



ESC Distribution Code Review - Guaranteed Service Levels

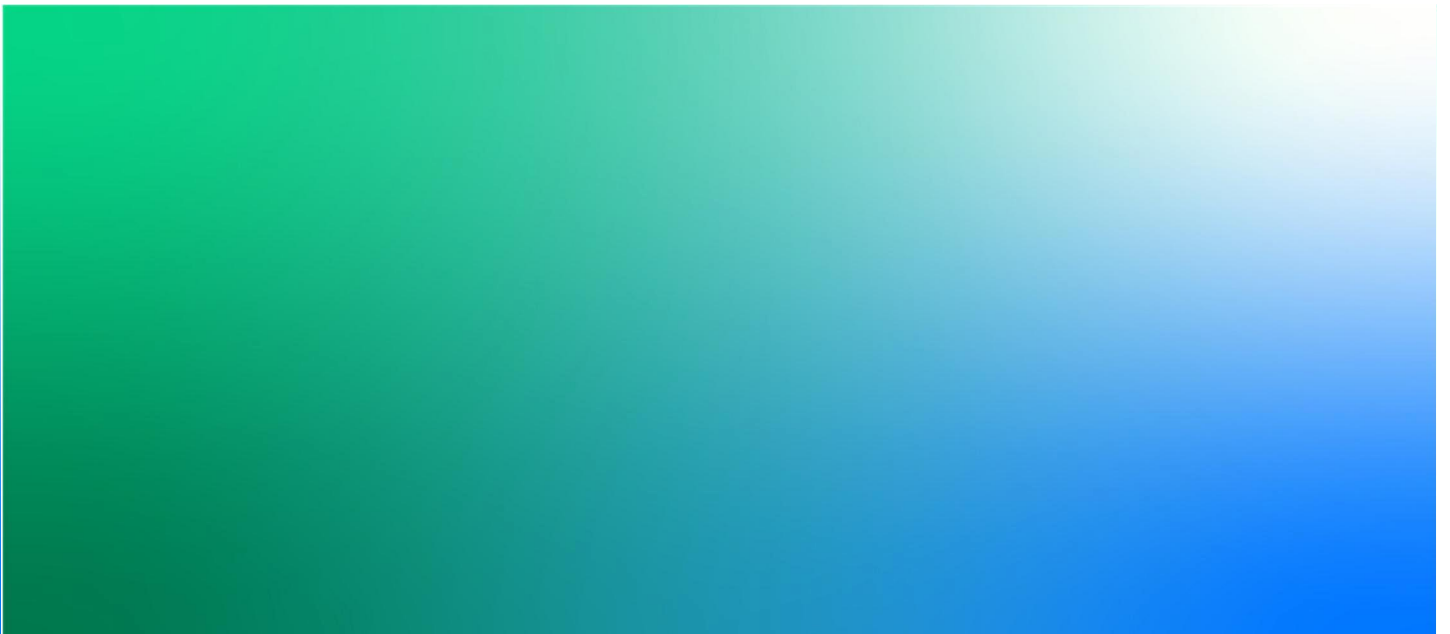
Review of GSL final decision calculations

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Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
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1	28.10.2020	Draft with ESC's revised proposed thresholds	SS	RMZ	RMZ	LP
2	30.10.2020	Final	SS	RMZ	RMZ	LP
3	30.10.2020	Final (minor corrections)	RMZ	RMZ	RMZ	LP

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Executive Summary

Jacobs has been engaged by the ESC to support the ESC's Guaranteed Service Level (GSL) analysis and quality assurance requirements.

The review has been undertaken in stages. The various stages have evaluated the ESC's methods and calculations related to the Commission reaching its final decision. The Commission has considered the comments Jacobs has made on the draft decision proposals, along with stakeholder comments and the Commission's own determinations in revising its proposed method and calculations.

This report summarises Jacobs' findings on the Commission's revised method and calculations proposed for the Commission's final decision.

