Ontario Energy Board

Board Staff Discussion Paper

On the implications arising from a review of the electricity distributors' cost allocation filings

EB-2007-0667

June 25, 2007

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1 Introduction

1.1 Background

The Board issued its policy for informational cost allocation filings in"*Cost Allocation Review: Board Directions on Cost Allocation Methodology for Electricity Distributors, EB-2006-0317, September 29, 2006"* (the "Policy"). Subsequent to that document, in November 2006, Board staff released the Cost Allocation Model (the "Model") that had been developed flowing from the methodology and Policy, together with instructions and guidelines on the completion of the cost allocation filing requirements.

The Cost Allocation Review Process

Most Ontario electricity distribution utilities were required to apply the Model to their utility using their approved 2006 EDR rates and revenue requirements and to file the results. Two runs of the Model were mandatory; the first reflecting the status quo with respect to customer classifications, and the second making Board-directed changes to a relatively small sub-set of customer classifications. The filing of a third run, which permitted a distributor to initiate other customer re-classifications was optional, at the distributor's discretion.

At the time of the preparation of this report, some 65 distributors had made filings with the Board. Board staff has reviewed these filings in broad terms to satisfy four general areas; namely, the appropriateness of the methodology, the efficacy of the Model, the

Analysis is based on 65 separate utility filings

validity of the outputs from the Model, and the applicability of the results to future rate applications.

1.2 Purpose and Scope of this Report

The purpose and scope of this report focuses on the description of results in two key areas and how these results may be useful to distributors as part of their future rate applications. This report does not provide a complete and extensive analysis of each distributor's filing.

The two key elements of this report are; establishing a set of acceptable class-specific ranges for the revenue to cost ratios that would be reasonable in the short term, and establishing the range within which the class-specific monthly fixed charge should fall. In addition, the report includes Board staff discussions on: allocated metering costs for Unmetered Scattered Load ("USL"); establishing the level of the transformer ownership credit; standby rates for Load Displacement Generation ("LDG"), and sufficiency of the input data. Board staff is seeking comments on all these areas based on the material in this discussion paper.

Comments sought in six areas.

2   General Results Arising from the Filings

2.1   Cost Allocation Methodology and the Model

Board staff reviewed the filings in broad terms to satisfy the appropriateness of the methodology and the efficacy of the Model. As with any cost allocation study, certain assumptions underpin the outcomes. The review undertaken by Board staff was to ensure the methodology and Model at the process and performance level was applicable to all distributors. Sixty-five filings were received, representing 90% of Ontario customers and annual deliveries.

The Board staff review assessed the methodology and model at the process and performance level.

Board staff carried out audit checks and examined the input data for reasonableness to ensure that the data and the distributors' use of the Model were consistent with the Policy. In general, Board staff determined there were very few problems with the process. However, there was quite a range of outputs for various components of the Model. This might indicate a non-consistent understanding of the fundamentals associated with the methodology and the Model, or errors in the data from individual distributors. This might also be used to argue that each distributor is unique and that these matters have a significant degree of subjectivity.

Despite these ranges in output, etc., Board staff is satisfied that the overall results provide a reasonable basis for the determination of the directions suggested, in particular, with respect to the two key elements and the other matters addressed in this report.

The overall results of the cost allocation studies provided a reasonable basis for this discussion paper.

2.2 Results Relating to the Two Key Elements

It is useful to remember that the cost allocation filings of the distributors merely provide the appropriate levels of costs, allocated to the customer classifications according to a prescribed methodology. As an extension to that process, and of more importance in the rate setting exercise, are examinations of the ratios between the revenues received through the rates and the costs allocated to the classes (the revenue to cost ratios), and of the level of the fixed customer charges within each class, i.e. testing the efficacy of the rates to the allocated costs, and the appropriate level for fixed monthly charges.

