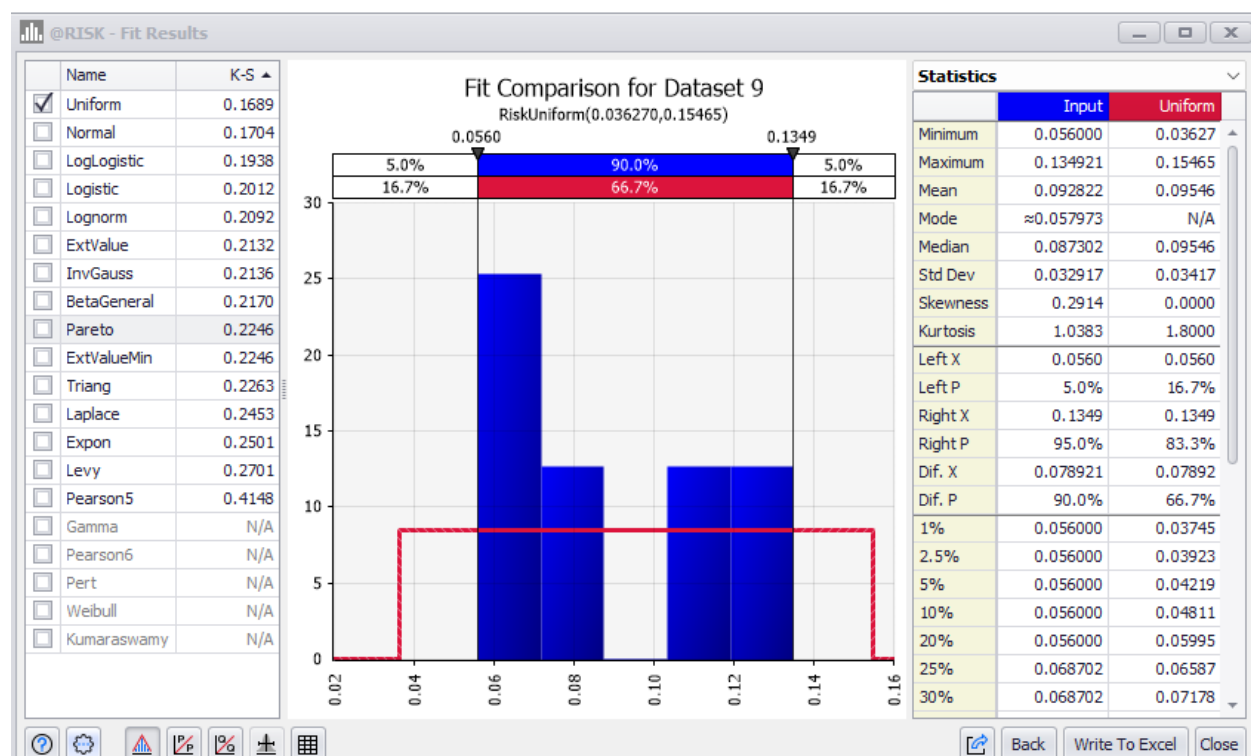
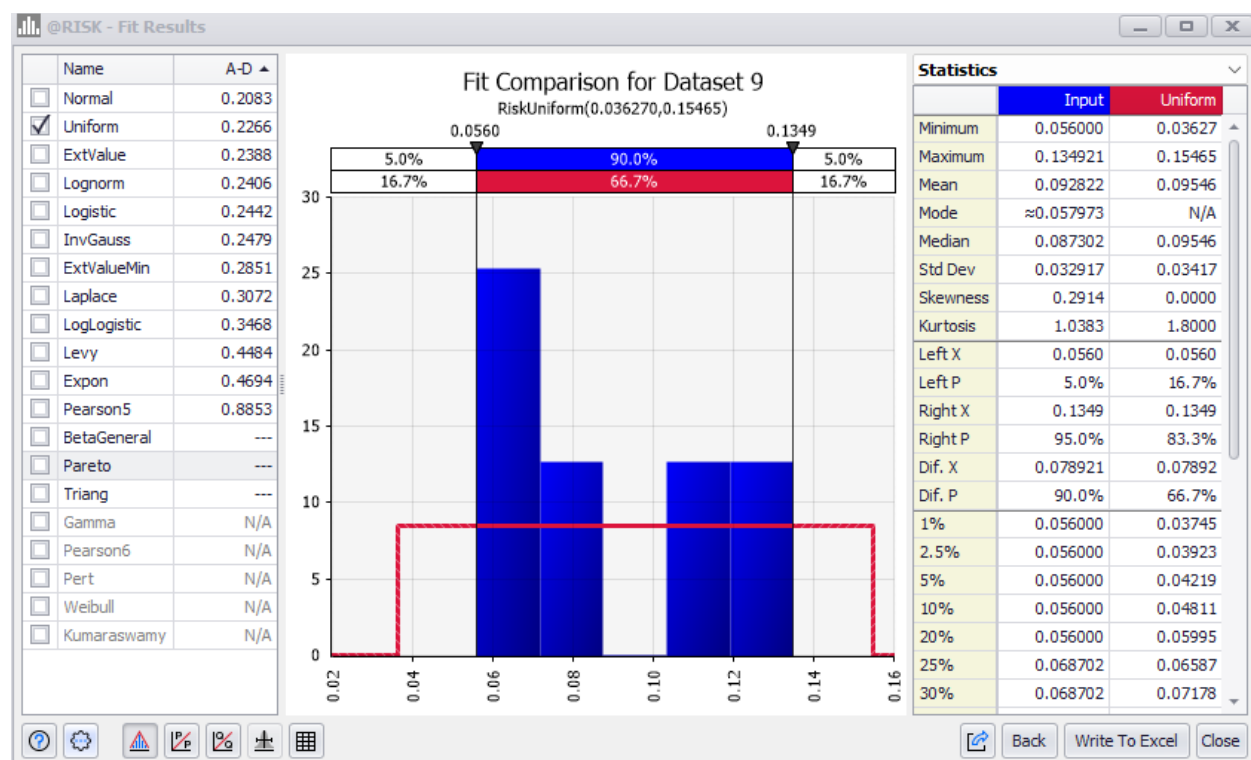


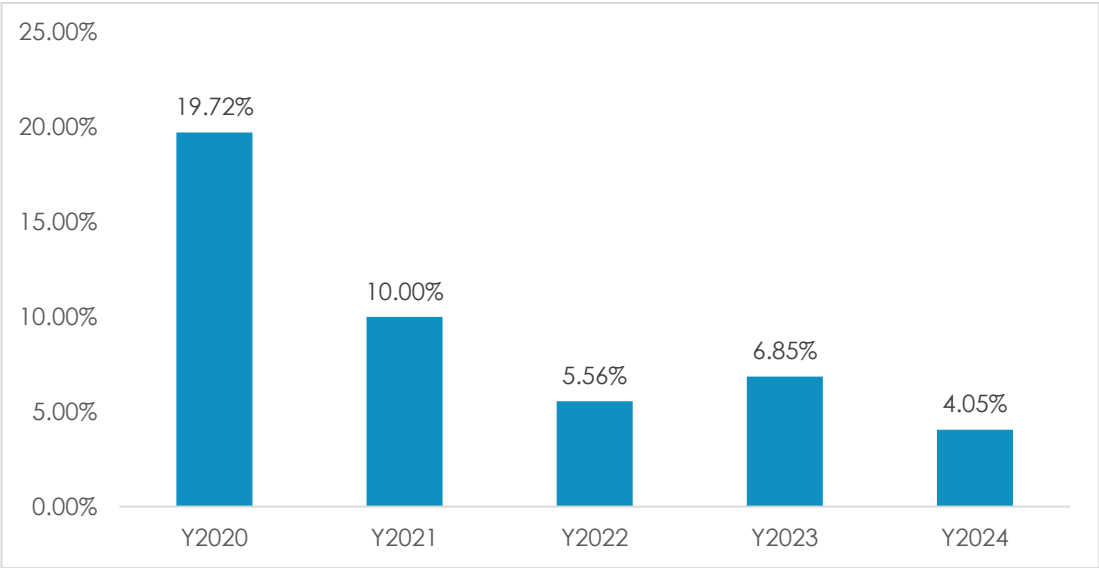
Figure 3.20: Transformer outage rate – forced – distribution fit using A-D



3.6 Reactive Plant Forced

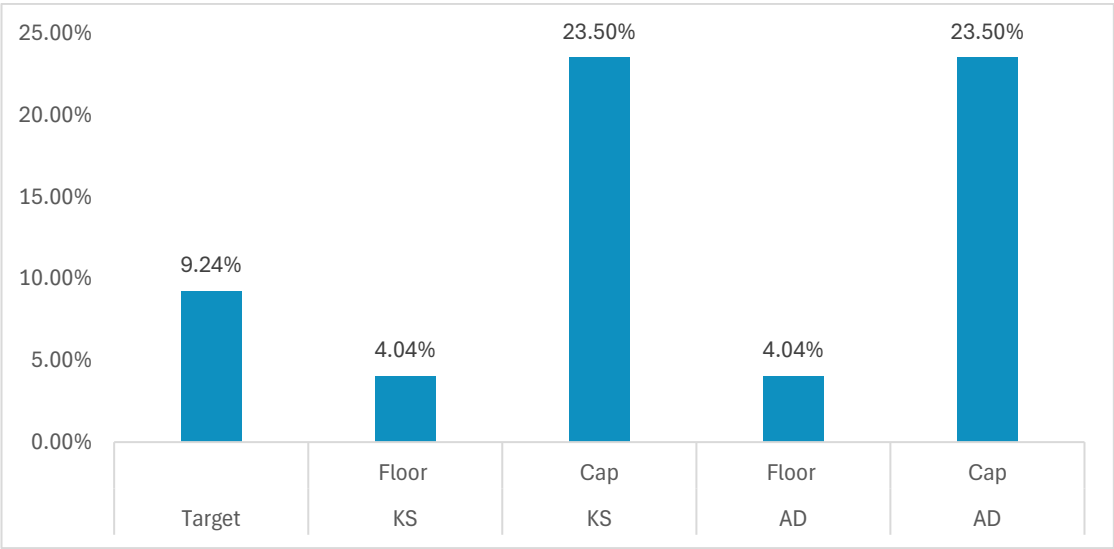
The historical performance data is set out in **Figure 3.21** below.

Figure 3.21: Reactive plant - forced – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we examined the K-S and A-D statistics for the best distribution fit. The K-S results indicated that inverse gauss is the best fit and this result was validated by the A-D statistic. This is presented in **Figure 3.22** below.

Figure 3.22: Reactive plant– forced – comparison of tests of best fit distribution



The proposed performance targets are set out in **Table 3.6** below. **Figures 3.23 and 3.24** provide further description of the results. The attachment sets out full results.

Reactive plant– forced - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile (“Floor”)	95th percentile (“Cap”)
Reactive plant– forced	Inv Gauss	9.24%	4.04%	23.50%

Figure 3.23: Reactive plant- forced – distribution fit using K-S

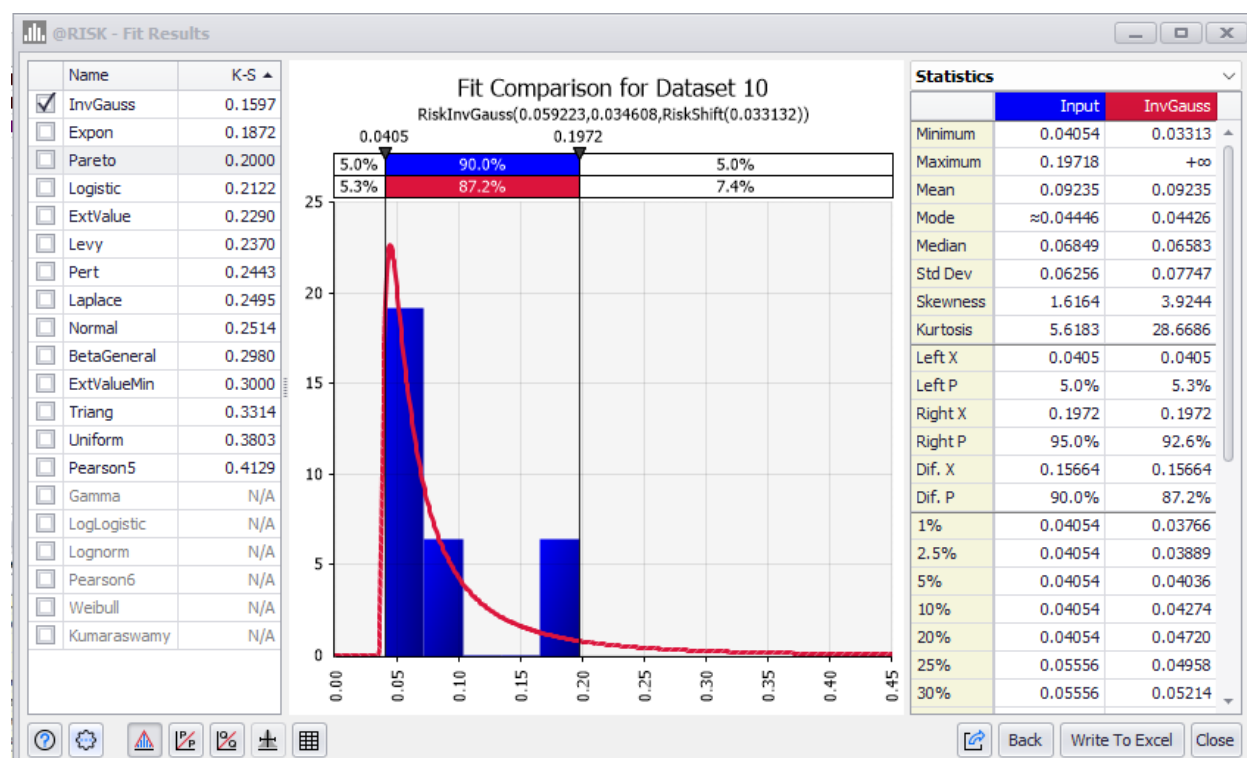
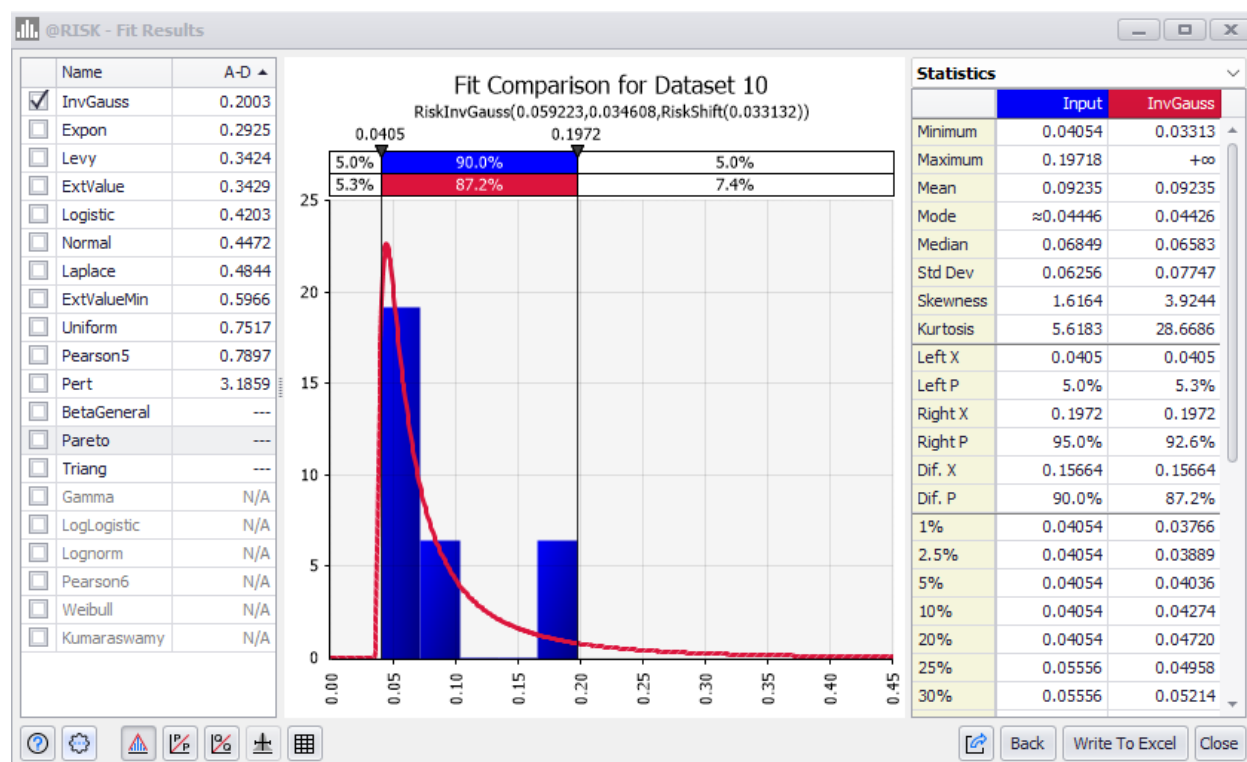


Figure 3.24: Reactive plant- forced – distribution fit using A-D



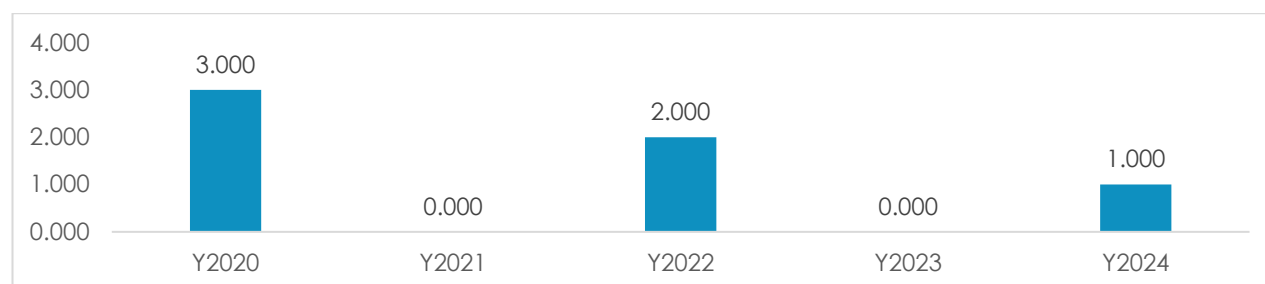
4. Loss of Supply Events

The loss of supply event frequency parameter includes and counts both small and large loss of supply events each year. System minutes per annum is calculated using energy not supplied for each supply interruption divided by peak network demand. We propose 0.05 system minutes for small and 0.3 system minutes for large events consistent with the past and with version 6 of the AER's STPIIS Guidelines.