Jacobs' findings are:

- § The Commission's revised method and calculations adequately addressed comments Jacobs made with respect to the data contained in the Regulatory Information Notices (RINs) submitted to the Australian Energy Regulator (AER) and as used by the Commission in making its draft decision.
- § The use of NMI data has enabled the Commission to determine threshold levels more accurately for the approximately 1% of worst affected customers in both frequency and cumulative duration of sustained outages.
- § Initial results suggested the draft proposed thresholds were set too low and would result in significantly more than the approximately 1% of worst affected customers receiving payments. The Commission has adjusted the thresholds from those used in the draft decision and the revised thresholds now provide a consistent number of affected customers compared to the current regime based on historical network performance.
- § The analyses conducted to check the ESC results were all consistent with the results provided

Important note about your report

This report has been developed for the Essential Services Commission (ESC) of Victoria to review the GSL calculations by the ESC within the Electricity Distribution Code. This review is undertaken on behalf of the ESC in accordance with the scope of services set out in the contract between Jacobs and the ESC.

In preparing this report, Jacobs has relied upon, and presumed accurate, information (or confirmation of the absence thereof) provided by the ESC and from other sources. Except as otherwise stated in the report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Jacobs for use of any part of this report in any other context.

The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. Jacobs has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law. Where Jacobs has interpreted legislation/ contracts/ agreements in the review this interpretation is not based on legal services.

This report has been prepared on behalf of, and for the exclusive use of the ESC, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the ESC. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party

1. Introduction

1.1 General

Jacobs Group (Australia) Pty Ltd (“Jacobs”) has been engaged by the Essential Services Commission (“ESC”) to support the ESC’s Guaranteed Service Level (GSL) analysis and quality assurance requirements.

1.2 Current GSL regime

A summary of relevant aspects of the current GSL regime¹ is included in Table 1:

Table 1 Summary of current GSL regime

Area	Clause	Description/ summary
Appointments	6.1.1	Where a distributor makes an appointment with a customer, if the distributor is more than 15 minutes late for the appointment, the distributor must pay the customer \$30.
Failure to supply	6.2	Where a distributor does not supply electricity to a customer’s supply address on the day agreed with the customer, the distributor must pay to the customer \$70 for each day that it is late, up to a maximum of \$350
Supply Restoration	6.3.1	(a) \$120 where the customer experiences more than 20 hours of unplanned sustained interruptions per year; or (b) \$180 where the customer experiences more than 30 hours of unplanned sustained interruptions per year; or (c) \$360 where the customer experiences more than 60 hours of unplanned sustained interruptions per year; or (d) \$80 where the customer is supplied by a CBD feeder or an urban feeder and experiences an unplanned sustained interruption of more than 12 hours, and 20 hours or less of unplanned sustained interruptions in that year; or (e) \$80 where the customer is supplied by a short rural feeder or a long rural feeder and experiences an unplanned sustained interruption of more than 18 hours, and 20 hours or less of unplanned sustained interruptions in that year;
Low reliability	6.3.2	(a) \$120 where the customer experiences more than 8 unplanned sustained interruptions per year; or (b) \$180 where the customer experiences more than 12 unplanned sustained interruptions per year; or (c) \$360 where the customer experiences more than 24 unplanned sustained interruptions per year; and (d) \$30 where the customer experiences more than 24 momentary interruptions per year; or (e) \$40 where the customer experiences more than 36 momentary interruptions per year,

The GSL payments in Clause 6.3.1 and 6.3.2 are excepted in the event(s) of:

§ Agreed planned interruptions or where the interruption is due to or extended by the customer (Cl 6.3.3)

¹ ESC, “Electricity Distribution Code” Version 11, April 2020 at Clause 6

- § Load shedding (shortfall of generation, under-frequency load shedding, AEMO action) (CI 6.3.4 (a), (aa), (ab))
- § Failure of the shared transmission network or transmission connection assets not the responsibility of the distributor (CI 6.3.4 (b) and (c))
- § Interruptions on days when the unplanned interruption frequency exceeds a daily threshold of (CI 6.3.4 (d)):
 - Jemena 0.120
 - CitiPower 0.066
 - Powercor 0.110
 - AusNet Services 0.190
 - United Energy 0.100
- § Where prior approval has been obtained from the Commission, load shedding due to a shortfall in demand response initiatives (CI 6.3.4 (e))