Two key elements are important considerations for rate setting: revenue to cost ratios, and the level of the fixed monthly charge.
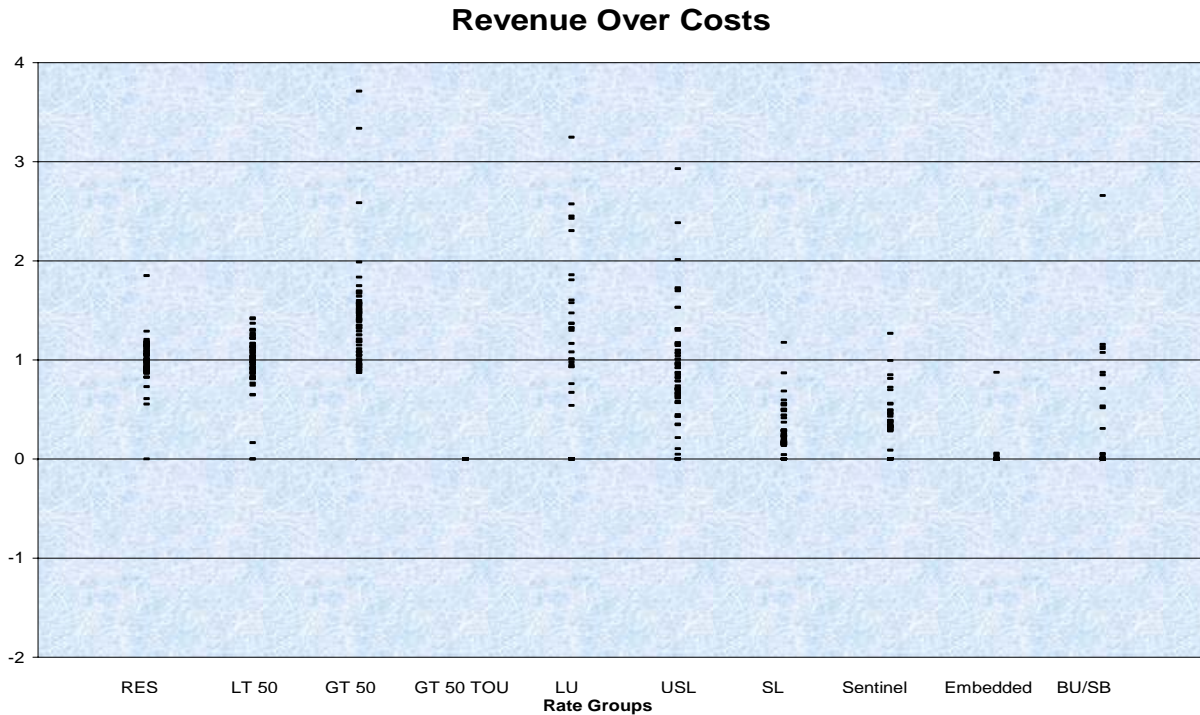
Figure 1 Revenue to Cost Ratios

Figure 1 is a scatter diagram that plots the distributions of the revenue to cost ratios by class. When revenues equal costs, the

ratio is one. This figure shows that for the Residential and General Service less than 50 kW (GS<50) classes, the ratios seem to cluster around one. The classes containing the larger users generally have revenues in excess of costs, while the remainder of the classes have revenues less than costs. Board staff's investigation of the revenue to cost ratios is provided in more detail in Chapter 3.

With respect to testing the efficacy of the rates within each class to the allocated costs and the appropriate level for fixed monthly charges, the results of the filings showed no consistent pattern and often little relationship to costs.

Figure 2 shows the percentage that the fixed monthly charge is below, in the cost range suggested by the Board, and above costs.

Figure 2

Monthly FIxed Charges and Respective Costs

Above Cost Range 45%

Below Costs 11%

In Cost Range 44%
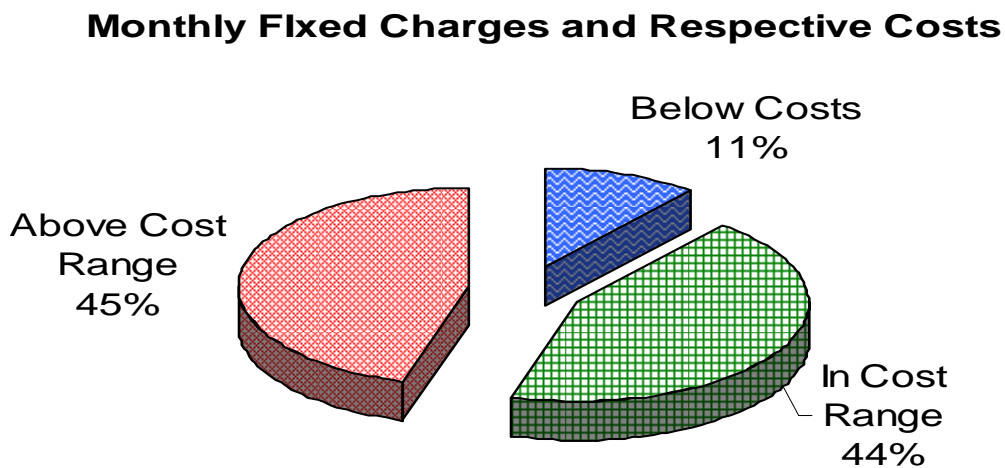
Board staff's investigation of this issue is provided in more detail in Chapter 4.