4.1 Loss of Supply less than 0.05 minutes

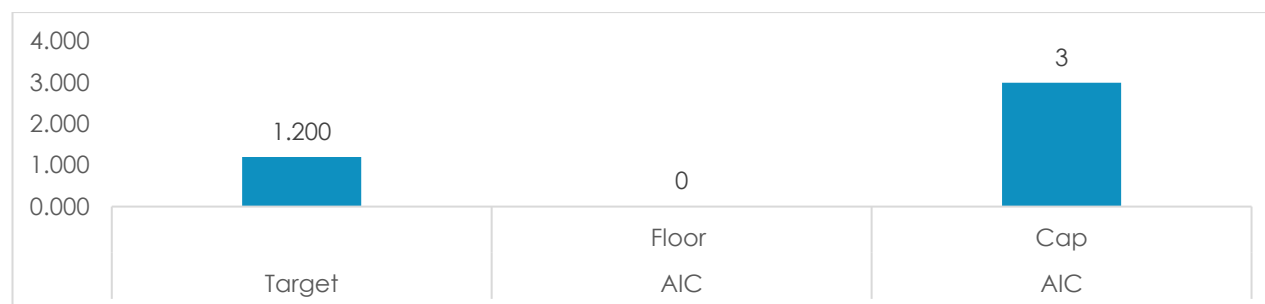
The historical performance data is set out in **Figure 4.1** below.

Figure 4.1: Number of events >0.05 system minutes – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we used the AIC statistics for the best distribution fit which indicated that the Poisson was the best fit. This is presented in **Figure 4.2** below.

Figure 4.2: Number of events >0.05 system minutes – comparison of tests of best fit distribution

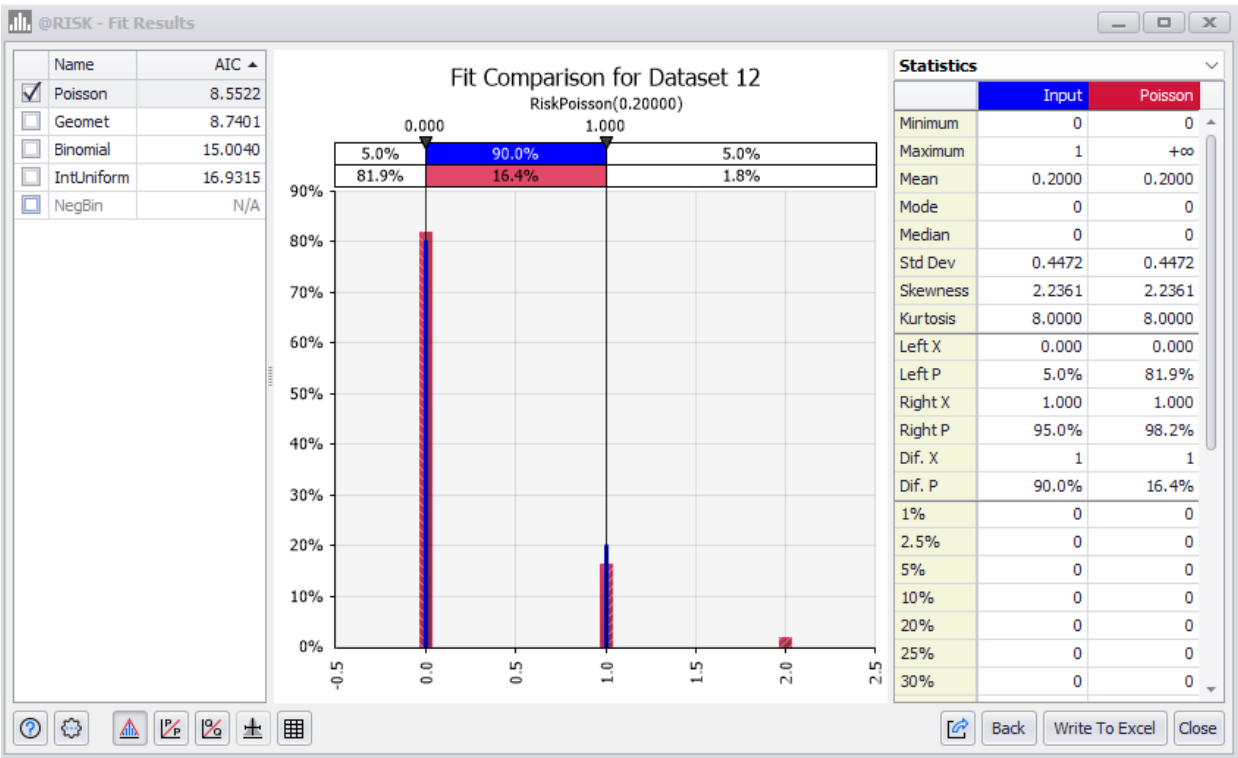


The proposed performance targets are set out in **Table 4.1** below noting that under version 6 of the AER's STPIIS guidelines, we can propose unrounded performance targets. **Figure 4.3** provide further description of the results. The attachment sets out full results.

Table 4.1: Number of events >0.05 system minutes - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Number of events >0.05 system minutes	Poisson	1.200	0.000	3.000

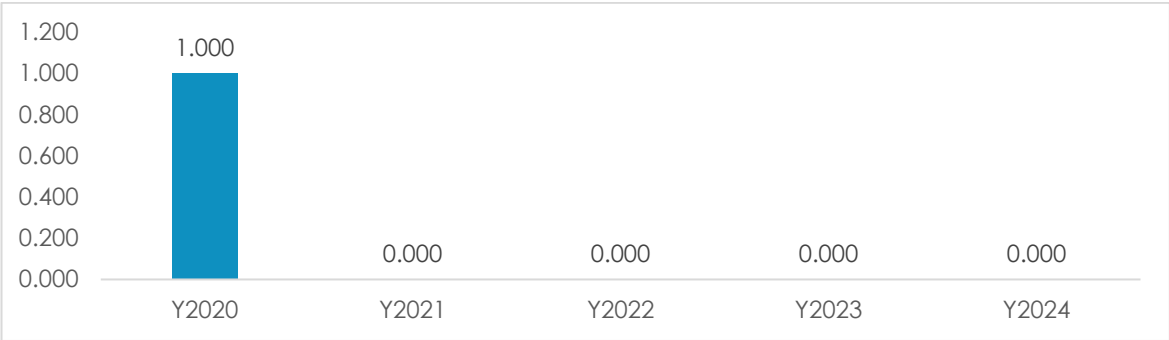
Figure 4.4: Number of events >0.05 system minutes – distribution fit using AIC



4.2 Loss of Supply less than 0.3 minutes

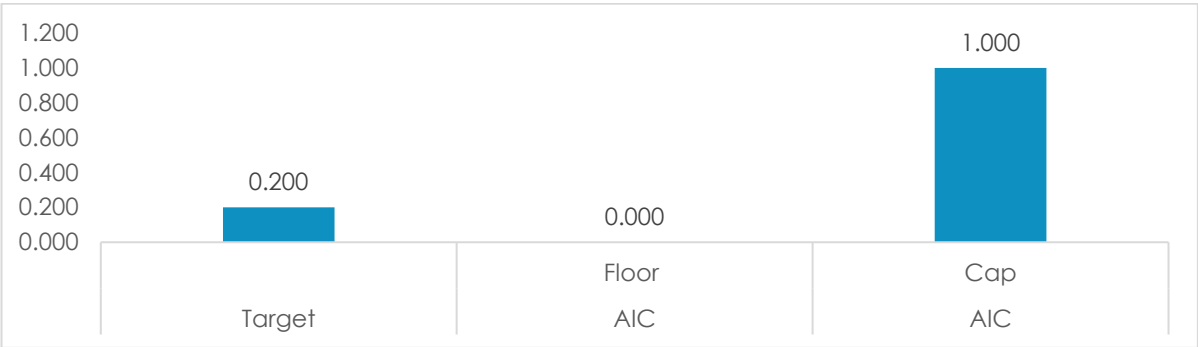
The historical performance data is set out in **Figure 4.4** below.

Figure 4.4: Number of events >0.3 system minutes – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we used the AIC statistics for the best distribution fit which indicated that the Poisson was the best fit. This is presented in Figure 4.5 below.

Figure 4.5: Number of events >0.3 system minutes – comparison of tests of best fit distribution

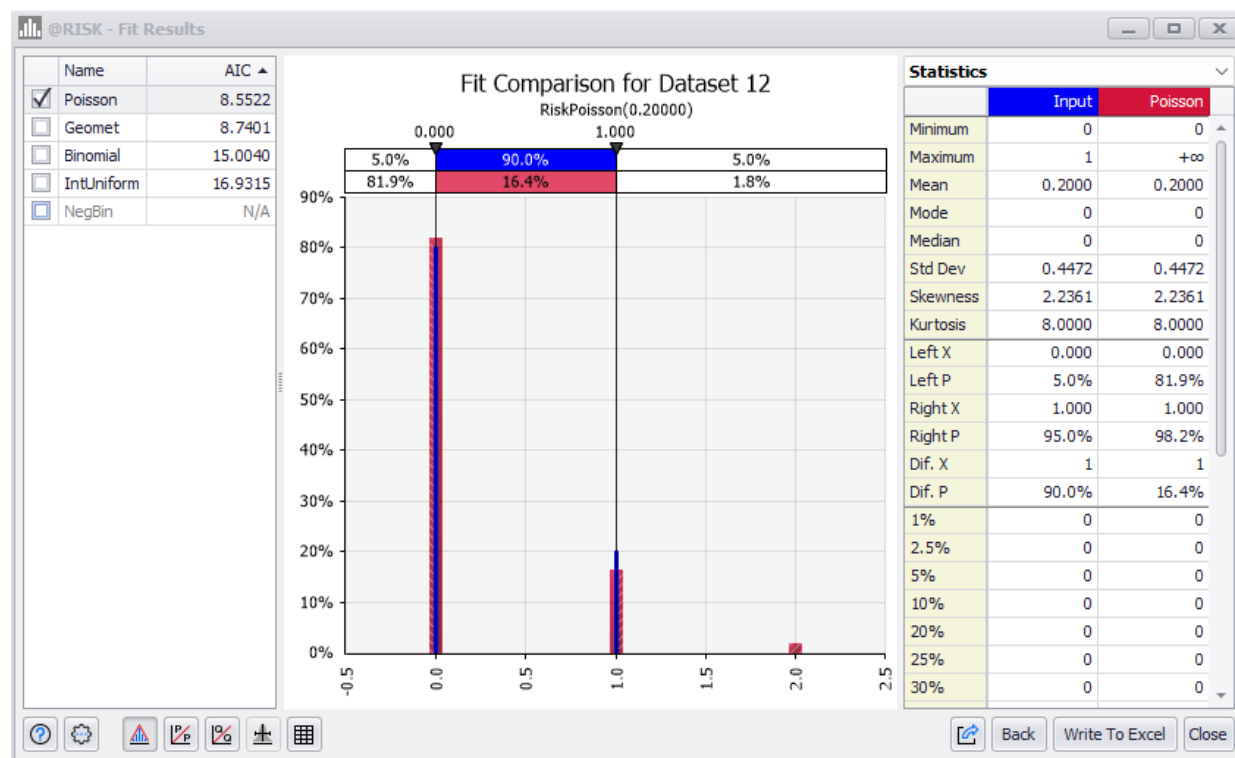


The proposed performance targets are set out in Table 4.2 below noting that under version 6 of the AER's STPIS guidelines, we can propose unrounded performance targets. Figures 4.3 provide further description of the results. The attachment sets out full results.

Table 4.2: Number of events >0.3 system minutes - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Number of events >0.30 system minutes	Poisson	0.200	0.000	1.000

Figure 4.6: Number of events >0.3 system minutes – distribution fit using AIC

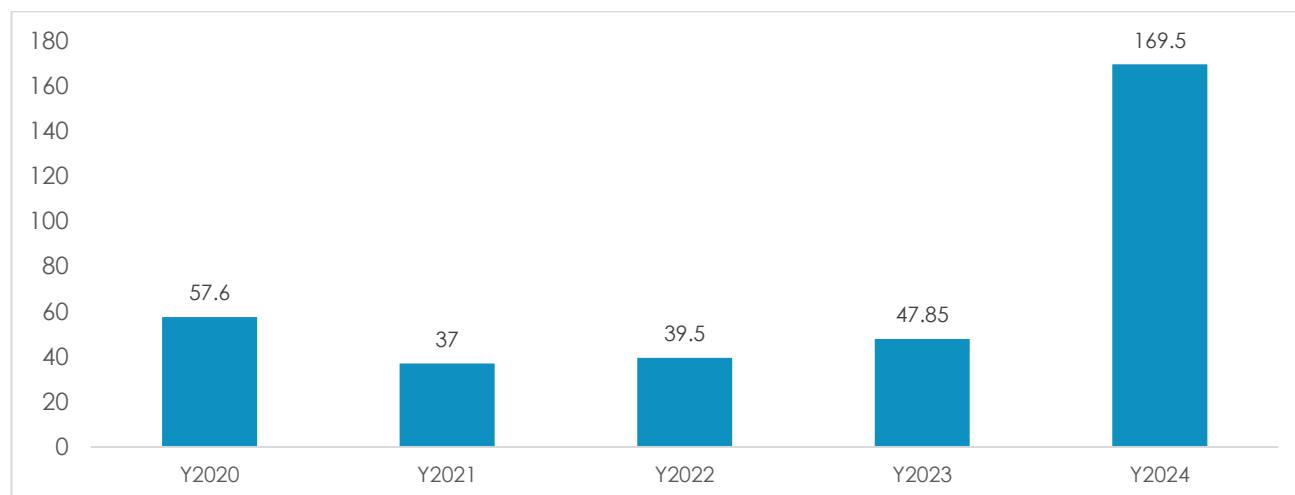


5. Average Outage Duration

The average outage duration parameter measures the average time to restore supply following loss of supply events. It is calculated by dividing the total loss of supply event duration time by the number of loss of supply events in a given year. The parameter only has a single measure.

The historical performance data is set out in **Figure 5.1** below.