1.3 Proposed draft GSL regime

A summary of relevant aspects of the current GSL regime² is included in Table 2. For the Performance GSL measures the ESC was aiming to set the levels at the 1%ile (using 5 years of RIN data over the entire Victorian network):

Table 2 Summary of proposed draft GSL regime

Area	Draft decision	Description/ summary
Appointments	Unchanged ³	Where a distributor makes an appointment with a customer, if the distributor is more than 15 minutes late for the appointment, the distributor must pay the customer \$35.
Failure to supply / Delayed connections	Retained, added clarifications	Where a distributor does not supply electricity to a customer's supply address on the day agreed with the customer, the distributor must pay to the customer \$80 for each day that it is late, up to a maximum of \$400
Low reliability – duration	Revised parameters, revised payment timings	<ul style="list-style-type: none"> § \$130 where the customer experiences more than 12 hours of unplanned sustained interruptions per year; or § \$190 where the customer experiences more than 24 hours of unplanned sustained interruptions per year; or § \$380 where the customer experiences more than 48 hours of unplanned sustained interruptions per year
Low reliability - frequency	Revised parameters, revised payment timings	<ul style="list-style-type: none"> § \$130 where the customer experiences more than 5 unplanned sustained interruptions per year; or § \$190 where the customer experiences more than 10 unplanned sustained interruptions per year; or § \$380 where the customer experiences more than 20 unplanned sustained interruptions per year; and
Single interruption restoration	Replaces 6.3.1 (d) and (e) for	§ 12 hours or more on Major Event Days \$90

² ESC, "Electricity Distribution Code" Version 11, April 2020 at Section 6

³ "Unchanged" means structurally unchanged – the GSL payment amount may be escalated

Area	Draft decision	Description/ summary
	Major Event Days	
Reliability – Momentary interruptions	Replaces 6.3.2 (d) and (e) for Major Event Days	§ 24 unplanned interruptions: \$40 § 36 unplanned interruptions: \$50

The proposed changes to the supply interruptions exceptions are interpreted as:

- § The ESC is proposing to introduce a new payment to address poor performance on major event days. Therefore, to avoid double counting outage events, major event days will be excluded from the calculation of all annual GSL payments (i.e. “Low reliability - duration” and “Low reliability - frequency” in Table 2 above)
- § Exclusions relating to operation of bushfire related technology (automatic circuit reclosers on total fire ban days and code red days, rapid earth fault current limiters on total fire ban days and code red days), but not to automatic reclosers or REFCL operation or testing on non-total fire ban and code red days.
- § Load interruptions caused or extended by a direction from state or federal emergency services, provided that a fault in, or the operation of, the network did not cause, in whole or part, the event giving rise to the direction (new exclusion adopted from the national scheme)

1.4 Proposed final GSL regime

For the Performance GSL measures, the ESC is aiming to set the levels at the 1% tile (using 5 years of NMI data over the entire Victorian network). The final proposed GSL regime is outlined in Table 3.

Table 3 Summary of revised proposed GSL regime

Area	Proposed final decision	Description/ summary
Appointments	Unchanged ⁴	Where a distributor makes an appointment with a customer, if the distributor is more than 15 minutes late for the appointment, the distributor must pay the customer \$35.
Failure to supply / Delayed connections	Retained, added clarifications	Where a distributor does not supply electricity to a customer’s supply address on the day agreed with the customer, the distributor must pay to the customer \$80 for each day that it is late, up to a maximum of \$400
Low reliability – duration	Revised parameters, revised payment timings	§ \$130 where the customer experiences more than 18 hours of unplanned sustained interruptions per year; or § \$190 where the customer experiences more than 30 hours of unplanned sustained interruptions per year; or § \$380 where the customer experiences more than 60 hours of unplanned sustained interruptions per year

⁴ “Unchanged” means structurally unchanged – the GSL payment amount may be escalated