2.3 Results Relating to the Other Aspects Addressed in this Report

Certain other matters were raised in the Policy regarding the level of certain cost components that could affect metering costs for unmetered scattered loads, line transformer costs for the transformer ownership credit, and costs associated with the supply to a customer with load displacement generation. Board staff has also commented on the sufficiency of the input data. In general, because there was insufficient and some questionable data, Board staff are not able to draw certain conclusions.

Chapter 5 provides a more detailed examination of these other aspects.

Other matters pertaining to the process are also addressed as they raised some concern

3 Revenue to Cost Ratios

3.1 Significance of the Revenue to Cost Ratios

The examination of revenue to cost ratios in a rate setting proceeding is integral to the determination of just and reasonable rates. As outlined in the *Filing Requirements for Transmission and Distribution Applications, (EB-2006-0170) November 14, 2006,* ("Filing Requirements") an applicant is required to file historical and test year revenue to cost ratios. Typically, the proposed levels of the revenue to cost ratios are an area for examination in rate proceedings.

Revenue to cost ratios are integral to setting rates.

In the vast majority of cases, at the total distributor level, the ratio between total revenues and total costs is unity. For every class within a distributor, a pure application of the methodology would mean that the rates would be set to provide the revenues to recover only the allocated costs, resulting in a revenue to cost ratio of 1.0 ("unity"). The reason for this goal is to ensure that all customers are paying the appropriate rate for their energy delivery service.

However, most practitioners and experts in the electricity industry recognize that there are qualitative components in the cost allocation process reflecting unique situations and market conditions that require the use of judgments and non-quantitative decisions concerning rate design. In addition, as observed in the consultation phase of the development of the methodology adopted by the Board, there is no "one way" in cost allocation. Therefore,

Non-quantitative factors in a cost study reflect uniqueness of each utility, such as customer densities, market conditions, and operating practices.

certain judgments and assumptions contained in the methodology underpin the outcomes.

Board staff conducted sensitivity analyses to evaluate the impact of the judgments in the cost model to test whether these observations are true, or whether in fact a revenue to cost ratio of one is indeed a robust target for rate setting. If there is variability then a reasonable range (or ranges) of acceptability for revenue to costs around unity could be acceptable in the determination of just and reasonable rates. The question then becomes one of determining the range or ranges and whether a single range for all classes or a class-specific range is more appropriate, both in the short term and in the long term.

Ranges of acceptability for R:C reflect, in a practical way, the imperfections in any model because of assumptions and judgments.

The use of a range or ranges would allow rates to be approved that are just and reasonable and allow for the recognition of unique rate design situations that are dependent upon history or market conditions.

To establish a suggested range of acceptable revenue to cost ratios, Board staff used two approaches. A statistical approach, using frequency distribution plots and assessing them for reasonable ranges, helped define ranges where there was sufficient data that clustered around a single point. Sensitivity analyses were used when the statistical approach could not lead to a clear answer.

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3.2 Sensitivity Scenarios

An aspect of Board staff's examination focused on the sensitivity of the outputs from the distributors' Model filings to some of the aspects included in the methodology, as reflected in the resulting revenue to cost ratios.

Sensitivity analyses help in understanding a model's behaviour.

The Run 1 outputs of the distributors' Models were chosen for performing this sensitivity analysis because Run 1 reflects the approved rate classes in EDR 2006 (i.e. the status quo scenario).

The class revenues are set, based on the approved 2006 EDR rate levels, but varying key aspects or components in the Model within a reasonable range yields different distributions of costs amongst the classes. These redistributed costs result in a range of revenue to cost ratios that are useful in assessing the robustness (or conversely a range of uncertainties) of the Model and in giving guidance as to an appropriate set of revenue to cost ratio ranges.

Board staff performed sensitivity analysis on the following three scenarios for a sample of ten distributors in order to get a sense of the range of uncertainty that exists by class. Each of the distributors is in the medium customer-density grouping.