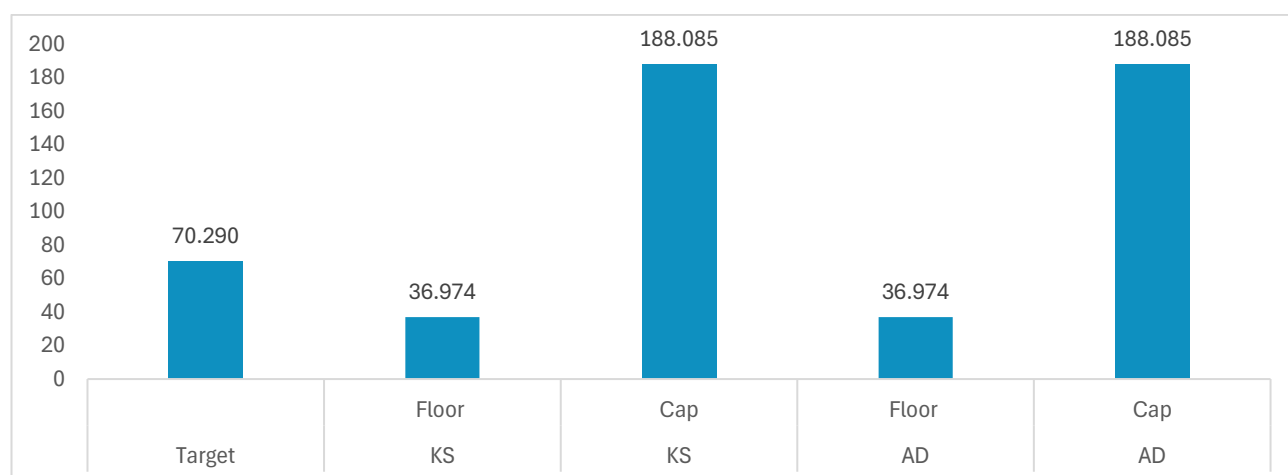
Figure 5.1: Average outage duration – 5 year historical performance (minutes)



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we examined the K-S and A-D statistics for the best distribution fit. Both results indicated that the Levy function was the preferred option, however this produced a cap of over 700 minutes. In our view, this would be a highly improbable result given our historic performance over the last decade. The Levy function is suitable for distributions with heavy tails implying that extreme events are more likely.

We consider the second ranked option for both the K-S and A-D statistics (Inverse Gauss) is preferred, given the cap and collar are within the expected bounds of performance for this parameter. We also note that the Inverse Gauss is a function that gives greater weight to observed outcomes. The cap and collar of the Inverse Gauss function is presented in **Figure 5.2** below.

Figure 5.2: Average outage duration – comparison of tests of best fit distribution



The proposed performance targets are set out in **Table 5.1** below. **Figures 5.3 and 5.4** provide further description of the results. The attachment sets out full results.

Table 5.1 – Average outage duration - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Average outage duration	Inverse Gauss	70.290	36.974	188.085

Figure 5.3: Average outage duration – distribution fit using K-S

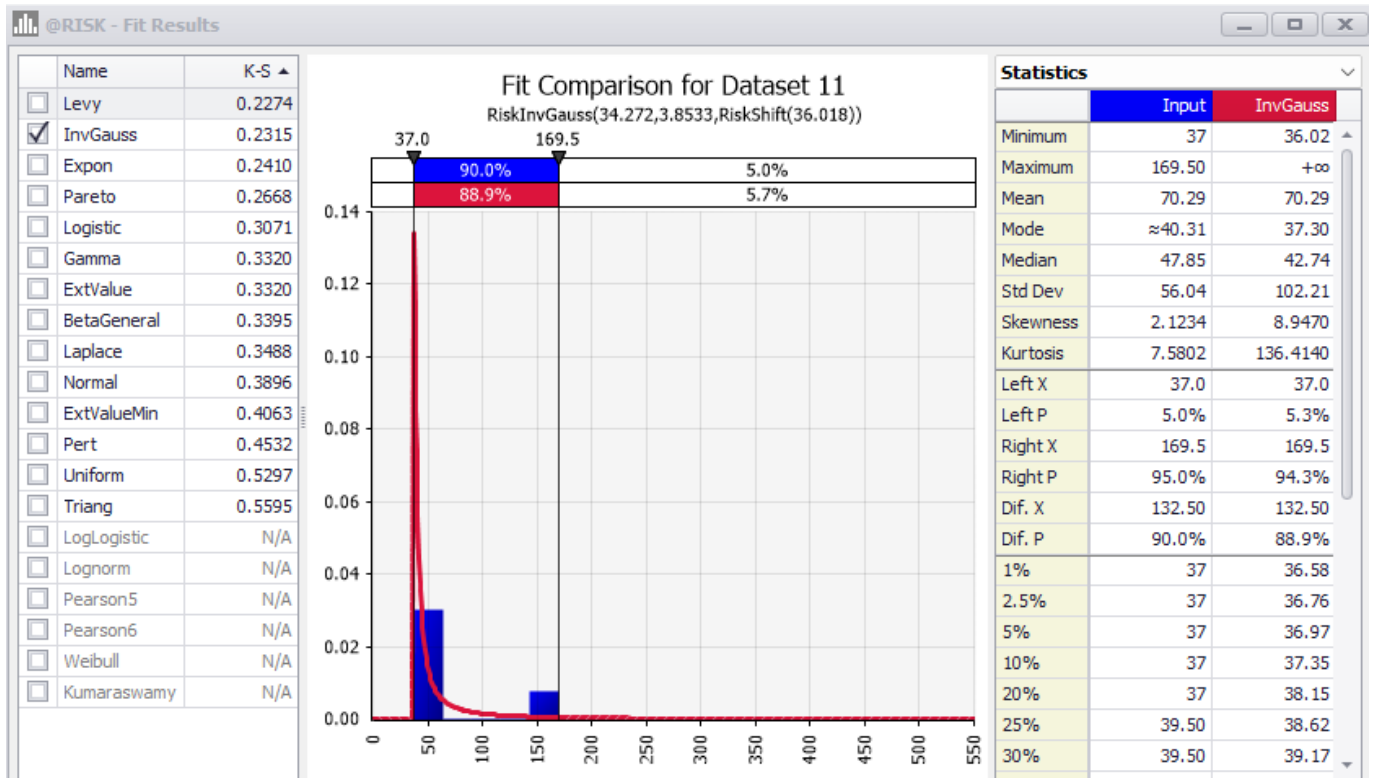
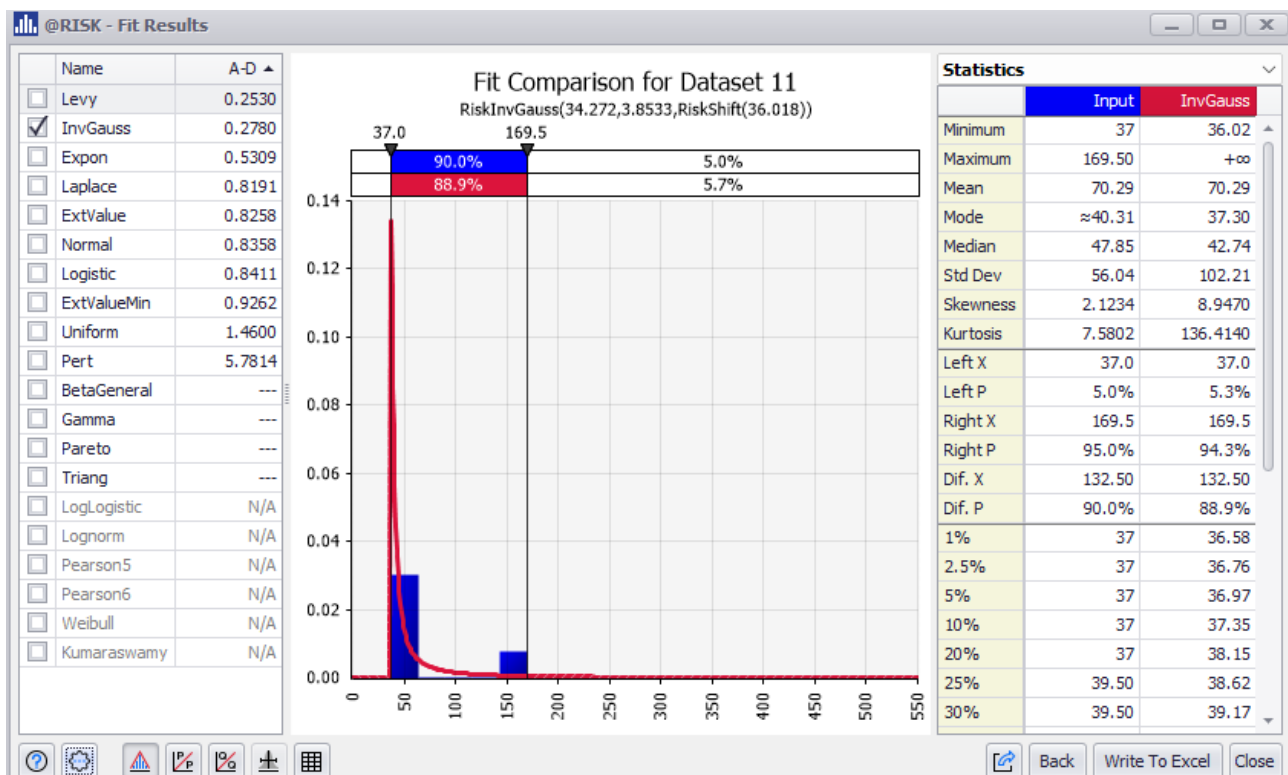


Figure 5.4 : Average outage duration – distribution fit using A-D



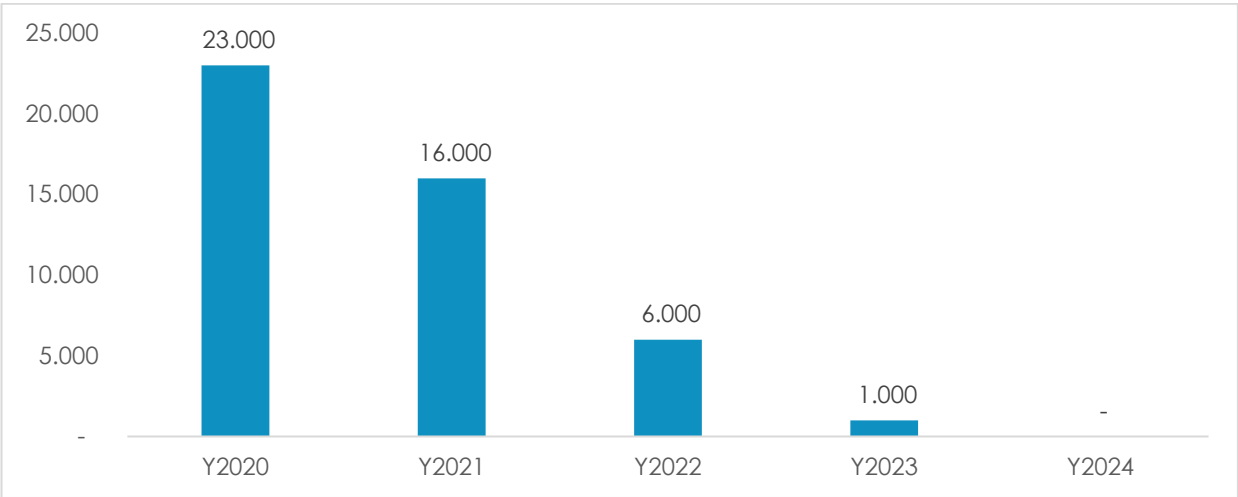
6. Proper operation of equipment

The proper operation of equipment parameter measures the number of ‘near miss’ events such as failures of protection systems, material failure of the Supervisory Control and Data Acquisition (SCADA) system and incorrect operational isolation of primary and secondary equipment. No financial incentive is associated with this parameter and so our performance is only used for reporting purposes.

6.1 Failure of protection systems

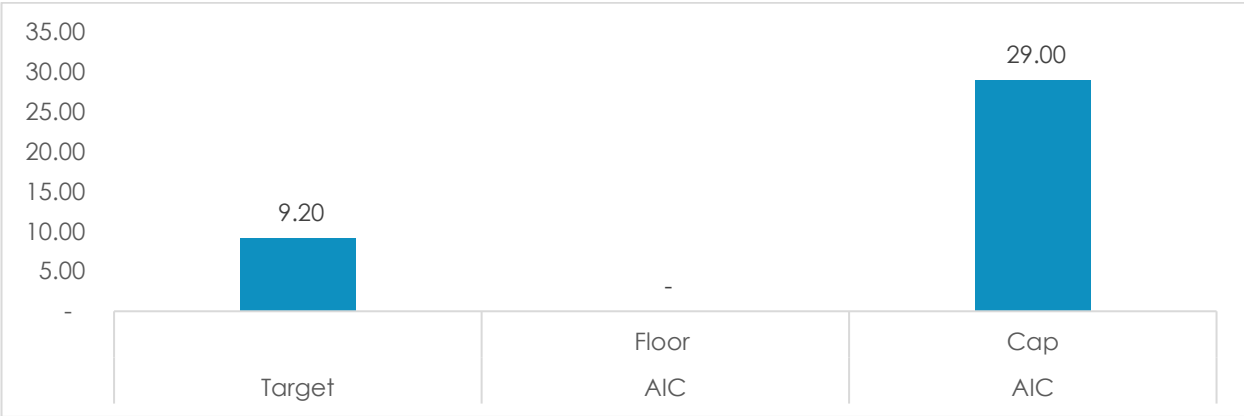
The historical performance data is set out in **Figure 6.1** below.

Figure 6.1: Failure of protection systems – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we used the AIC statistics for the best distribution fit which indicated that the Geometric was the best fit. This is presented in **Figure 6.2** below.

Figure 6.2: Failure of protection equipment – comparison of tests of best fit distribution

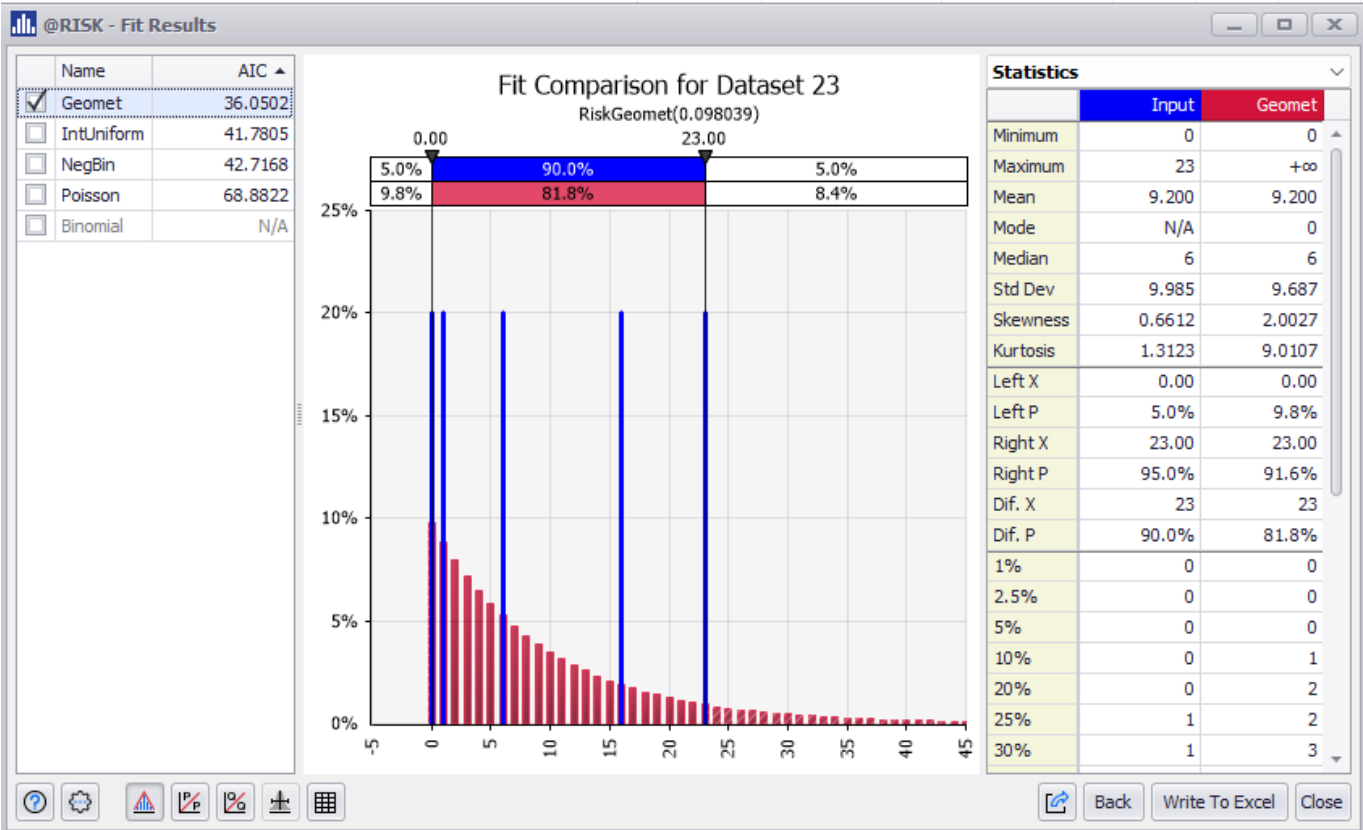


The proposed performance targets are set out in **Table 6.1** below. **Figures 6.3** provides further description of the results. The attachment sets out full results.