Area	Proposed final decision	Description/ summary
Low reliability - frequency	Revised parameters, revised payment timings	§ \$130 where the customer experiences more than 8 unplanned sustained interruptions per year; or § \$190 where the customer experiences more than 12 unplanned sustained interruptions per year; or § \$380 where the customer experiences more than 20 unplanned sustained interruptions per year; and
Single interruption restoration	Replaces 6.3.1 (d) and (e) for Major Event Days	§ 12 hours or more on Major Event Days \$90
Reliability – Momentary interruptions	Replaces 6.3.2 (d) and (e) for Major Event Days	§ 24 unplanned interruptions: \$40 § 36 unplanned interruptions: \$50

1.5 ESC method for calculating the non-performance GSL payment amounts

The ESC proposes to calculate a distribution price index using the weighted average (CPI-X) escalators applied in the AER's 2016-2020 determinations and use this to escalate the payment levels for non-performance GSL amounts (delayed connections and late appointments).

These were reviewed by Jacobs during the first stage of analysis and no issues were found.

1.6 ESC method for updating the performance GSL payment amounts

The ESC proposes to adjust the guaranteed service level performance payment levels by the change in the value of customer reliability measure since the ESC's last review in 2015 and in line with consumer price index changes.

These were reviewed by Jacobs during the first stage of analysis and no issues were found.

1.7 ESC calculation of Value of Customer Reliability methodology

For the draft decision, the ESC obtained value of customer reliability (VCR) information from the AER for the Victorian distribution network. The ESC also calculated a value for 2019 Victorian distribution VCR as \$43.13/kWh using the calculation method in Table 4.

Table 4 Calculation of VCR

Type	Load weighting ⁵	Customer type	Weighting ⁶	Final weight	VCR (\$/ kWh)
Residential	33%	Residential	100%	33%	21.43
Non-residential	67%	Agriculture	1.7%	1.1%	37.87
		Commercial	49.6%	33.2%	44.52
		Industrial	48.7%	32.6%	63.79
Weighted average					43.13

This was reviewed by Jacobs during the first stage of analysis and no issues were found.

⁵ Sourced by the ESC from RIN data submitted to AER by Victorian distributors

⁶ For Non-residential, based on Australian Energy Update 2019 (Victoria consumption data)

2. Scope

This report addresses the final task of Jacobs' review of the GSL calculations – reviewing the calculations for the ESC's final decision.

The scope of work agreed for this review was primarily to ensure that results are accurate.

To review -

- § Low reliability – sustained duration of outages thresholds
- § Low reliability – frequency of sustained duration thresholds
- § Reliability – momentary interruption calculations
- § Number of expected payments for current and proposed GSL schemes
- § The 99th percentile of sustained duration and frequency of outages.
- § Analysis of current scheme thresholds and analysis of the revised scheme thresholds.

The deidentified NMI data was provided by ESC in a series of text files. Separate tabulations of results conducted by the ESC were also supplied to confirm consistency in results. The use of NMI data provides an accurate method of determining the 99th percent.

The primary objective of this review was to ensure that calculations performed by ESC on the large datasets had been carried out correctly.

Jacobs was not asked to comment on the logic or methodology of the calculations and the review was conducted primarily to ensure that queries performed on the large datasets of NMI data were correct.

The ESC utilised STATA to perform the analysis. Jacobs utilised an independent method, instead running the checks using queries performed in Microsoft Access and Microsoft Power BI.

3. Review the new thresholds for the GSL scheme

3.1 Introduction

The data inputs for the GSL are derived from unidentified NMI data supplied from individual distributors via the ESC. The years 2015 to 2019 were captured. For the purposes of this review, we have assumed that this input data has been collated correctly.

The ESC proposes to align the performance GSL thresholds to approximately the worst one percent of performance for the entire Victorian electricity network per payment category.

The ESC proposes to retain a tiered threshold for the annual duration and frequency GSL payments, however they propose to update the thresholds to reflect the other changes to the GSL scheme to ensure customers who experience the poorest network performance are still recognised by the GSL scheme. Additionally, the supply interruptions that occur on major event days are proposed to be excluded from contribution toward the annual duration and frequency thresholds. The Major Event Days (MEDs) and all other excluded events were omitted from the NMI data provided by the ESC.

The guaranteed service level scheme has been designed to consider the customers who have the worst service from their distributor. The ESC considers the ‘worst served customers’ as the approximately one per cent of customers who have experienced the most minutes without electricity supply or many outages in a year. This means that the worst served customers change on an annual basis.