Scenario A: Varied of the percentage of the costs associated with poles, lines and transformers that were categorized as customer related in the application of the minimum plant.

Scenario A tested the models sensitivity to the density assumptions in the minimum plant.

The minimum system is a cost allocation concept that assumes that a minimum-size distribution system can be built to serve the

minimum load requirement of the customer. The percentage of the costs associated with poles, lines and transformers that were categorized as customer-related were based on the minimum system. The revenue requirement associated with these assets is the single largest percentage of the revenue requirement. Therefore, any appreciable change in the categorization of these costs through the application of the minimum system would result in noticeable changes in the revenue to cost ratios. Therefore the percentage set by the minimum system was varied for sensitivity analysis.

The percentages established in the methodology and used in the Model were based on customer density, which was calculated as customers per km of line. The methodology identified three customer density "bins" that a utility could be placed in; namely, high, medium, and low. The utilities in the sample were medium density. As a result, the methodology established that the percentage of the associated costs that will be considered to be customer-related was set at 40%. To test for sensitivity, the 40% parameter arising from the density determination was changed to 20%.

Scenario B: Adjusted the allocation of the revenue requirement for transformers to be on demand.

Scenario B tested the sensitivity to the allocation of transformers.

Transformers were part of the cost pool subjected to the minimum plant categorization based on customer density in the methodology. For this scenario, costs associated with transformers were removed from that pool of costs and were categorized as demand-related costs. The demand allocator used for demand costs was not subject to the peak load carrying capability ("PLCC") adjustment,

for such an adjustment is only appropriate for the application of the minimum plant.

Scenario C: Removal of the application of the minimum plant, including the PLCC adjustment.

Scenario C tested the sensitivity to categorizing some of the lines, poles and transformers as customer related.

The application of the minimum plant, including the PLCC adjustment was removed. As a result, all costs for poles, lines, and transformers were classified to demand.

The following Table 1 summarizes the results of these three sensitivity scenarios.

Table 1

	Res	GS<50	GS>50	LU	SL	USL
A: Varied percentage categorized as customer related from 40% to 20%.						
Summary Statistics						
A Mean	7%	6%	27%	19%	12%	1%
Max	15%	12%	51%	80%	31%	6%
Min	1%	1%	9%	0%	2%	0%
B: Removed transformers from minimum plant and removed the effects of the PLCC.						
Summary Statistics						
A Mean	2%	3%	10%	10%	2%	0%
Max	5%	12%	18%	65%	5%	0%
Min	0%	0%	4%	0%	0%	0%
C: Removed the minimum plant application.						
Summary Statistics						
A Mean	3%	70%	60%	10%	4%	0%
Max	8%	136%	117%	65%	19%	3%
Min	1%	10%	0%	0%	0%	0%

The values shown are the absolute changes observed in the revenue to cost ratios by class. The table gives the arithmetic

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mean (commonly referred to as the average), and the maximum and minimum values.

From this analysis it can be seen that varying the percentage categorized as customer-related (Scenario A) has significant effects on the outcomes. For example, decreasing the proportion of actual plant that is designated as customer-related from 40% to 20% causes the streetlight revenue to cost ratio to shift by 12%, and in the highest case by 31%. The sensitivity for large customer classes is even greater. It appears that moving transformers entirely to the demand category and removing the assumption of peak-load carrying capability (Scenario B) has a minimal effect, as shown in the second part of Table 1. Removing the minimum plant assumption entirely (Scenario C) has a large effect on most classes. As shown in the final part of Table 1, the ratio of the GS<50 class is especially sensitive to a change in this input parameter.

The model is particularly sensitive to Scenario A and Scenario C.

The sensitivity analyses point out the levels of uncertainties surrounding the results that need to be considered in the establishment of appropriate ranges of revenue to cost ratios.

3.3 Statistical Assessment of Revenue to Cost Ratios from the Filings

In addition to the sensitivity analyses performed on a sample of 10 distributors, Board staff performed a statistical assessment of the revenue to cost ratios from the outputs of the filings from all distributors. Board staff grouped the revenue to cost ratios by class and plotted their distribution. A visual interpretation of the data assisted Board staff in the determination of reasonable ranges.

The following section provides the analysis and the establishment of the revenue to cost ratio ranges by class.