Table 6.1 Failure of protection equipment - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Failure of Protection equipment	Geometric	9.20	0.00	29.00

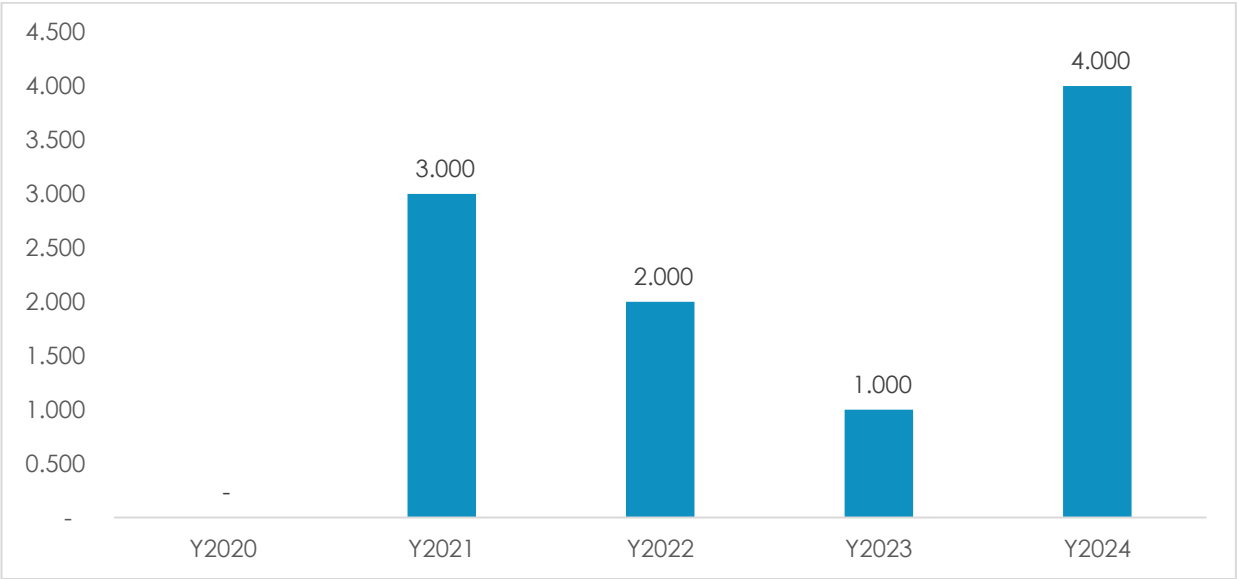
Figure 6.3: Failure of protection equipment – distribution fit using AIC



6.2 Material failure of SCADA

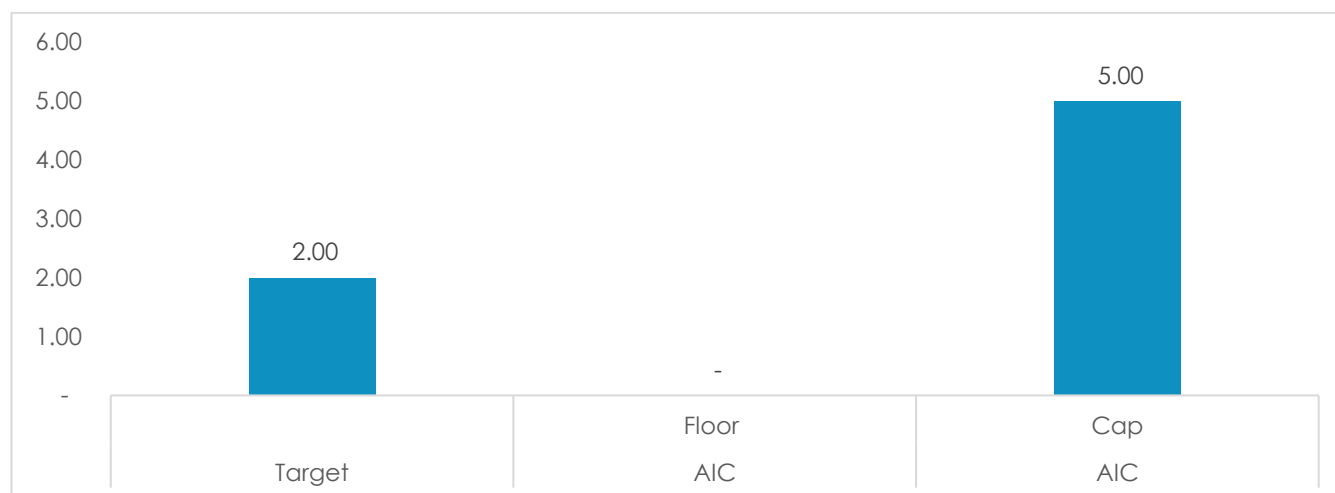
The historical performance data is set out in **Figure 6.4** below.

Figure 6.4: Material failure of SCADA – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we used the AIC statistics for the best distribution fit which indicated that the Geometric was the best fit. This is presented in **Figure 6.5** below.

Figure 6.5: Material failure of SCADA – comparison of tests of best fit distribution

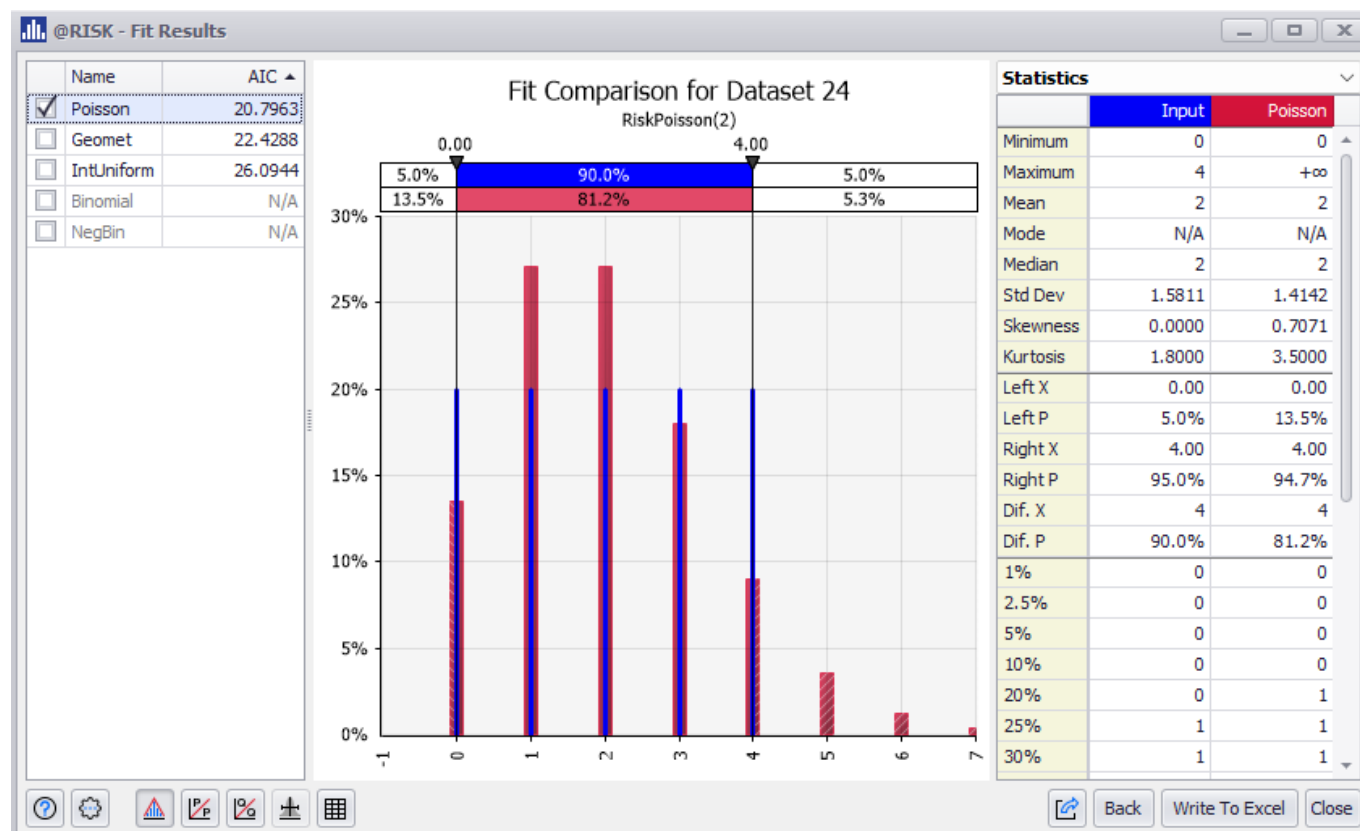


The proposed performance targets are set out in **Table 6.2** below. **Figures 6.6** provides further description of the results. The attachment sets out full results.

Table 6.2 Material failure of SCADA - Proposed performance targets, floors and caps

Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Material failure of SCADA	Geometric	2.00	0.00	5.00

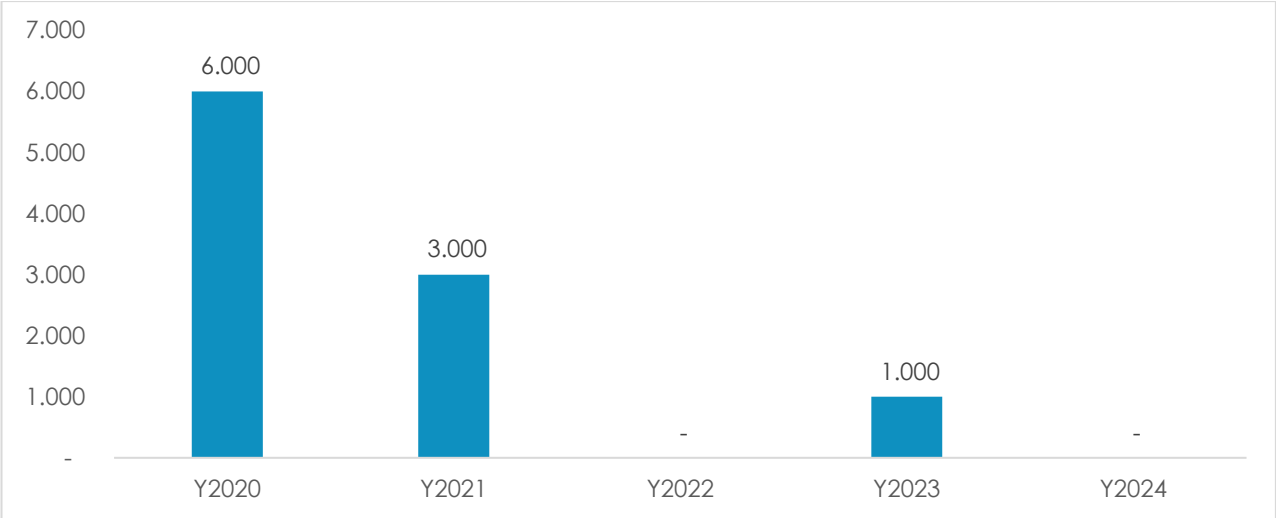
Figure 6.6: Material failure of SCADA – distribution fit using AIC



6.3 Incorrect operation of isolation of primary or secondary equipment

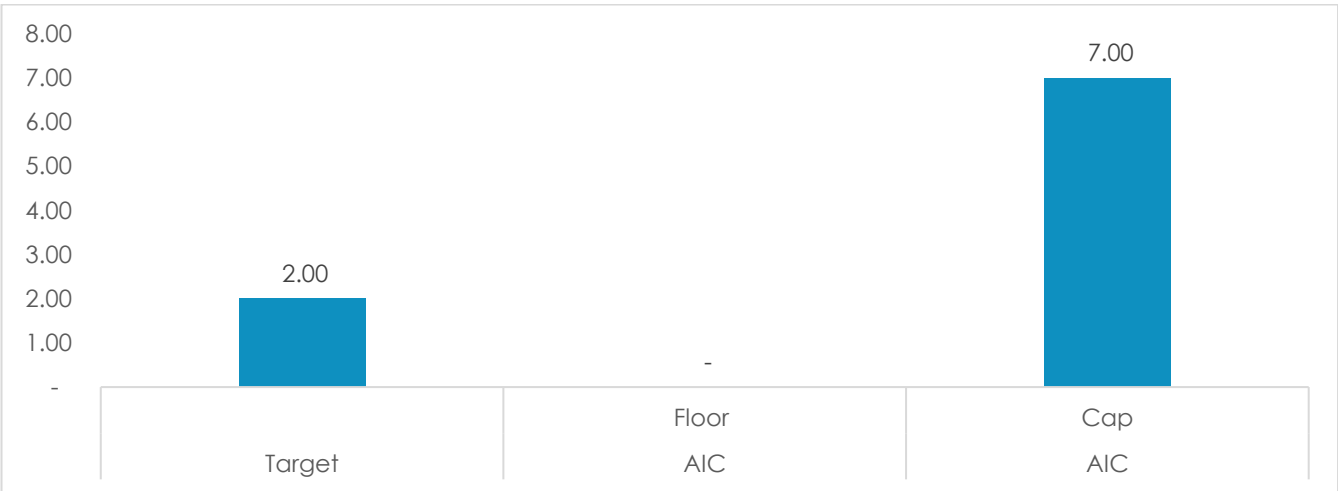
The historical performance data is set out in **Figure 6.7** below.

Figure 6.7: Incorrect operation of isolation of primary or secondary equipment – 5 year historical performance



We calculated the performance target based on the average performance over the 5 year period. For the floor and caps, we used the AIC statistics for the best distribution fit which indicated that the Geometric was the best fit. This is presented in **Figure 6.8** below.