The ESC proposes to use the following method for its final decision:

- § The latest available five years’ worth of de-identified NMI level data provided by the distributors (2015-2019).
- § For each NMI each calendar year, the number of sustained interruptions, the total sustained duration in hours, and number of momentary interruptions was provided. This data excludes major event days and other applicable exclusions.
- § For each year, 99th percentile for number of sustained interruptions (Frequency), and sustained duration was calculated, to identify the worst one percent of performance across the entire state for the two categories.
- § Also calculated was the number of NMIs that fell into the current thresholds for both frequency of interruptions and total sustained duration and the Commission’s proposed thresholds in its draft decision.

Using the de-identified NMI level data, the ESC has processed the data to evaluate:

1. What the data looks like under the current GSL scheme.
 - § duration: 20 hours, 30 hours, 60 hours
 - § frequency: 8 interruptions, 12 interruptions, 24 interruptions
 - § momentary: 24 interruptions and 36 interruptions
2. What the data looks like under the draft decision GSL scheme
 - § duration: 12 hours, 24 hours, 48 hours
 - § frequency: 5 interruptions, 10 interruptions, 20 interruptions
 - § momentary: 24 interruptions and 36 interruptions
3. What the data looks like after recalculating the thresholds using the same approach set out in the draft decision. Because more granular data is being used, more accurate thresholds should be ascertainable.

4. The number of payments expected for breaching both the frequency and sustained duration outage thresholds for both the current scheme and revised scheme.
5. What the thresholds would need to be to result in a similar number of payments under the current scheme based on historical NMI data between 2015 and 2019.

The ESC utilised programming in the STATA language to perform the calculations. Jacobs has utilised an independent approach by using queries run in both Microsoft Access and Microsoft Power BI to confirm that the ESC calculations have been conducted correctly.

A total of 25 text files containing de-identified NMI data across the 5 distributors from 2015 to 2019 was supplied to Jacobs. Each file contained the de-identified NMI number plus the corresponding number of sustained outages, momentary outages and total sustained outage for each NMI for each year. The files were also separated by the five different distributors which were also de-identified.

3.2 Worst performance for frequency and sustained duration of outages

Table 5 outlines the 99th percentile for sustained duration hours and frequency of outages for each year. This gives an accurate indication for the parameters surrounding the worst 1% of customers affected each year.

The average for the five years analysed suggests that approximately one percent of customers were affected by over 16 hours in sustained duration outages on days that were not Major Event Days, and an average of over 7 outages per NMI.

Jacobs utilised Microsoft Power BI to compute these percentiles. They were found to be consistent with the results provided by the ESC.

Table 5 Results for 99th percentile of NMI data for frequency and cumulative hours of sustained duration events

Year	Sustained duration (hours)	Frequency Outages
2015	21.85	9
2016	38.56	8
2017	16.07	6
2018	20.09	8
2019	25.45	8

3.3 Sustained duration results

The number of low reliability payments that breached the thresholds of 20, 30 and 60 hours respectively and corresponding payment amounts was summed for each distributor per year. These calculations were checked and confirmed to be equivalent to the corresponding summary tables and charts.

The following totals were all summed from the input data and confirmed to correspond to the summary tables:

- Total number of low reliability payments in different thresholds
- Number of low reliability payments made per threshold per year.

The results for the current sustained duration thresholds are outlined in Table 6 below. These queries were found to be consistent and within an acceptable margin of error with the results supplied by the ESC.

Table 6 Results for actual customer counts of current thresholds for cumulative sustained duration outages

Year	No Payment	20 to 30 hours	30 to 60 hours	>60 hours	Total
2015	2,746,994	30,894	14,747	1,795	2,794,430
2016	2,765,711	39,471	31,258	14,540	2,850,980
2017	2,867,311	19,783	6,006	119	2,893,219
2018	2,900,301	25,327	11,239	865	2,937,732
2019	2,938,938	27,168	17,795	5,889	2,989,790

The results for the draft decision sustained duration thresholds are outlined in Table 7 below. These results were found to be consistent and within an acceptable margin of error with the results supplied by the ESC.