3.4 Establishing the Revenue to Cost Ratio Ranges for Each Class

By incorporating the outcomes of the statistical assessment and the implications reflected through the sensitivity analysis, Board staff propose that a range of revenue to cost ratios be established by class. Further, the proposal suggests what would be a reasonable range of class specific revenue to cost ratios.

Two types of analysis were performed to help set revenue to cost ratios; a sensitivity analysis on the judgments in the methodology, and a statistical analysis of the outcomes in the filings.

Statistical assessments work well with robust data, and since there were ample data points from all the filers for the residential and GS<50 classes, Board staff relied more heavily on this over the sensitivity analysis for these classes. Another factor for using a statistical assessment is when a strong tendency to cluster around a central value is exhibited. This method also has the benefits of being easily understood.

The remaining classes showed little or no tendency to group tightly around a single value, as indicated in the plots below. Therefore, in addition to the statistical assessment, the outcomes from the sensitivity analysis as shown in Table 1 were used as a guide to establish the ranges for the remaining classes.

Board staff is seeking comments on the following discussion of the development of a range of acceptability for revenue to cost ratios.

Details of this approach for each customer class are as follows:

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3.4.1 Residential and General Service less than 50kW

The Residential and General Service less than 50 kW (GS<50) classes are the two most subscribed rates. They serve the residential sector and the small business community, typically small apartment, commercial and industrial buildings. Figures 3 and 4 show the results of the statistical assessment. In all of the following plots, grouped data are plotted in 10% intervals.
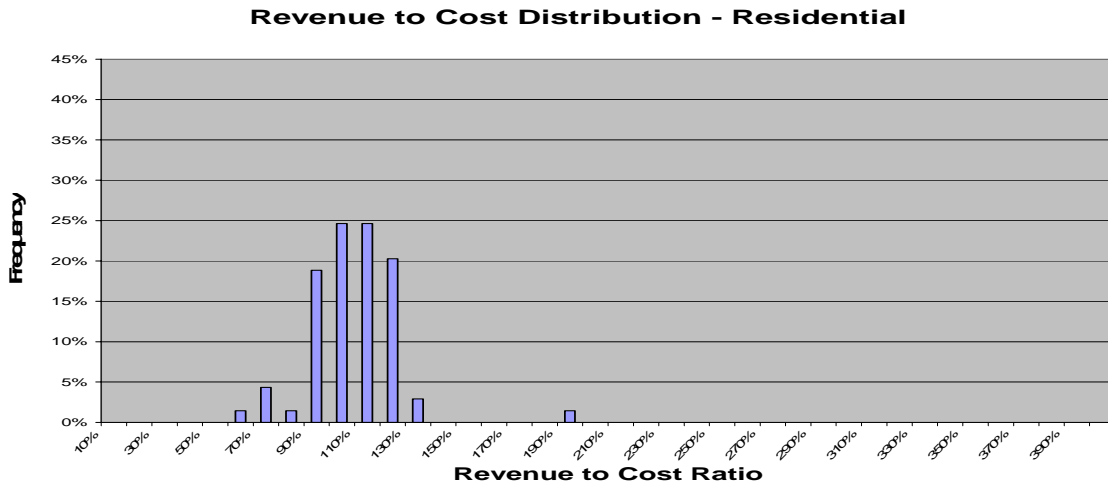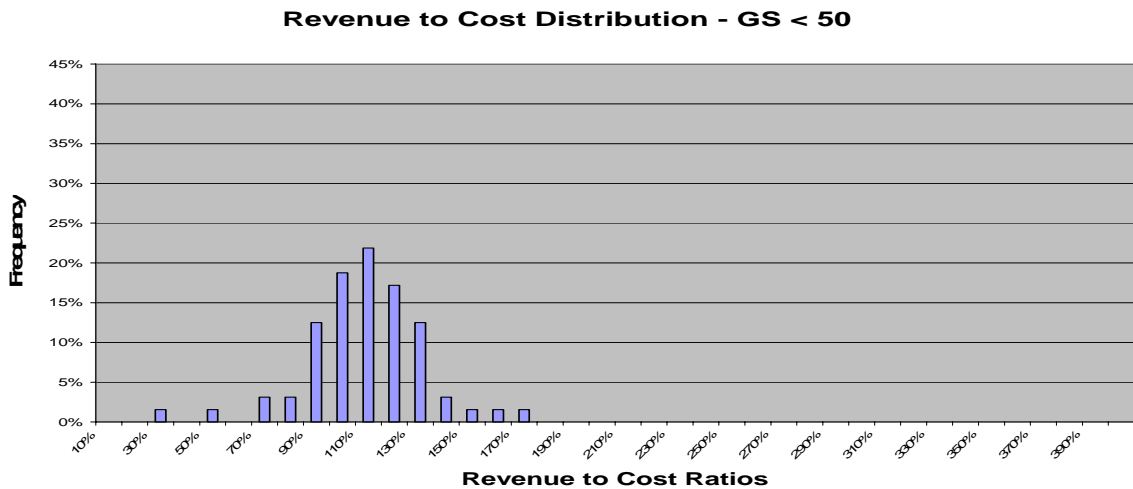
Figure 3