Figure 6.8: Incorrect operation of isolation of primary or secondary equipment – comparison of tests of best fit distribution

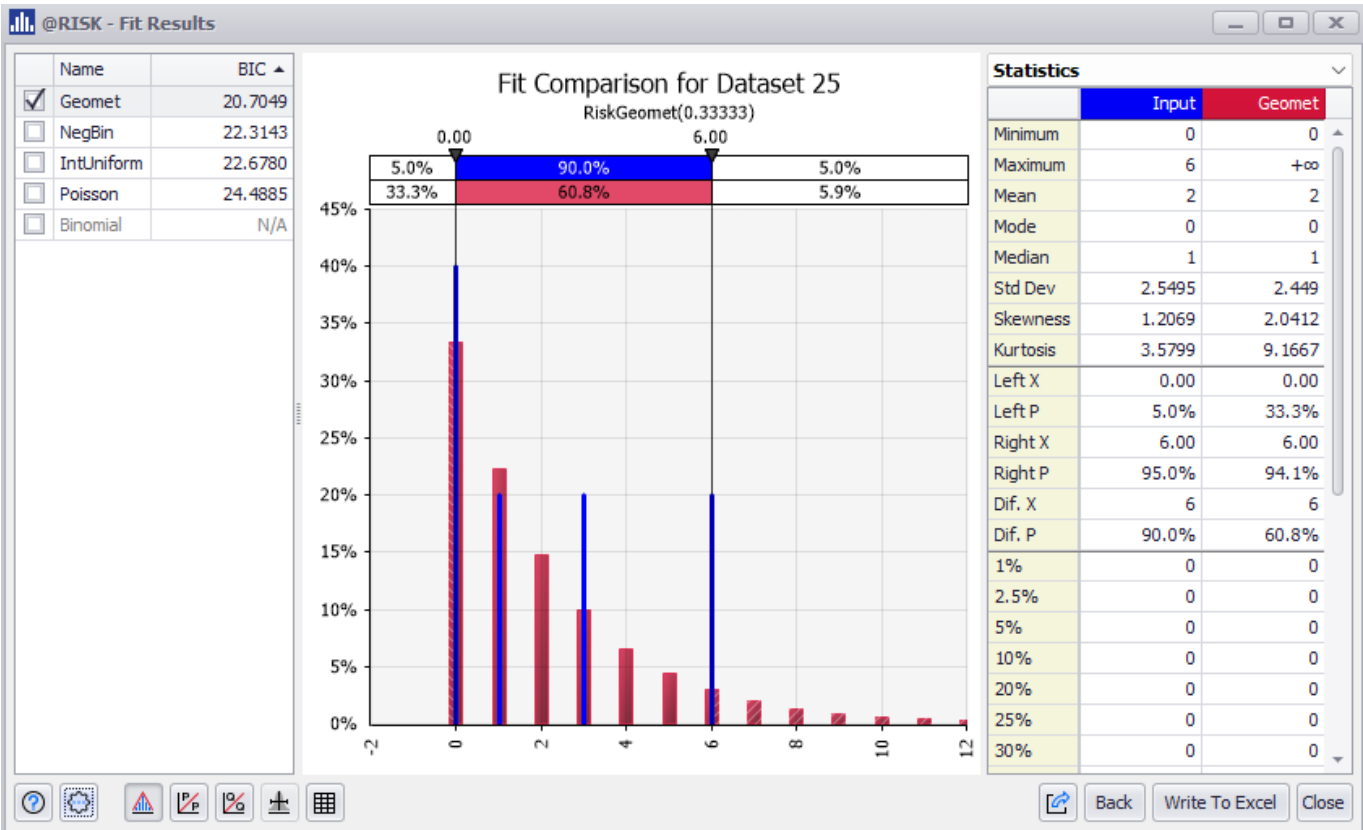


The proposed performance targets are set out in **Table 6.3** below. **Figures 6.9** provides further description of the results. The attachment sets out full results.

Table 6.3 Incorrect operation of isolation of primary or secondary equipment - Proposed performance targets, floors and caps

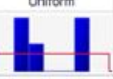
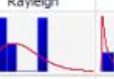
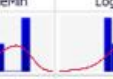
Measure	Preferred Distribution	Performance Target	5th percentile ("Floor")	95th percentile ("Cap")
Incorrect operation of isolation	Geometric	2.00	0.00	7.00

Figure 6.9: Incorrect operation of isolation of primary or secondary equipment – distribution fit using AIC

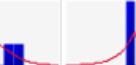
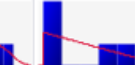
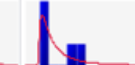
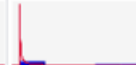
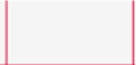


Appendix – Full results by parameter

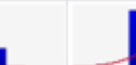
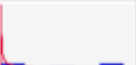
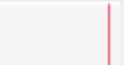
Lines outage rate – fault

Name	Pareto	Uniform	Expon	Rayleigh	Levy	ExtValue	Normal	ExtValueMin	Logistic	Laplace	Cauchy	Triang	InvGauss	Pearson5	BetaGeneral
Graph															
Function	RiskPareto(1.584...	RiskUniform(0.02...	RiskExpon(0.060...	RiskRayleigh(0.0...	RiskLevy(0.0502...	RiskExtValue(0.0...	RiskNormal(0.113...	RiskExtValueMin(...	RiskLogistic(0.10...	RiskLaplace(0.09...	RiskCauchy(0.08...	RiskTriang(0.053...	RiskInvGauss(0.0...	RiskPearson5(0.2...	RiskBetaGeneral(...
Method	MLE	MLE (Bias Correct...	MLE (Bias Correct...	MLE	MLE	MLE	MLE (Bias Correct...	MLE	MLE	MLE	MLE	MLE	MLE	MLE (Modified)	MLE
Ranking by Fit Statistic (15 Valid Fits)															
Akaike (AIC)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	
Bayesian (BIC)	#1	#3	#4	#5	#6	#7	#9	#10	#11	#12	#14	#2	#8	#13	
Average Log-Likelihood	#2	#4	#5	#6	#7	#8	#10	#11	#12	#13	#14	#1	#3	#9	
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#15	#1 (Tie)
K-S Statistic	#5	#3	#11	#8	#2	#9	#4	#10	#7	#14	#12	#13	#6	#15	#1
A-D Statistic		#2	#7	#9	#1	#5	#4	#8	#6	#10	#11		#3	#12	
Distribution Statistics															
Minimum	0.05303030	0.0206530	0.04099752	0.01950573	0.050235	—∞	—∞	—∞	—∞	—∞	—∞	0.0530303	0.04608533	0.0527295631	0.0530303
Maximum	+∞	0.2149170	+∞	+∞	+∞	+∞	+∞	+∞	+∞	+∞	+∞	0.2335804	+∞	+∞	0.1825397
Mean	0.14369584	0.1177850	0.10116144	0.11596017	N/A	0.11181878	0.11319423	0.112290	0.10986160	0.090909	N/A	0.1132137	0.11319423	N/A	0.1178208
Mode	0.05303030	0.0206530	0.04099752	0.09646524	0.053757	0.08660081	0.11319423	0.141405	0.10986160	0.090909	0.08024474	0.0530303	0.05600949	0.0530422390	0.0530303
Median	0.08212216	0.1177850	0.08269997	0.11011863	0.073459	0.10261339	0.11319423	0.122918	0.10986160	0.090909	0.08024474	0.1059122	0.07899459	0.0595656176	0.1179388
Std. Deviation	N/A	0.0560792	0.06016392	0.05041897	N/A	0.05603330	0.06192735	0.064694	0.06354408	0.068453	N/A	0.0425561	0.09964632	N/A	0.0571897
Skewness	N/A	0	2	0.6311	N/A	1.1395	0	-1.1395	0	0	N/A	0.5657	4.4545	N/A	-0.0011
Kurtosis	N/A	1.8000	9	3.2451	N/A	5.4000	3	5.4000	4.2000	6	N/A	2.4000	36.0715	N/A	1.1719
Percentiles															
1%	0.05336765	0.0225956	0.04160219	0.03041680	0.051827	0.01987989	-0.03087033	-0.090633	-0.05112238	-0.098446	-0.97284985	0.0539353	0.05018389	0.0528864123	0.0530303
2.5%	0.05388423	0.0255096	0.04252074	0.03682343	0.052338	0.02957259	-0.00818115	-0.044030	-0.01848647	-0.054095	-0.34026496	0.0553015	0.05134164	0.0529494273	0.0530303
5%	0.05477464	0.0303662	0.04408352	0.04415520	0.052985	0.03866575	0.01133280	-0.008416	0.00670705	-0.020544	-0.12870780	0.0576019	0.05272901	0.0530372807	0.0530303
10%	0.05667545	0.0400794	0.04733642	0.05483350	0.054140	0.05016278	0.03383113	0.027894	0.03288472	0.013007	-0.02161068	0.0622955	0.05502042	0.0532150887	0.0530315
20%	0.06104779	0.0595058	0.05442271	0.07091832	0.056668	0.06580988	0.06107485	0.065746	0.06129460	0.046557	0.03469361	0.0720915	0.05942524	0.0536931051	0.0531924
25%	0.06358501	0.0692190	0.05830560	0.07788164	0.058219	0.07233049	0.07142486	0.078560	0.07137316	0.057358	0.04714991	0.0772194	0.06182002	0.0540436187	0.0538155
30%	0.06641409	0.0789322	0.06245648	0.08450576	0.060071	0.07849097	0.08071949	0.089404	0.08017763	0.066183	0.05619994	0.0825213	0.06444754	0.0545164930	0.0558545
35%	0.06959327	0.0886454	0.06691511	0.09093999	0.062331	0.08447662	0.08933235	0.098926	0.08817437	0.073645	0.06338208	0.0880162	0.06738195	0.0551715352	0.0611841
40%	0.07319823	0.0983586	0.07173079	0.09729391	0.065151	0.09042017	0.09750511	0.107522	0.09565666	0.080108	0.06949158	0.0937269	0.07070865	0.0561046264	0.0725559
45%	0.07732919	0.1080718	0.07696574	0.10365855	0.068750	0.09643130	0.10541235	0.115456	0.10283137	0.085809	0.07500303	0.0996809	0.07453359	0.0574759587	0.0920501
50%	0.08212216	0.1177850	0.08269997	0.11011863	0.073459	0.10261339	0.11319423	0.122918	0.10986160	0.090909	0.08024474	0.1059122	0.07899459	0.0595656176	0.1179388
55%	0.08776700	0.1274982	0.08903888	0.11676183	0.079804	0.10907605	0.12097610	0.130055	0.11689183	0.096009	0.08548645	0.1124637	0.08427802	0.0628899914	0.1437833
60%	0.09453794	0.1372114	0.09612516	0.12368803	0.088656	0.11594788	0.12888334	0.136996	0.12406654	0.101710	0.09099790	0.1193905	0.09064514	0.0684638940	0.1631827
65%	0.10284814	0.1469246	0.10415894	0.13102121	0.101549	0.12339353	0.13705610	0.143858	0.13154882	0.108173	0.09710740	0.1267655	0.09847720	0.0784452657	0.1744697
70%	0.11335399	0.1566378	0.11343325	0.13892808	0.121397	0.13164112	0.14566896	0.150769	0.13954557	0.115635	0.10428954	0.1346890	0.10835759	0.0979066578	0.1797488
75%	0.12717348	0.1663510	0.12440243	0.14765172	0.154297	0.14103289	0.15496359	0.157881	0.14835004	0.124460	0.11333957	0.1433053	0.12123463	0.1404570805	0.1817650
80%	0.14640044	0.1760642	0.13782762	0.15758052	0.214847	0.15213167	0.16531360	0.165410	0.15842860	0.135261	0.12579587	0.1528359	0.13878028	0.2499553914	0.1823800
90%	0.22671414	0.1954906	0.17953007	0.18465822	0.719333	0.18491707	0.19255732	0.183475	0.18683847	0.168811	0.18210016	0.1764854	0.20575085	2.4838359186	0.1825385
95%	0.35108707	0.2052038	0.22123253	0.20788313	2.737213	0.21636562	0.21505566	0.196749	0.21301615	0.202362	0.28919728	0.1932081	0.29048214	29.9801616584	0.1825397
97.5%	0.54368965	0.2100604	0.26293498	0.22854338	10.808720	0.24721232	0.23456961	0.207248	0.23820967	0.235913	0.50075444	0.2050329	0.39075458	368.4230106756	0.1825397
99%	0.96924396	0.2129744	0.31806263	0.25306663	67.309258	0.28757666	0.25725879	0.218439	0.27084558	0.280265	1.13333933	0.2155253	0.54305720	10,173.4368276...	0.1825397

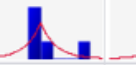
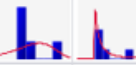
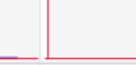
Transformer Outage event – fault

Name	Pareto	Expon	ExtValue	Uniform	Levy	Normal	Logistic	Laplace	ExtValueMin	Triang	InvGauss	Pearson5	BetaGeneral
Graph													
Function	RiskPareto(1.444...	RiskExpon(0.062...	RiskExtValue(0.0...	RiskUniform(0.01...	RiskLevy(0.0442...	RiskNormal(0.110...	RiskLogistic(0.10...	RiskLaplace(0.07...	RiskExtValueMin(...	RiskTriang(0.048...	RiskInvGauss(0.0...	RiskPearson5(0.2...	RiskBetaGeneral(...
Method	MLE	MLE (Bias Correct...	MLE	MLE (Bias Correct...	MLE	MLE (Bias Correct...	MLE	MLE	MLE	MLE	MLE	MLE (Modified)	MLE
Ranking by Fit Statistic (13 Valid Fits)													
Akaike (AIC)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	
Bayesian (BIC)	#1	#3	#4	#5	#7	#8	#9	#10	#11	#2	#6	#12	
Average Log-Likelihood	#2	#4	#5	#6	#7	#8	#9	#11	#12	#1	#3	#10	
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#13	#1 (Tie)
K-S Statistic	#3	#4	#6	#9	#5	#8	#7	#10	#11	#12	#2	#13	#1
A-D Statistic		#7	#4	#3	#6	#2	#5	#9	#8		#1	#10	
Distribution Statistics													
Minimum	0.04800000	0.03558291	--∞	0.0103968	0.044244	--∞	--∞	--∞	--∞	0.0480000	0.03589536	0.0476982328	0.0480000
Maximum	+∞	+∞	+∞	0.2360159	+∞	+∞	+∞	+∞	+∞	0.2422270	+∞	+∞	0.1984127
Mean	0.15592956	0.09766834	0.10815354	0.1232063	N/A	0.11008543	0.10483081	0.076336	0.107588	0.1127423	0.11008543	N/A	0.1207098
Mode	0.04800000	0.03558291	0.08321751	0.0103968	0.049011	0.11008543	0.10483081	0.076336	0.139854	0.0480000	0.05477719	0.0480083722	0.0480000
Median	0.07755410	0.07861725	0.09905106	0.1232063	0.075679	0.11008543	0.10483081	0.076336	0.119366	0.1048878	0.08270712	0.0550367581	0.1131949
Std. Deviation	N/A	0.06208543	0.05540684	0.0651306	N/A	0.06407195	0.06408661	0.066534	0.071693	0.0457797	0.08210968	N/A	0.0657897
Skewness	N/A	2	1.1395	0	N/A	0	0	0	-1.1395	0.5657	3.3202	N/A	0.0658
Kurtosis	N/A	9	5.4000	1.8000	N/A	3	4.2000	6	5.4000	2.4000	21.3734	N/A	1.1893
Percentiles													
1%	0.04833508	0.03620689	0.01724252	0.0126530	0.046400	-0.03896822	-0.05752765	-0.107712	-0.117290	0.0489736	0.04342902	0.0478548947	0.0480000
2.5%	0.04884857	0.03715478	0.02682686	0.0160373	0.047091	-0.01549329	-0.02461309	-0.064604	-0.065644	0.0504432	0.04538568	0.0479185837	0.0480000
5%	0.04973479	0.03876748	0.03581836	0.0216778	0.047967	0.00469645	0.00079553	-0.031993	-0.026177	0.0529179	0.04765631	0.0480078693	0.0480000
10%	0.05163131	0.04212427	0.04718686	0.0329587	0.049530	0.02797392	0.02719671	0.000617	0.014061	0.0579671	0.05125649	0.0481899532	0.0480018
20%	0.05601693	0.04943688	0.06265902	0.0555206	0.052952	0.05616112	0.05584915	0.033227	0.056009	0.0685051	0.05776062	0.0486857928	0.0481959
25%	0.05857603	0.05344378	0.06910673	0.0668016	0.055051	0.06686956	0.06601376	0.043726	0.070210	0.0740215	0.06111354	0.0490534776	0.0488856
30%	0.06144118	0.05772723	0.07519833	0.0780825	0.057558	0.07648607	0.07489340	0.052303	0.082226	0.0797250	0.06467140	0.0495534758	0.0510144
35%	0.06467505	0.06232826	0.08111706	0.0893635	0.060617	0.08539720	0.08295842	0.059555	0.092779	0.0856362	0.06851595	0.0502518638	0.0563394
40%	0.06835936	0.06729774	0.08699417	0.1006444	0.064434	0.09385299	0.09050459	0.065838	0.102305	0.0917794	0.07273294	0.0512554901	0.0674301
45%	0.07260291	0.07269988	0.09293809	0.1119254	0.069305	0.10203406	0.09774055	0.071379	0.111097	0.0981844	0.07742206	0.0527444717	0.0865583
50%	0.07755410	0.07861725	0.09905106	0.1232063	0.075679	0.11008543	0.10483081	0.076336	0.119366	0.1048878	0.08270712	0.0550367581	0.1131949
55%	0.08342125	0.08515861	0.10544147	0.1344873	0.084267	0.11813680	0.11192107	0.081293	0.127276	0.1119356	0.08874969	0.0587246892	0.1423309
60%	0.09050714	0.09247122	0.11223648	0.1457683	0.096248	0.12631787	0.11915703	0.086834	0.134967	0.1193870	0.09576973	0.0649858219	0.1670950
65%	0.09927115	0.10076157	0.11959888	0.1570492	0.113700	0.13477366	0.12670320	0.093116	0.142572	0.1273207	0.10407988	0.0763566653	0.1836596
70%	0.11044893	0.11033208	0.12775426	0.1683302	0.140565	0.14368479	0.13476822	0.100369	0.150230	0.1358445	0.11414699	0.0988878894	0.1925964
75%	0.12530497	0.12165159	0.13704103	0.1796111	0.185097	0.15330130	0.14364786	0.108946	0.158112	0.1451135	0.12671198	0.1490927566	0.1965454
80%	0.14623334	0.13550556	0.14801572	0.1908921	0.267053	0.16400974	0.15381247	0.119444	0.166455	0.1553660	0.14305027	0.2812954040	0.1979558
90%	0.23627073	0.17853990	0.18043459	0.2134540	0.949895	0.19219694	0.18246491	0.152055	0.186476	0.1808070	0.20019623	3.1561902066	0.1984070
95%	0.38174509	0.22157424	0.21153154	0.2247349	3.681175	0.21547441	0.20886609	0.184665	0.201186	0.1987965	0.26600713	41.3656600863	0.1984126
97.5%	0.61678954	0.26460858	0.24203337	0.2303754	14.606274	0.23566415	0.23427471	0.217276	0.212820	0.2115170	0.33912237	549.1976825388	0.1984127
99%	1.16299705	0.32149688	0.28194643	0.2337597	91.081956	0.25913908	0.26718927	0.260384	0.225222	0.2228043	0.44493084	16,785.8573951...	0.1984127