Table 7 Results for customer counts of proposed thresholds for cumulative sustained duration outages

Year	<12 hours	12 to 24 hours	24 to 48 hours	>48 hours	Total
2015	2,706,573	61,924	18,406	2,138	2,789,041
2016	2,718,611	67,261	35,252	20,933	2,842,057
2017	2,829,167	46,398	8,251	451	2,884,267
2018	2,843,367	67,749	17,373	1,473	2,929,962
2019	2,881,280	76,893	25,000	9,026	2,992,199

It is apparent from the more granular analysis resulting from the use of NMI data, that the original draft thresholds were set too low to only capture the approximately worst 1% of affected customers for the duration payment category. The adjusted thresholds for the cumulative duration of outages is outlined in Table 8. These are a closer reflection of the approximately 1% of worst affected customers and is similar to the level of the payments in the current scheme.

Table 8 Results for customer counts of proposed revised thresholds for cumulative sustained duration outages

Year	<18 hours	18 to 30 hours	30 to 60 hours	> 60 hours	Total
2015	2,748,574	29,495	9,947	1,025	2,789,041
2016	2,760,056	39,966	27,497	14,538	2,842,057
2017	2,862,688	16,579	4,885	115	2,884,267
2018	2,891,631	29,825	7,772	734	2,929,962
2019	2,934,124	36,633	16,288	5,154	2,992,199

3.4 Frequency interruptions

The number of low reliability payments that breached the thresholds of 8, 12 and 24 events respectively and was summed for each distributor per year. These calculations were checked and confirmed to be consistent with the corresponding summary tables supplied by the ESC.

The following totals were all summed from the input data and confirm to correspond to the summary tables:

- Number of annual sustained interruptions for each distributor in each of the current threshold band
- Number of annual sustained interruptions for each distributor in each of the draft threshold bands

The results for the current sustained duration thresholds are outlined in Table 9 below. These queries were found to be consistent and within an acceptable margin of error, with results supplied by the ESC.

Table 9 Results for actual customer counts of current thresholds for frequency of sustained duration outages

Year	No payment	8 to 12	12 to 24	>24	Total
2015	2,726,001	15,279	2,148	0	2,743,428
2016	2,779,721	25,328	5,787	2541	2,813,377
2017	2,865,503	6,268	444	0	2,872,215
2018	2,877,703	23,445	4,303	0	2,905,451
2019	2,928,058	32,707	7,640	0	2,968,405

The results for the draft decision sustained frequency interruption thresholds are outlined in Table 10 below. These queries were found to be consistent and within an acceptable margin of error, with results supplied by the ESC.

Table 10 Results for customer counts of draft thresholds for frequency of sustained duration outages

Year	<5	5 to 10	10 to 20	>20	Total
2015	2,653,474	114,494	21,073	-	2,789,041
2016	2,705,400	118,125	15,476	3,056	2,842,057
2017	2,811,295	70,473	2,499	-	2,884,267
2018	2,796,504	120,889	12,569	-	2,929,962
2019	2,837,112	139,769	15,280	-	2,992,161

It is apparent from the more granular analysis resulting from the use of NMI data, that the original draft thresholds were set too low to only capture the approximately worst 1% of affected customers for the frequency payment category. As a result, adjustments were made to the thresholds to reflect the worst 1% of affected customers. The results for the revised thresholds for number of sustained outages are outlined in Table 11, which are more consistent with the original bands.

Table 11 Results for customer counts of revised thresholds for frequency of sustained duration outages

Year	<8	8 to 12	12 to 20	> 20	Total
2015	2,749,267	30,559	9,215	-	2,789,041
2016	2,802,872	30,491	5,638	3,056	2,842,057
2017	2,875,939	7,275	1,053	-	2,884,267
2018	2,896,974	28,043	4,945	-	2,929,962
2019	2,952,410	33,062	6,689	38	2,992,199

3.5 Momentary Interruption results

The number of low reliability momentary interruptions that breached the thresholds of 24 and 36 events respectively and was summed for each distributor per year. These calculations were checked and confirmed be consistent with the corresponding summary tables supplied by the ESC.