Revenue to Cost Distribution - Residential

Figure 4

Revenue to Cost Distribution - GS < 50

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The Residential and GS<50 class revenue to cost ratio plots display a strong tendency to cluster around one value in a uniformly distributed way. Neither of these classes cluster around 100%, or unity. The distribution of the majority of the results for the residential class appears to be +/- 20% of unity. The GS<50 are in a slightly wider band of approximately +/- 25%. Board staff suggest that a boundary of +/- 20% (i.e. 80% to 120%) for both classes is reasonable.

The impact of accepting such a range is that several distributors would have to make adjustments to their rates to get the ratio within the reasonable range. This could result in higher than average adjustments for some customer classes.

3.4.2 General Service 50 to 4,999 kW and Large User

The General Service 50 to 4,999 kW (GS>50) and Large User classes are typically large facilities such as factories, commercial centres and institutional facilities.

Figures 5 and 6 are the plots of the revenue to cost ratios for these two classes. Examination of these figures might suggest that given the historical development of the rate and other considerations (e.g. differential risk of different rate classes), there could be reasons for having an asymmetric bias to the right of 100%. Most of the observations are to the right of 100%, and some are well beyond 200%.

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With respect to the sensitivity assessment, as shown in Table 1, these classes show high sensitivity to costs assumptions. For example, Scenario A has a maximum of 51% for GS>50, and 80% for Large Users. Eighty percent would be a reasonable variation above 100%.
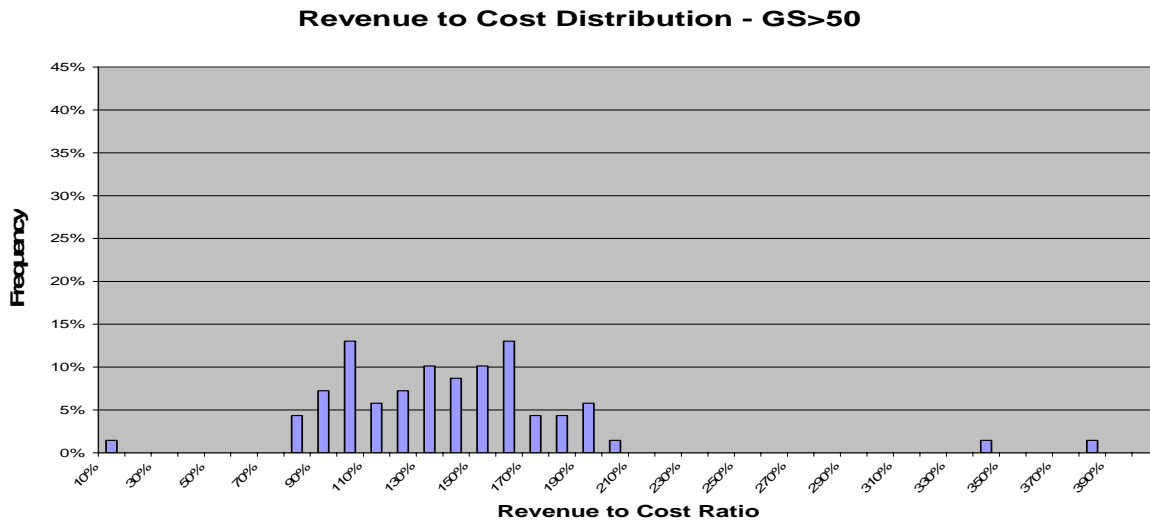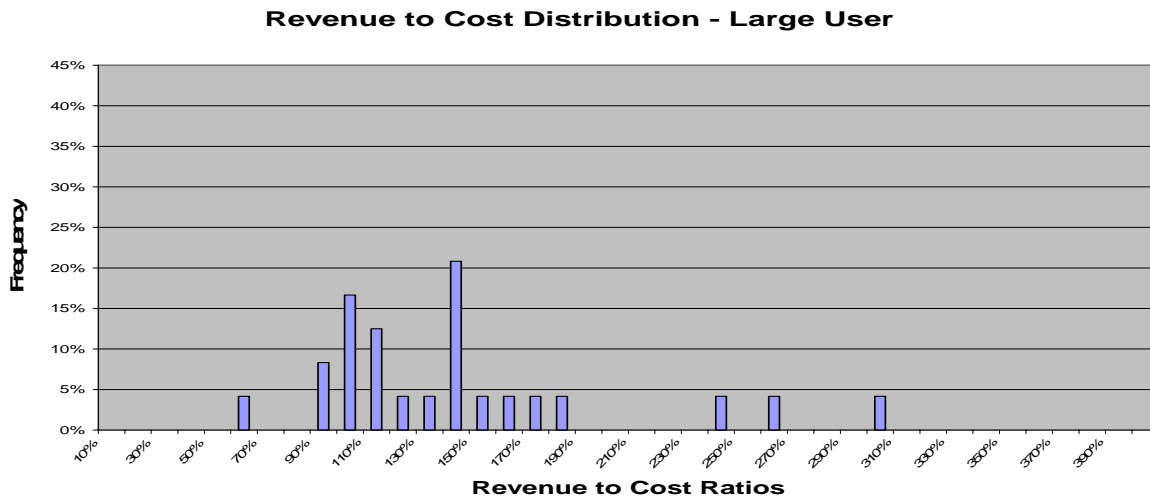
Figure 5