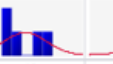
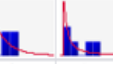
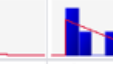
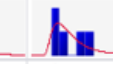
Reactive plant – fault

Name	Pareto	Uniform	Expon	ExtValue	Normal	Levy	ExtValueMin	Logistic	Laplace	Triang	InvGauss	Pearson5	BetaGeneral
Graph													
Function	RiskPareto(1.070...	RiskUniform(-0.0...	RiskExpon(0.090...	RiskExtValue(0.0...	RiskNormal(0.131...	RiskLevy(0.0377...	RiskExtValueMin(...	RiskLogistic(0.13...	RiskLaplace(0.12...	RiskTriang(0.041...	RiskInvGauss(0.1...	RiskPearson5(0.2...	RiskBetaGeneral(...
Method	MLE	MLE (Bias Correct...	MLE (Bias Correct...	MLE	MLE (Bias Correct...	MLE	MLE	MLE	MLE	MLE	MLE	MLE (Modified)	MLE
Ranking by Fit Statistic (13 Valid Fits)													
Akaike (AIC)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	
Bayesian (BIC)	#2	#3	#4	#5	#6	#7	#8	#10	#11	#1	#9	#12	
Average Log-Likelihood	#2	#3	#5	#6	#7	#8	#9	#11	#12	#1	#4	#10	
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#13	#1 (Tie)
K-S Statistic	#10	#1	#9	#6	#3	#8	#5	#4	#7	#12	#11	#13	#2
A-D Statistic		#1	#9	#4	#2	#6	#7	#3	#5		#8	#10	
Distribution Statistics													
Minimum	0.04166667	-0.0042547	0.02365415	-∞	-∞	0.037740	-∞	-∞	-∞	0.0416667	0.0311008	0.0411694148	0.0416667
Maximum	+∞	0.2712735	+∞	+∞	+∞	+∞	+∞	+∞	+∞	0.2997785	+∞	+∞	0.2253521
Mean	0.63260428	0.1335094	0.11371673	0.13125295	0.13172924	N/A	0.131310	0.13035111	0.123288	0.1277039	0.1317292	N/A	0.1333934
Mode	0.04166667	-0.0042547	0.02365415	0.09379225	0.13172924	0.042662	0.170326	0.13035111	0.123288	0.0416667	0.0459264	0.0416908349	0.0416667
Median	0.07961434	0.1335094	0.08608077	0.11757856	0.13172924	0.070195	0.145552	0.13035111	0.123288	0.1172659	0.0803516	0.0519243124	0.1330223
Std. Deviation	N/A	0.0795381	0.09006258	0.08323617	0.08630871	N/A	0.086692	0.08851094	0.097274	0.0608375	0.1497091	N/A	0.0808671
Skewness	N/A	0	2	1.1395	0	N/A	-1.1395	0	0	0.5657	4.4632	N/A	0.0025
Kurtosis	N/A	1.8000	9	5.4000	3	N/A	5.4000	4.2000	6	2.4000	36.2006	N/A	1.1762
Percentiles													
1%	0.04205969	-0.0014994	0.02455931	-0.00532015	-0.06905485	0.039965	-0.140615	-0.09388448	-0.145795	0.0429605	0.0372251	0.0414296372	0.0416667
2.5%	0.04266384	0.0026335	0.02593434	0.00907813	-0.03743272	0.040679	-0.078165	-0.04842571	-0.082769	0.0449135	0.0389558	0.0415332569	0.0416667
5%	0.04371172	0.0095217	0.02827376	0.02258582	-0.01023596	0.041583	-0.030440	-0.01333350	-0.035092	0.0482022	0.0410302	0.0416771262	0.0416667
10%	0.04597613	0.0232981	0.03314319	0.03966439	0.02112018	0.043197	0.018216	0.02312955	0.012585	0.0549121	0.0444570	0.0419666688	0.0416689
20%	0.05132344	0.0508509	0.04375103	0.06290780	0.05909000	0.046730	0.068940	0.06270184	0.060262	0.0689163	0.0510470	0.0427377074	0.0419327
25%	0.05451278	0.0646273	0.04956354	0.07259402	0.07351490	0.048897	0.086111	0.07674033	0.075611	0.0762471	0.0546309	0.0432984125	0.0429046
30%	0.05814174	0.0784038	0.05577722	0.08174526	0.08646891	0.051485	0.100642	0.08900413	0.088151	0.0838266	0.0585640	0.0440504328	0.0459741
35%	0.06230930	0.0921802	0.06245157	0.09063681	0.09847273	0.054644	0.113402	0.10014284	0.098754	0.0916821	0.0629574	0.0450858072	0.0537561
40%	0.06714681	0.1059566	0.06966042	0.09946582	0.10986318	0.058585	0.124922	0.11056497	0.107939	0.0998459	0.0679391	0.0465511523	0.0699390
45%	0.07283246	0.1197330	0.07749689	0.10839521	0.12088357	0.063614	0.135554	0.12055866	0.116041	0.1083576	0.0736682	0.0486898199	0.0971627
50%	0.07961434	0.1335094	0.08608077	0.11757856	0.13172924	0.070195	0.145552	0.13035111	0.123288	0.1172659	0.0803516	0.0519243124	0.1330223
55%	0.08784863	0.1472858	0.09556981	0.12717869	0.14257491	0.079061	0.155117	0.14014357	0.130535	0.1266318	0.0882690	0.0570276465	0.1690157
60%	0.09806597	0.1610622	0.10617766	0.13738664	0.15359531	0.091431	0.164417	0.15013726	0.138636	0.1365342	0.0978128	0.0655061715	0.1965315
65%	0.11109400	0.1748386	0.11820384	0.14844699	0.16498576	0.109449	0.173613	0.16055938	0.147821	0.1470775	0.1095555	0.0805328532	0.2129824
70%	0.12830038	0.1886150	0.13208704	0.16069858	0.17698958	0.137185	0.182873	0.17169809	0.158424	0.1584048	0.1243736	0.1094861958	0.2209297
75%	0.15212265	0.2023914	0.14850739	0.17464984	0.18994359	0.183162	0.192405	0.18396190	0.170965	0.1707226	0.1436919	0.1719147911	0.2240767
80%	0.18737899	0.2161678	0.16860428	0.19113682	0.20436849	0.267777	0.202493	0.19800039	0.186313	0.1843474	0.1700232	0.3298762293	0.2250769
90%	0.35803334	0.2437207	0.23103090	0.23983879	0.24233831	0.972770	0.226702	0.23757268	0.233990	0.2181564	0.2705936	3.4054394282	0.2253498
95%	0.68411014	0.2574971	0.29345752	0.28655488	0.27369444	3.792653	0.244489	0.27403572	0.281667	0.2420629	0.3979254	39.1855509895	0.2253521
97.5%	1.30715954	0.2643853	0.35588414	0.33237694	0.30089121	15.072164	0.258558	0.30912793	0.329344	0.2589674	0.5486840	455.439875172	0.2253521
99%	3.07650886	0.2685182	0.43840765	0.39233723	0.33251333	94.028730	0.273554	0.35458670	0.392370	0.2739673	0.7777522	11,673.3400318...	0.2253521

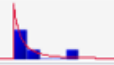
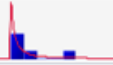
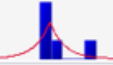
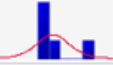
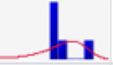
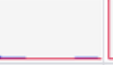
Lines outage rate – forced

Name	Pareto	Levy	Expon	ExtValue	Laplace	Logistic	Uniform	Normal	ExtValueMin	InvGauss	Pert	Triang	Pearson5	BetaGeneral
Graph														
Function	RiskPareto(0.564...	RiskLevy(0.0041...	RiskExpon(0.074...	RiskExtValue(0.0...	RiskLaplace(0.05...	RiskLogistic(0.06...	RiskUniform(0.0...	RiskNormal(0.082...	RiskExtValueMin(...	RiskInvGauss(0.0...	RiskPert(0.00757...	RiskTriang(0.007...	RiskPearson5(0.2...	RiskBetaGeneral(...
Method	MLE	MLE	MLE (Bias Correct...	MLE	MLE	MLE	MLE (Bias Correct...	MLE (Bias Correct...	MLE	MLE	MLE	MLE	MLE (Modified)	MLE
Ranking by Fit Statistic (14 Valid Fits)														
Akaike (AIC)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#13
Bayesian (BIC)	#1	#2	#3	#7	#9	#10	#11	#12	#13	#4	#5	#6	#8	#8
Average Log-Likelihood	#3	#5	#6	#8	#9	#10	#11	#12	#13	#1	#2	#4	#7	#7
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#8 (Tie)	#8 (Tie)	#8 (Tie)	#1 (Tie)	#8 (Tie)	#8 (Tie)	#8 (Tie)	#8 (Tie)
K-S Statistic	#7	#2	#1	#5	#4	#6	#14	#10	#11	#3	#8	#13	#12	#9
A-D Statistic		#3	#2	#5	#4	#6	#10	#7	#8	#1	#11		#9	
Distribution Statistics														
Minimum	0.007575758	0.004119	-0.00738216	-∞	-∞	-∞	-0.0540224	-∞	-∞	9.399E-005	0.0075757	0.0075758	0.0072477170	0.0075758
Maximum	+∞	+∞	+∞	+∞	+∞	+∞	0.3155664	+∞	+∞	+∞	0.5091175	0.3088965	+∞	0.2539683
Mean	N/A	N/A	0.06740745	0.07611550	0.055556	0.06412165	0.1307720	0.08236537	0.072631	0.08236537	0.0911660	0.1080160	N/A	0.1213487
Mode	0.007575758	0.008491	-0.00738216	0.04526415	0.055556	0.06412165	-0.0540224	0.08236537	0.131464	0.01080654	0.0075757	0.0075758	0.0075868578	0.0075758
Median	0.025855376	0.032948	0.04445804	0.06485374	0.055556	0.06412165	0.1307720	0.08236537	0.094107	0.03778262	0.0725000	0.0958306	0.0149540826	0.0928552
Std. Deviation	N/A	N/A	0.07478961	0.06855046	0.083627	0.08447994	0.1066911	0.09927732	0.130723	0.13051277	0.0706467	0.0710220	N/A	0.1078938
Skewness	N/A	N/A	2	1.1395	0	0	0	0	-1.1395	4.7591	1.1832	0.5657	N/A	0.1521
Kurtosis	N/A	N/A	9	5.4000	6	4.2000	1.8000	3	5.4000	40.7485	4.2000	2.4000	N/A	1.2039
Percentiles														
1%	0.007711807	0.006096	-0.00663050	-0.03636143	-0.175774	-0.14990171	-0.0503265	-0.14858822	-0.337403	0.00455395	0.0085829	0.0090861	0.0074184206	0.0075758
2.5%	0.007923169	0.006730	-0.00548866	-0.02450349	-0.121591	-0.10651324	-0.0447826	-0.11221461	-0.243235	0.00583185	0.0101089	0.0113661	0.0074874012	0.0075758
5%	0.008296169	0.007533	-0.00354596	-0.01337903	-0.080603	-0.07301922	-0.0355429	-0.08093129	-0.171271	0.00737213	0.0126946	0.0152054	0.0075838325	0.0075758
10%	0.009129830	0.008967	0.00049771	0.00068630	-0.039615	-0.03821679	-0.0170635	-0.04486364	-0.097903	0.00993558	0.0180337	0.0230385	0.0077797278	0.0075767
20%	0.011247446	0.012105	0.00930665	0.01982877	0.001372	-0.00044671	0.0198954	-0.0118853	-0.021416	0.01492318	0.0294668	0.0393870	0.0083096855	0.0077181
25%	0.012609354	0.014030	0.01413347	0.02780601	0.014568	0.01295243	0.0383748	0.01540383	0.004476	0.01766384	0.0356182	0.0479451	0.0087004219	0.0083025
30%	0.014248127	0.016329	0.01929342	0.03534266	0.025349	0.02465771	0.0568543	0.03030429	0.026387	0.02069180	0.0421069	0.0567935	0.0092296099	0.0103158
35%	0.016246392	0.019135	0.02483592	0.04266544	0.034464	0.03528914	0.0753337	0.04411178	0.045628	0.02409715	0.0489777	0.0659640	0.0099656352	0.0158917
40%	0.018720640	0.022635	0.03082228	0.04993670	0.042360	0.04523661	0.0938131	0.05721375	0.062998	0.02798544	0.0562852	0.0754945	0.0110185949	0.0287724
45%	0.021839582	0.027102	0.03732983	0.05729065	0.049325	0.05477517	0.1122926	0.06989005	0.079030	0.03248923	0.0640974	0.0854311	0.0125732350	0.0536473
50%	0.025855376	0.032948	0.04445804	0.06485374	0.055556	0.06412165	0.1307720	0.08236537	0.094107	0.03778262	0.0725000	0.0958306	0.0149540826	0.0928552
55%	0.031159285	0.040824	0.05233791	0.07276008	0.061786	0.07346814	0.1492514	0.09484069	0.108530	0.04410292	0.0816042	0.1067644	0.0187625116	0.1415080
60%	0.038386517	0.051812	0.06114686	0.08116700	0.068751	0.08300669	0.1677309	0.10751699	0.122553	0.05178528	0.0915573	0.1183245	0.0251870055	0.1877930
65%	0.048627571	0.067817	0.07113362	0.09027592	0.076647	0.09295416	0.1862103	0.12061895	0.136419	0.06132224	0.1025612	0.1306327	0.0367707456	0.2215435
70%	0.063891854	0.092455	0.08266249	0.10036591	0.085762	0.10358559	0.2046898	0.13442645	0.150383	0.07347283	0.1149041	0.1438563	0.0595348199	0.2408322
75%	0.088242063	0.133295	0.09629825	0.11185569	0.096543	0.11529087	0.2231692	0.14932690	0.164756	0.08947956	0.1290199	0.1582361	0.1097683253	0.2496661
80%	0.131009715	0.208457	0.11298707	0.12543380	0.109739	0.12869002	0.2416486	0.16591927	0.179968	0.11154905	0.1456102	0.1741418	0.2404962314	0.2528968
90%	0.447124323	0.834691	0.16482728	0.16554307	0.150727	0.16646009	0.2786075	0.20599437	0.216472	0.19772602	0.1926660	0.2136105	2.9917332899	0.2539544
95%	1.525994922	3.339548	0.21666749	0.20401685	0.191714	0.20126252	0.2970869	0.24566203	0.243294	0.30948170	0.2336305	0.2415191	38.1475087957	0.2539681
97.5%	5.208082810	13.358955	0.26850769	0.24175432	0.232702	0.23475654	0.3063267	0.27694534	0.264508	0.44395748	0.2692921	0.2612535	487.3740136666	0.2539683
99%	26.389461160	83.494795	0.33703672	0.29113557	0.286885	0.27814501	0.3118705	0.31331895	0.287120	0.65081205	0.3094501	0.2787644	14.142.5744085...	0.2539683