The proposed draft thresholds for the payment bands of 24 and 36 are unchanged from the existing thresholds. The results from our queries as run in Microsoft Access SQL are outlined in Table 12 below. These results were found to be consistent with the tabulations provided by the ESC.

Table 12 Results for customer counts of thresholds for frequency of momentary outages

Year	<24	24 to 36	>36	Total
2015	2,767,848	14,357	6,836	2,789,041
2016	2,821,203	16,938	3,916	2,842,057
2017	2,868,771	12,939	2,557	2,884,267
2018	2,911,330	14,693	3,939	2,929,962
2019	2,973,010	14,541	4,648	2,992,199

4. Analyse the number of payments for the GSL scheme

In the previous GSL scheme reviews, the payment levels have been informed by the value of customer reliability (VCR). This measure reflects the value that customers place on reliable electricity supply in different scenarios.

The value of customer reliability measure assists distributors with understanding customers' willingness to pay for network upgrades and augmentation compared with customers' desire for an affordable electricity supply.

The second stage of work requires Jacobs to review ESC calculations on the number of payments that would be made to customers under the new proposed thresholds.

To check these calculations, the data provided from ESC was input into a Microsoft Access database. Queries were run to identify counts in the mutually exclusive groups as follows:

- Customers receiving no payments – meeting neither the frequency or duration thresholds
- Customers receiving one duration payment – customers above the sustained duration threshold but below the lowest frequency threshold
- Customers receiving one frequency payment – customers above the frequency threshold but below the lowest duration threshold
- Customers receiving two payments – customers breaching both the lowest duration and frequency thresholds.

During the first stage of analysis Jacobs reviewed the actual and (then) proposed payments for the years 2015 to 2019. These were based on RIN data supplied by Victorian DBs to the AER. RIN data is audited before submission to the AER.

The results for the proposed draft frequency and duration thresholds are outlined in Table 13 below.

Table 13 Number of customers expected to be receiving payments for frequency and sustained duration of outages under draft thresholds

Year	No Payment	Duration Payment	Frequency Payment	Both Payments	Total NMIs
2015	2,663,170	41,864	45,116	38,891	2,789,041
2016	2,687,824	63,261	31,439	59,533	2,842,057
2017	2,811,457	39,371	19,377	14,062	2,884,267
2018	2,799,606	46,311	45,584	38,461	2,929,962
2019	2,845,606	54,804	37,120	54,669	2,992,199

Upon analysis of the NMI data and the resulting revision to the sustained duration and frequency of outage thresholds, the numbers of expected payments are outlined in table 13. These were found to be consistent with the analysis supplied by the ESC. With an average of approximately just over 1% of customers expected to receive a payment per payment category over the five year analysis period under these thresholds, they represent a closer representation of the targeted 1% of worst affected customers.

Table 14 Number of customers receiving expected payments for frequency and sustained duration of outages under revised thresholds

Year	No Payment	Duration Payment	Frequency Payment	Both Payments	Total NMIs
2015	2,725,273	23,994	24,256	15,518	2,789,041
2016	2,750,799	52,073	9,732	29,453	2,842,057
2017	2,857,175	18,764	5,871	2,457	2,884,267
2018	2,873,597	23,377	18,644	14,344	2,929,962
2019	2,916,054	36,356	18,479	21,310	2,992,199

5. Summary of Review

- 1) The use of NMI data has enabled the Commission to determine threshold levels more accurately for the approximately 1% of worst affected customers in both frequency and cumulative duration of sustained outages.
- 2) Initial results suggested the draft proposed thresholds were set too low and would result in significantly more than the approximately 1% of worst affected customers receiving payments. The ESC has adjusted the thresholds from those used in the draft decision and the revised thresholds now provide a consistent number of affected customers compared to the previous regime based on historical network performance.
- 3) The analyses conducted to check the ESC results were all consistent with the results provided, including:
 - a. The current, draft and final sustained duration thresholds
 - b. The current, draft and final frequency outage thresholds
 - c. The current and draft momentary interruption thresholds
 - d. The 99th percentile duration and frequency outage
 - e. The number of payments expected for under the current, draft and final thresholds.