Revenue to Cost Distribution - GS>50

Figure 6

Revenue to Cost Distribution - Large User

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Establishing an upper bound on the revenue to cost ratio for these two rate classes is guided by the sensitivity analysis. The upper bound would be 80% above unity which allows for the largest variation given the uncertainty in the analysis.

The lower bound if symmetrical would allow for migration of rates that appears inappropriate given the current distribution of revenue to cost ratios. Board staff is guided by the fact that the smallest range identified is plus or minus 20%, for the GS<50 classes. Therefore, to limit the movement of revenue to cost ratios below unity, staff propose the lower bound be the same for the rate classes large user and GS>50. The boundary of -20% to + 80% (i.e. 80% to 180%) for both classes is a reasonable range of acceptability in the short term. This reflects the observed distribution and the sensitivity analyses.

These customers are, generally, over contributing. The asymmetry of the suggested range recognizes that the majority of the rates are well above 100%. Any significant adjustments to rates must consider the range of factors associated with rate changes which may not allow for immediate full adjustments.

3.4.3 Unmetered Scattered Load

The Unmetered Scattered Load class is for loads that are not metered, but can be determined. Such connections include but are not limited to cable TV power packs, bus shelters, telephone booths, traffic lights, and railway crossings. The majority of distributors have their USL rates based on their GS<50 rates.
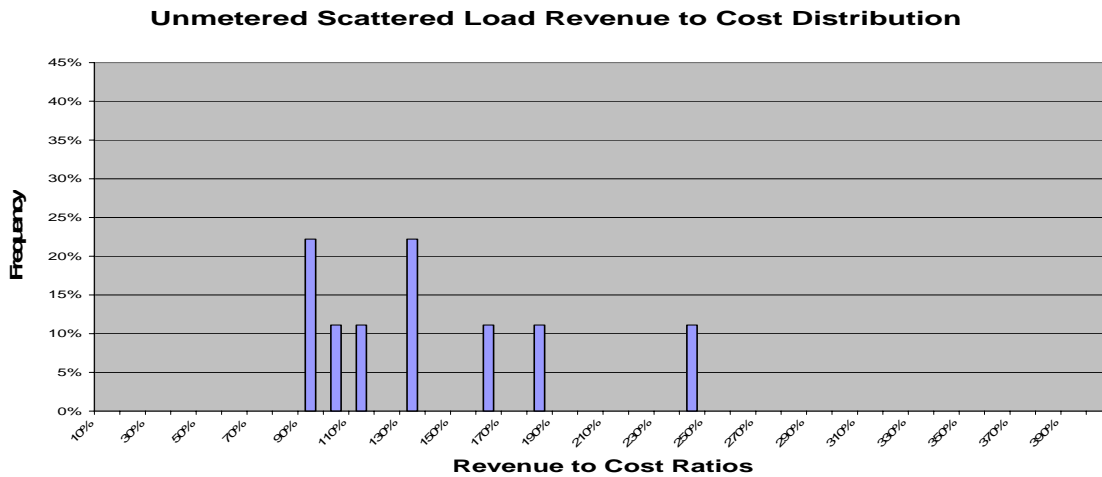
Figure 7