Transformer outage event -forced

Name	Pareto	Uniform	ExtValue	Expon	Normal	ExtValueMin	Logistic	Laplace	Levy	Triang	InvGauss	Lognorm	LogLogistic	Pearson5	BetaGeneral
Graph															
Function	RiskPareto(2.206...	RiskUniform(0.03...	RiskExtValue(0.0...	RiskExpon(0.036...	RiskNormal(0.092...	RiskExtValueMin(...	RiskLogistic(0.09...	RiskLaplace(0.08...	RiskLevy(0.0534...	RiskTriang(0.056...	RiskInvGauss(0.0...	RiskLognorm(0.0...	RiskLogLogistic(0...	RiskPearson5(0.2...	RiskBetaGeneral(...
Method	MLE	MLE (Bias Correct...	MLE	MLE (Bias Correct...	MLE (Bias Correct...	MLE	MLE	MLE	MLE	MLE	MLE	MLE (Modified)	MLE (Modified)	MLE (Modified)	MLE
Ranking by Fit Statistic (15 Valid Fits)															
Akaike (AIC)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15
Bayesian (BIC)	#2	#3	#4	#5	#6	#7	#8	#11	#13	#1	#9	#10	#12	#14	#15
Average Log-Likelihood	#2	#5	#6	#7	#9	#10	#11	#12	#13	#1	#3	#4	#8	#14	#15
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#15	#1 (Tie)
K-S Statistic	#9	#1	#6	#13	#2	#10	#4	#12	#14	#11	#7	#5	#3	#15	#8
A-D Statistic		#2	#3	#11	#1	#7	#5	#8	#10		#6	#4	#9	#12	
Distribution Statistics															
Minimum	0.05600000	0.0362698	-∞	0.04863552	-∞	-∞	-∞	-∞	0.053446	0.0560000	0.03836758	0.03958705	0.05450450	0.0558069441	0.05600000
Maximum	+∞	0.1546508	+∞	+∞	+∞	+∞	+∞	+∞	+∞	0.1609043	+∞	+∞	+∞	+∞	0.13492063
Mean	0.10242178	0.0954603	0.09267763	0.08545792	0.09282240	0.092083	0.09172332	0.087302	N/A	0.0909681	0.09282240	0.09394661	0.17080706	N/A	0.09495487
Mode	0.05600000	0.0362698	0.07851158	0.04863552	0.09282240	0.107730	0.09172332	0.087302	0.056685	0.0560000	0.06730162	0.06880763	0.05848531	0.0560050969	0.05600000
Median	0.07667031	0.0954603	0.08750655	0.07415886	0.09282240	0.097795	0.09172332	0.087302	0.074802	0.0867257	0.08302245	0.08378617	0.07974246	0.0605373421	0.09340070
Std. Deviation	0.15180127	0.0341736	0.03147639	0.03682240	0.03291682	0.034768	0.03313999	0.036036	N/A	0.0247262	0.03653878	0.03891941	N/A	N/A	0.03459629
Skewness	N/A	0	1.1395	2	0	-1.1395	0	0	N/A	0.5657	2.0130	2.5149	N/A	N/A	0.0254
Kurtosis	N/A	1.8000	5.4000	9	3	5.4000	4.2000	6	N/A	2.4000	9.7535	16.0202	N/A	N/A	1.1829
Percentiles															
1%	0.05625567	0.0374537	0.04103147	0.04900560	0.01624643	-0.016972	0.00776573	-0.012381	0.054911	0.0565258	0.05011558	0.04948345	0.05510649	0.0559071155	0.05600000
2.5%	0.05664631	0.0392294	0.04647630	0.04956778	0.02830662	0.008073	0.02478626	0.010967	0.055380	0.0573196	0.05251582	0.05211378	0.05578834	0.0559478924	0.05600000
5%	0.05731715	0.0421889	0.05158433	0.05052426	0.03867905	0.027213	0.03792537	0.028629	0.055975	0.0586562	0.05510245	0.05492875	0.05680818	0.0560050925	0.05600001
10%	0.05873909	0.0481079	0.05804272	0.05251515	0.05063780	0.046726	0.05157775	0.046291	0.057037	0.0613833	0.05886107	0.05896791	0.05873363	0.0561218420	0.05600115
20%	0.06196003	0.0599460	0.06683239	0.05685220	0.06511891	0.067069	0.06639429	0.063953	0.059362	0.0670750	0.06487860	0.06530765	0.06268118	0.0564402231	0.05612282
25%	0.06379923	0.0658651	0.07049531	0.05922866	0.07062035	0.073956	0.07165053	0.069639	0.060788	0.0700545	0.06769382	0.06822713	0.06483574	0.0566766113	0.05655002
30%	0.06582578	0.0717841	0.07395592	0.06176915	0.07556081	0.079783	0.07624231	0.074285	0.062491	0.0731351	0.07051686	0.07113029	0.06717774	0.0569983512	0.05785528
35%	0.06807434	0.0777032	0.07731833	0.06449798	0.08013888	0.084901	0.08041283	0.078213	0.064569	0.0763277	0.07340855	0.07408256	0.06976195	0.0574481692	0.06107899
40%	0.07058933	0.0836222	0.08065708	0.06744535	0.08448302	0.089521	0.08431505	0.081616	0.067162	0.0796458	0.07642111	0.07713907	0.07265512	0.0580952224	0.06766562
45%	0.07342879	0.0895413	0.08403380	0.07064931	0.08868603	0.093785	0.08805686	0.084617	0.070471	0.0831052	0.07960650	0.08035382	0.07594332	0.0590562073	0.07869184
50%	0.07667031	0.0954603	0.08750655	0.07415886	0.09282240	0.097795	0.09172332	0.087302	0.074802	0.0867257	0.08302245	0.08378617	0.07974246	0.0605373421	0.09340070
55%	0.08042044	0.1013794	0.09113692	0.07803849	0.09695877	0.101631	0.09538978	0.089986	0.080636	0.0905323	0.08673872	0.08750750	0.08421485	0.0629232603	0.10864168
60%	0.08483027	0.1072984	0.09499713	0.08237555	0.10116178	0.105360	0.09913158	0.092988	0.088775	0.0945570	0.09084520	0.09160986	0.08959724	0.0669795921	0.12085353
65%	0.09012291	0.1132175	0.09917968	0.08729249	0.10550593	0.109048	0.10303380	0.096390	0.100631	0.0988421	0.09546470	0.09621940	0.09625164	0.0743579267	0.12856909
70%	0.09664475	0.1191365	0.10381272	0.09296869	0.11008400	0.112762	0.10720432	0.100318	0.118881	0.1034458	0.10077488	0.10151987	0.10476433	0.0890045165	0.13252072
75%	0.10497031	0.1250556	0.10908849	0.09968221	0.11502446	0.116585	0.11179610	0.104964	0.149134	0.1084521	0.10750523	0.10779781	0.11615774	0.1217100195	0.13418415
80%	0.11614221	0.1309746	0.11532317	0.10789889	0.12052590	0.120631	0.11705235	0.110650	0.204810	0.1139897	0.11475167	0.11554026	0.13240345	0.2080547777	0.13474957
90%	0.15901178	0.1428127	0.13374019	0.13422223	0.13500700	0.130339	0.13186888	0.128312	0.668692	0.1277306	0.13901397	0.14038556	0.20511578	2.0992463947	0.13491883
95%	0.21770506	0.1487317	0.15140623	0.15894558	0.14696575	0.137473	0.14552126	0.145974	2.524164	0.1374470	0.16393989	0.16692375	0.33099892	27.4518872903	0.13492062
97.5%	0.29806277	0.1516913	0.16873419	0.18446892	0.15733818	0.143115	0.15866037	0.163636	9.946038	0.1443174	0.18954957	0.19553845	0.55063568	367.3203686362	0.13492063
99%	0.45151332	0.1534670	0.19140863	0.21820895	0.16939837	0.149129	0.17568091	0.186985	61.899148	0.1504138	0.22436874	0.23698826	1.11257375	11,354.6734454...	0.13492063

Reactive Plant – forced

Name	Pareto	Expon	Levy	ExtValue	Laplace	Logistic	Normal	Uniform	ExtValueMin	Pert	Triang	InvGauss	Pearson5	BetaGeneral
Graph														
Function	RiskPareto(1.504...	RiskExpon(0.051...	RiskLevy(0.0377...	RiskExtValue(0.0...	RiskLaplace(0.06...	RiskLogistic(0.08...	RiskNormal(0.092...	RiskUniform(0.00...	RiskExtValueMin(...	RiskPert(0.04054...	RiskTriang(0.040...	RiskInvGauss(0.0...	RiskPearson5(0.2...	RiskBetaGeneral(...
Method	MLE	MLE (Bias Correct...	MLE	MLE	MLE	MLE	MLE (Bias Correct...	MLE (Bias Correct...	MLE	MLE	MLE	MLE	MLE (Modified)	MLE
Ranking by Fit Statistic (14 Valid Fits)														
Akaike (AIC)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#13
Bayesian (BIC)	#1	#3	#5	#7	#8	#9	#11	#12	#13	#2	#4	#6	#10	#10
Average Log-Likelihood	#1	#5	#6	#7	#9	#10	#11	#12	#13	#2	#3	#4	#8	#8
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#13 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)	#13 (Tie)	#1 (Tie)
K-S Statistic	#3	#2	#6	#5	#8	#4	#9	#13	#11	#7	#12	#1	#14	#10
A-D Statistic		#2	#3	#4	#7	#5	#6	#9		#11		#1		
Distribution Statistics														
Minimum	0.04054054	0.03017775	0.037707	-∞	-∞	-∞	-∞	0.0013799	-∞	0.0405405	0.0405405	0.03313184	0.0403027866	0.0405405
Maximum	+∞	+∞	+∞	+∞	+∞	+∞	+∞	0.2363437	+∞	0.3727152	0.2336005	+∞	+∞	0.1971831
Mean	0.12095951	0.08199168	N/A	0.08907850	0.068493	0.08249860	0.09235447	0.1188618	0.086816	0.0959030	0.1048939	0.09235447	N/A	0.1138698
Mode	0.04054054	0.03017775	0.041301	0.06819031	0.068493	0.08249860	0.09235447	0.0013799	0.122912	0.0405405	0.0405405	0.04426052	0.0405474777	0.0405405
Median	0.06427276	0.06609243	0.061407	0.08145362	0.068493	0.08249860	0.09235447	0.1188618	0.099992	0.0835404	0.0970865	0.06583317	0.0460375950	0.0988257
Std. Deviation	N/A	0.05181393	N/A	0.04641272	0.056876	0.05564810	0.06256137	0.0678282	0.080204	0.0467898	0.0455047	0.07747163	N/A	0.0685491
Skewness	N/A	2	N/A	1.1395	0	0	0	0	-1.1395	1.1832	0.5657	3.9244	N/A	0.1266
Kurtosis	N/A	9	N/A	5.4000	6	4.2000	3	1.8000	5.4000	4.2000	2.4000	28.6686	N/A	1.1987
Percentiles														
1%	0.04081233	0.03069850	0.039332	0.01292495	-0.088838	-0.05848154	-0.05318505	0.0037295	-0.164756	0.0412076	0.0415083	0.03765609	0.0404262847	0.0405405
2.5%	0.04122871	0.03148957	0.039853	0.02095348	-0.051987	-0.02990096	-0.03026357	0.0072540	-0.106981	0.0422183	0.0429691	0.03889413	0.0404764204	0.0405405
5%	0.04194690	0.03283546	0.040514	0.02848540	-0.024111	-0.00783798	-0.01054983	0.0131281	-0.062828	0.0439308	0.0454289	0.04035915	0.0405466588	0.0405405
10%	0.04348215	0.03563690	0.041692	0.03800846	0.003766	0.01508686	0.01217884	0.0248763	-0.017814	0.0474669	0.0504477	0.04273979	0.0406897682	0.0405414
20%	0.04702398	0.04173970	0.044272	0.05096905	0.031642	0.03996653	0.03970149	0.0483727	0.029114	0.0550391	0.0609224	0.04720226	0.0410788714	0.0406601
25%	0.04908560	0.04508369	0.045855	0.05637011	0.040617	0.04879273	0.05015746	0.0601209	0.045000	0.0591132	0.0664057	0.04957580	0.0413670167	0.0411245
30%	0.05138956	0.04865848	0.047744	0.06147287	0.047949	0.05650316	0.05954725	0.0718691	0.058443	0.0634108	0.0720749	0.05214381	0.0417584767	0.0426628
35%	0.05398494	0.05249831	0.050051	0.06643083	0.054149	0.06350622	0.06824829	0.0836172	0.070249	0.0679614	0.0779506	0.05497202	0.0423047123	0.0467734
40%	0.05693560	0.05664564	0.052929	0.07135390	0.059519	0.07005876	0.07650473	0.0953654	0.080906	0.0728012	0.0840569	0.05813342	0.0430888518	0.0559396
45%	0.06032639	0.06115404	0.056601	0.07633296	0.064256	0.07634194	0.08449292	0.1071136	0.090742	0.0779752	0.0904234	0.06171624	0.0442508752	0.0729930
50%	0.06427276	0.06609243	0.061407	0.08145362	0.068493	0.08249860	0.09235447	0.1188618	0.099992	0.0835404	0.0970865	0.06583317	0.0460375950	0.0988257
55%	0.06893637	0.07155158	0.067882	0.08680668	0.072730	0.08865526	0.10021602	0.1306100	0.108841	0.0895701	0.1040919	0.07063421	0.0489082430	0.1296421
60%	0.07455157	0.07765438	0.076916	0.09249866	0.077467	0.09493843	0.10820421	0.1423582	0.117445	0.0961621	0.1114987	0.07632694	0.0537744891	0.1579768
65%	0.08147273	0.08457316	0.090073	0.09866594	0.082838	0.10149097	0.11646065	0.1541064	0.125953	0.1034501	0.1193847	0.08321054	0.0625970461	0.1781382
70%	0.09026540	0.09256032	0.110328	0.10549746	0.089037	0.10849404	0.12516169	0.1658546	0.134520	0.1116249	0.1278572	0.09173748	0.0800447501	0.1894979
75%	0.10189769	0.10200711	0.143903	0.11327673	0.096370	0.11620447	0.13455147	0.1776028	0.143338	0.1209739	0.1370705	0.10263474	0.1188332467	0.1946679
80%	0.11819366	0.11356906	0.205695	0.12246991	0.105344	0.12503067	0.14500745	0.1893510	0.152671	0.1319618	0.1472614	0.11716903	0.2206895171	0.1965559
90%	0.18738361	0.14948373	0.720527	0.14948373	0.133221	0.14991034	0.17253009	0.2128474	0.175068	0.1631271	0.1725496	0.17045052	2.4185835959	0.1971749
95%	0.29707698	0.18539841	2.779790	0.17567529	0.161097	0.17283518	0.19525877	0.2245955	0.191524	0.1902582	0.1904310	0.23499087	31.3600833303	0.1971830
97.5%	0.47098426	0.22131309	11.016827	0.20122580	0.188974	0.19489815	0.21497251	0.2304696	0.204540	0.2138772	0.2030750	0.30916752	412.4569010891	0.1971831
99%	0.86611119	0.26878971	68.676082	0.23465983	0.225825	0.22347874	0.23789399	0.2339941	0.218414	0.2404741	0.2142945	0.41935002	12,452.4608005...	0.1971831

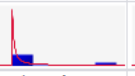
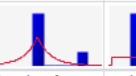
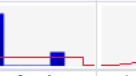
Number of events >0.05 system minutes

Name	Poisson	Geomet	IntUniform	NegBin
Graph				
Function	RiskPoisson(1.20...	RiskGeomet(0.45...	RiskIntUniform(0...	RiskNegBin(5,0.8...
Method	MLE	MLE	MLE	MLE
Ranking by Fit Statistic (4 Valid Fits)	^			
Akaike (AIC)	#1	#2	#3	#4
Bayesian (BIC)	#1	#2	#3	#4
Average Log-Likelihood	#3	#4	#1	#2
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)
K-S Statistic				
A-D Statistic				
Parameters - [* Values unavailable without running a bootstrap.]	^			
Num. Est. Parameters	1	1	2	2
Fitted Parameter #1	lambda	p	Min	s
Fitted Value	1.200000	0.454545	0	5
N/A Lower Limit*	N/A	N/A	N/A	N/A
N/A Upper Limit*	N/A	N/A	N/A	N/A
Conf. Interval Width*	N/A	N/A	N/A	N/A
Fitted Parameter #2			Max	p
Fitted Value			3	0.806452
N/A Lower Limit*			N/A	N/A
N/A Upper Limit*			N/A	N/A
Conf. Interval Width*			N/A	N/A
Distribution Statistics	^			
Minimum	0	0	0	0
Maximum	+∞	+∞	3	+∞
Mean	1.200000	1.200000	1.500000	1.200000
Mode	1	0	0	0
Median	1	1	1	1
Std. Deviation	1.095445	1.624808	1.118034	1.219836
Skewness	0.9129	2.0926	0	1.2133
Kurtosis	3.8333	9.3788	1.6400	4.8720
Percentiles	^			
1%	0	0	0	0
2.5%	0	0	0	0
5%	0	0	0	0
10%	0	0	0	0
20%	0	0	0	0
25%	0	0	0	0
30%	0	0	1	0
35%	1	0	1	1
40%	1	0	1	1
45%	1	0	1	1
50%	1	1	1	1
55%	1	1	2	1
60%	1	1	2	1
65%	1	1	2	1
70%	2	1	2	2
75%	2	2	2	2
80%	2	2	3	2
90%	3	3	3	3
95%	3	4	3	4
97.5%	4	6	3	4
99%	4	7	3	5

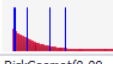
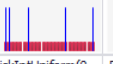
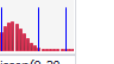
Number of events >0.3 system minutes

Name	Poisson	Geomet	Binomial	IntUniform
Graph				
Function	RiskPoisson(0.20...	RiskGeomet(0.83...	RiskBinomial(1,0....	RiskIntUniform(0...
Method	MLE	MLE	MLE	MLE
Ranking by Fit Statistic (4 Valid Fits)	^			
Akaike (AIC)	#1	#2	#3	#4
Bayesian (BIC)	#1	#2	#3	#4
Average Log-Likelihood	#2	#3	#1	#4
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)
K-S Statistic				
A-D Statistic				
Parameters - [* Values unavailable without running a bootstrap.]	^			
Num. Est. Parameters	1	1	2	2
Fitted Parameter #1	lambda	p	n	Min
Fitted Value	0.200000	0.833333	1	0
N/A Lower Limit*	N/A	N/A	N/A	N/A
N/A Upper Limit*	N/A	N/A	N/A	N/A
Conf. Interval Width*	N/A	N/A	N/A	N/A
Fitted Parameter #2			p	Max
Fitted Value			0.200000	1
N/A Lower Limit*			N/A	N/A
N/A Upper Limit*			N/A	N/A
Conf. Interval Width*			N/A	N/A
Distribution Statistics	^			
Minimum	0	0	0	0
Maximum	+∞	+∞	1	1
Mean	0.200000	0.200000	0.200000	0.500000
Mode	0	0	0	0
Median	0	0	0	0
Std. Deviation	0.447214	0.489898	0.400000	0.500000
Skewness	2.2361	2.8577	1.5000	0
Kurtosis	8	13.1667	3.2500	1
Percentiles	^			
1%	0	0	0	0
2.5%	0	0	0	0
5%	0	0	0	0
10%	0	0	0	0
20%	0	0	0	0
25%	0	0	0	0
30%	0	0	0	0
35%	0	0	0	0
40%	0	0	0	0
45%	0	0	0	0
50%	0	0	0	0
55%	0	0	0	1
60%	0	0	0	1
65%	0	0	0	1
70%	0	0	0	1
75%	0	0	0	1
80%	0	0	0	1
90%	1	1	1	1
95%	1	1	1	1
97.5%	1	2	1	1
99%	2	2	1	1

Average outage duration

Name	Pareto	Levy	Expon	ExtValue	Laplace	Uniform	Logistic	Normal	ExtValueMin	InvGauss	Pert	Triang	BetaGeneral	Gamma
Graph														
Function	RiskPareto(2.186...	RiskLevy(36.276...	RiskExpon(33.29...	RiskExtValue(50...	RiskLaplace(47.8...	RiskUniform(3.87...	RiskLogistic(58.3...	RiskNormal(70.29...	RiskExtValueMin(...	RiskInvGauss(34...	RiskPert(37.000...	RiskTriang(37,37...	RiskBetaGeneral(...	RiskGamma(0.65...
Method	MLE	MLE	MLE (Bias Correct...	MLE	MLE	MLE (Bias Correct...	MLE	MLE (Bias Correct...	MLE	MLE	MLE	MLE	MLE	MLE
Ranking by Fit Statistic (14 Valid Fits)														
Akaike (AIC)	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12		
Bayesian (BIC)	#1	#2	#4	#7	#8	#9	#10	#11	#12	#3	#5	#6		
Average Log-Likelihood	#2	#3	#5	#7	#8	#9	#10	#11	#12	#1	#4	#6		
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#9 (Tie)	#1 (Tie)	#9 (Tie)	#9 (Tie)	#9 (Tie)	#9 (Tie)	#1 (Tie)	#9 (Tie)	#6 (Tie)	#6 (Tie)	#6 (Tie)
K-S Statistic	#4	#1	#3	#7	#9	#13	#5	#10	#11	#2	#12	#14	#8	#6
A-D Statistic		#1	#3	#5	#4	#9	#7	#6	#8	#2	#10			
Distribution Statistics														
Minimum	37	36.276520	30.34200	-∞	-∞	3.8750	-∞	-∞	-∞	36.01766	37	37	37	37
Maximum	+∞	+∞	+∞	+∞	+∞	202.6250	+∞	+∞	+∞	+∞	289.2861	197.3121	169.5000	+∞
Mean	68.19210	N/A	63.63200	65.67339	47.850000	103.2500	58.32009	70.29000	64.378171	70.29000	79.0477	90.4374	95.8942	78.61250
Mode	37	37.185658	30.34200	50.24164	47.850000	3.8750	58.32009	70.29000	98.317376	37.30029	37	37	37	37
Median	50.80394	42.271672	53.41687	60.04029	47.850000	103.2500	58.32009	70.29000	76.767100	42.73997	69.6583	83.9543	73.0581	60.32594
Std. Deviation	106.88134	N/A	33.29000	34.28874	42.596112	57.3742	45.67919	56.04343	75.411538	102.21129	35.5368	37.7859	58.2674	51.27015
Skewness	N/A	N/A	2	1.1395	0	0	0	0	-1.1395	8.9470	1.1832	0.5657	0.2218	2.4642
Kurtosis	N/A	N/A	9	5.4000	6	1.8000	4.2000	3	5.4000	136.4140	4.2000	2.4000	1.2202	12.1082
Percentiles														
1%	37.17049	36.687591	30.67658	9.41276	-69.980133	5.8625	-57.40460	-60.08650	-172.162820	36.58149	37.5066	37.8036	37	37.04969
2.5%	37.43098	36.819409	31.18483	15.34407	-42.381456	8.8438	-33.94400	-39.55309	-117.839107	36.75621	38.2742	39.0166	37	37.19997
5%	37.87837	36.986514	32.04955	20.90849	-21.503863	13.8125	-15.83343	-21.89323	-76.324566	36.97415	39.5749	41.0592	37.0000	37.57477
10%	38.82683	37.284603	33.84945	27.94393	-0.626270	23.7500	2.98461	-1.53254	-34.000026	37.35408	42.2606	45.2267	37.0001	38.66325
20%	40.97603	37.937172	37.77045	37.51894	20.251323	43.6250	23.40729	23.12266	10.123702	38.15257	48.0117	53.9246	37.0266	41.91178
25%	42.20371	38.337583	39.91894	41.50913	26.972407	53.5625	30.65235	32.48928	25.060819	38.62353	51.1059	58.4777	37.1630	44.02980
30%	43.55683	38.815551	42.21571	45.27894	32.463932	63.5000	36.98152	40.90080	37.700589	39.16966	54.3699	63.1854	37.7149	46.48457
35%	45.05863	39.399069	44.68276	48.94177	37.106951	73.4375	42.73004	48.69532	48.800468	39.81561	57.8261	68.0643	39.4771	49.29866
40%	46.73892	40.127023	47.34739	52.57884	41.128916	83.3750	48.10875	56.09156	58.821081	40.59354	61.5019	73.1349	44.1345	52.50727
45%	48.63666	41.055989	50.24399	56.25726	44.676541	93.3125	53.26634	63.24751	68.069432	41.54747	65.4316	78.4215	54.4323	56.16025
50%	50.80394	42.271672	53.41687	60.04029	47.850000	103.2500	58.32009	70.29000	76.767100	42.73997	69.6583	83.9543	73.0581	60.32594
55%	53.31232	43.909550	56.92432	63.99502	51.023459	113.1875	63.37383	77.33249	85.087168	44.26301	74.2379	89.7715	99.3807	65.09796
60%	56.26334	46.194533	60.84532	68.20014	54.571084	123.1250	68.53142	84.48844	93.177151	46.25712	79.2445	95.9218	127.1553	70.60628
65%	59.80698	49.522810	65.29058	72.75639	58.593049	133.0625	73.91013	91.88468	101.176185	48.94654	84.7797	102.4702	148.6942	77.03619
70%	64.17626	54.646417	70.42225	77.80338	63.236068	143	79.65865	99.67920	109.231883	52.70886	90.9884	109.5055	161.2301	84.66220
75%	69.75785	63.139366	76.49174	83.55053	68.727593	152.9375	85.98782	108.09072	117.522861	58.22481	98.0890	117.1560	166.8864	93.91356
80%	77.25404	78.769677	83.92019	90.34226	75.448677	162.8750	93.23288	117.45734	126.298526	66.83824	106.4343	125.6183	168.8804	105.51430
90%	106.07593	208.998442	106.99506	110.40480	96.326270	182.7500	113.65556	142.11254	147.356928	110.71964	130.1043	146.6169	169.4931	142.94539
95%	145.65068	729.897006	130.06993	129.64927	117.203863	192.6875	132.47360	162.47323	162.830025	188.08471	150.7103	161.4652	169.4999	181.77668
97.5%	199.98996	2,813.487218	153.14480	148.52545	138.081456	197.6563	150.58417	180.13309	175.067919	304.24849	168.6489	171.9645	169.5000	221.50268
99%	304.11089	17,398.616896	183.64812	173.22580	165.680133	200.6375	174.04477	200.66650	188.112690	516.38006	188.8492	181.2809	169.5000	274.94311

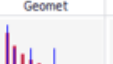
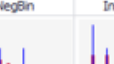
Failure of protection systems

Name	Geomet	IntUniform	NegBin	Poisson
Graph				
Function	RiskGeomet(0.09...	RiskIntUniform(0...	RiskNegBin(1,0.0...	RiskPoisson(9,20...
Method	MLE	MLE	MLE	MLE
Ranking by Fit Statistic (4 Valid Fits)	^			
Akaike (AIC)	#1	#2	#3	#4
Bayesian (BIC)	#1	#2	#3	#4
Average Log-Likelihood	#2 (Tie)	#1	#2 (Tie)	#4
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)
K-S Statistic				
A-D Statistic				
Parameters - [* Values unavailable without running a bootstrap.]	^			
Num. Est. Parameters	1	2	2	1
Fitted Parameter #1	p	Min	s	lambda
Fitted Value	0.098039	0	1	9.200000
N/A Lower Limit*	N/A	N/A	N/A	N/A
N/A Upper Limit*	N/A	N/A	N/A	N/A
Conf. Interval Width*	N/A	N/A	N/A	N/A
Fitted Parameter #2		Max	p	
Fitted Value		23	0.098039	
N/A Lower Limit*		N/A	N/A	
N/A Upper Limit*		N/A	N/A	
Conf. Interval Width*		N/A	N/A	
Distribution Statistics	^			
Minimum	0	0	0	0
Maximum	+∞	23	+∞	+∞
Mean	9.200000	11.500000	9.200000	9.200000
Mode	0	0	0	9
Median	6	11	6	9
Std. Deviation	9.687105	6.922187	9.687105	3.033150
Skewness	2.0027	0	2.0027	0.3297
Kurtosis	9.0107	1.7958	9.0107	3.1087
Percentiles	^			
1%	0	0	0	3
2.5%	0	0	0	4
5%	0	1	0	5
10%	1	2	1	5
20%	2	4	2	7
25%	2	5	2	7
30%	3	7	3	7
35%	4	8	4	8
40%	4	9	4	8
45%	5	10	5	9
50%	6	11	6	9
55%	7	13	7	9
60%	8	14	8	10
65%	10	15	10	10
70%	11	16	11	11
75%	13	17	13	11
80%	15	19	15	12
90%	22	21	22	13
95%	29	22	29	14
97.5%	35	23	35	16
99%	44	23	44	17

Material Failure of SCADA

Name	Poisson	Geomet	IntUniform
Graph			
Function	RiskPoisson(2)	RiskGeomet(0.33...	RiskIntUniform(0...
Method	MLE	MLE	MLE
Ranking by Fit Statistic (3 Valid Fits)	^		
Akaike (AIC)	#1	#2	#3
Bayesian (BIC)	#1	#3	#2
Average Log-Likelihood	#2	#3	#1
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)
K-S Statistic			
A-D Statistic			
Parameters - [* Values unavailable without running a bootstrap.]	^		
Num. Est. Parameters	1	1	2
Fitted Parameter #1	lambda	p	Min
Fitted Value	2	0.333333	0
N/A Lower Limit*	N/A	N/A	N/A
N/A Upper Limit*	N/A	N/A	N/A
Conf. Interval Width*	N/A	N/A	N/A
Fitted Parameter #2			Max
Fitted Value			4
N/A Lower Limit*			N/A
N/A Upper Limit*			N/A
Conf. Interval Width*			N/A
Distribution Statistics	^		
Minimum	0	0	0
Maximum	+∞	+∞	4
Mean	2	2	2
Mode	1	0	0
Median	2	1	2
Std. Deviation	1.414214	2.449490	1.414214
Skewness	0.7071	2.0412	0
Kurtosis	3.5000	9.1667	1.7000
Percentiles	^		
1%	0	0	0
2.5%	0	0	0
5%	0	0	0
10%	0	0	0
20%	1	0	0
25%	1	0	1
30%	1	0	1
35%	1	1	1
40%	1	1	1
45%	2	1	2
50%	2	1	2
55%	2	1	2
60%	2	2	2
65%	2	2	3
70%	3	2	3
75%	3	3	3
80%	3	3	3
90%	4	5	4
95%	5	7	4
97.5%	5	9	4
99%	6	11	4

Incorrect operation of isolation of equipment

Name	Geomet	Poisson	NegBin	IntUniform
Graph				
Function	RiskGeomet(0.33...	RiskPoisson(2)	RiskNegBin(1,0.3...	RiskIntUniform(0...
Method	MLE	MLE	MLE	MLE
Ranking by Fit Statistic (4 Valid Fits)	^			
Akaike (AIC)	#1	#2	#3	#4
Bayesian (BIC)	#1	#4	#2	#3
Average Log-Likelihood	#2	#4	#1	#3
Chi-Sq Statistic	#1 (Tie)	#1 (Tie)	#1 (Tie)	#1 (Tie)
K-S Statistic				
A-D Statistic				
Parameters - [* Values unavailable without running a bootstrap.]	^			
Num. Est. Parameters	1	1	2	2
Fitted Parameter #1	p	lambda	s	Min
Fitted Value	0.333333	2	1	0
N/A Lower Limit*	N/A	N/A	N/A	N/A
N/A Upper Limit*	N/A	N/A	N/A	N/A
Conf. Interval Width*	N/A	N/A	N/A	N/A
Fitted Parameter #2			p	Max
Fitted Value			0.333333	6
N/A Lower Limit*			N/A	N/A
N/A Upper Limit*			N/A	N/A
Conf. Interval Width*			N/A	N/A
Distribution Statistics	^			
Minimum	0	0	0	0
Maximum	+∞	+∞	+∞	6
Mean	2	2	2	3
Mode	0	1	0	0
Median	1	2	1	3
Std. Deviation	2.449490	1.414214	2.449490	2
Skewness	2.0412	0.7071	2.0412	0
Kurtosis	9.1667	3.5000	9.1667	1.7500
Percentiles	^			
1%	0	0	0	0
2.5%	0	0	0	0
5%	0	0	0	0
10%	0	0	0	0
20%	0	1	0	1
25%	0	1	0	1
30%	0	1	0	2
35%	1	1	1	2
40%	1	1	1	2
45%	1	2	1	3
50%	1	2	1	3
55%	1	2	1	3
60%	2	2	2	4
65%	2	2	2	4
70%	2	3	2	4
75%	3	3	3	5
80%	3	3	3	5
90%	5	4	5	6
95%	7	5	7	6
97.5%	9	5	9	6
99%	11	6	11	6

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