Figure 7 is the plot of the revenue to cost ratio for the utilities that have a unique USL rate class. Examination of this figure indicates that there appears to be a tendency for the ratios to be right of 100%. With respect to the sensitivity assessment, as shown in Table 1, there appears to be little sensitivity to changes in assumptions.

However, since USL rates are mostly derived from GS<50 class and the more robust set of data associated with that class, Board staff have concluded that the range for the USL class should be that same as the GS<50 class. Board staff suggest that a range of +/- 20% of unity (i.e. 80% to 120%) is reasonable.

The overall effect for those distributors with unique USL rates would be a reduction in rates for this class.

3.4.4 Street Lighting and Sentinel Lights

Street lighting consists of unmetered roadway lighting and private roadway lighting operation, controlled by photo cells. Figure 8 is

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the plot of the revenue to cost ratio for this class. Sentinel lights refers to accounts that are an unmetered lighting load supplied to a sentinel light, lights that provide safety and security lighting at a specified location. Figure 9 is the plot of the revenue to cost ratio for this class.

Figure 8
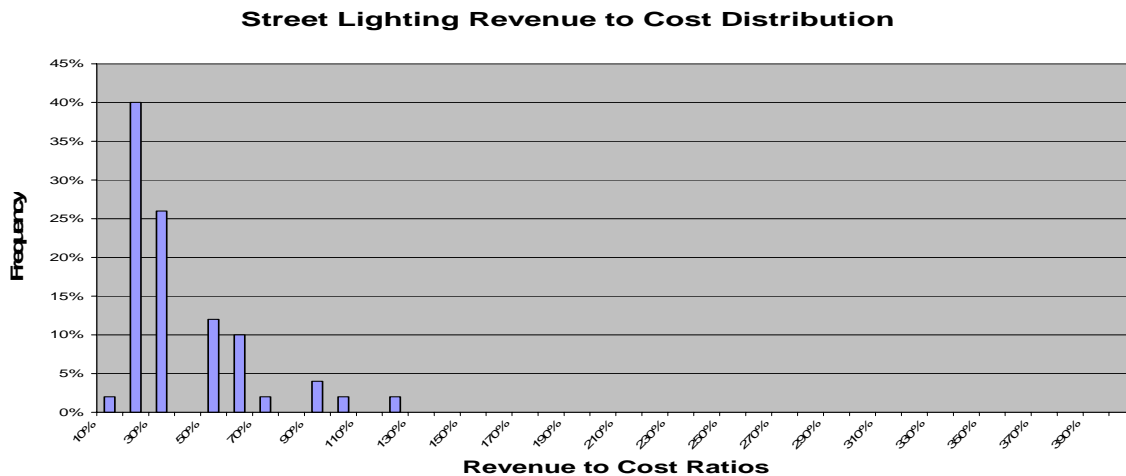
The plot displays a strong tendency to be left of 100%. However there are situations above 100%. These results could be reflecting the traditional rate design and non cost-related considerations for municipal electricity utilities in setting rates for municipal street lighting. The sensitivity assessment, as shown in Table 1, is high. Under Scenario A, there is a change of 31%.

Establishing a lower bound on the revenue to cost ratio for this rate class is guided by the sensitivity analysis. The upper bound would be 30% below unity which allows for the largest variation given the uncertainty in the analysis.

The upper bound if symmetrical would allow for migration of rates that appears inappropriate given the current distribution of revenue

to cost ratios. Board staff is guided by the fact that the smallest range identified is plus or minus 20%, for the GS<50 class. Therefore, to limit the movement of revenue to cost ratios above unity, staff propose the upper bound be the same for the rate class street lighting. The boundary of -30% to + 20% (i.e. 70% to 120%) for both classes is a reasonable range of acceptability in the short term. This reflects the observed distribution and the sensitivity analyses.

Any significant adjustments to rates must consider the range of factors associated with rate changes which may not allow for immediate full adjustments.

Figure 9

Sentinal Lighting Revenue to Cost Distribution
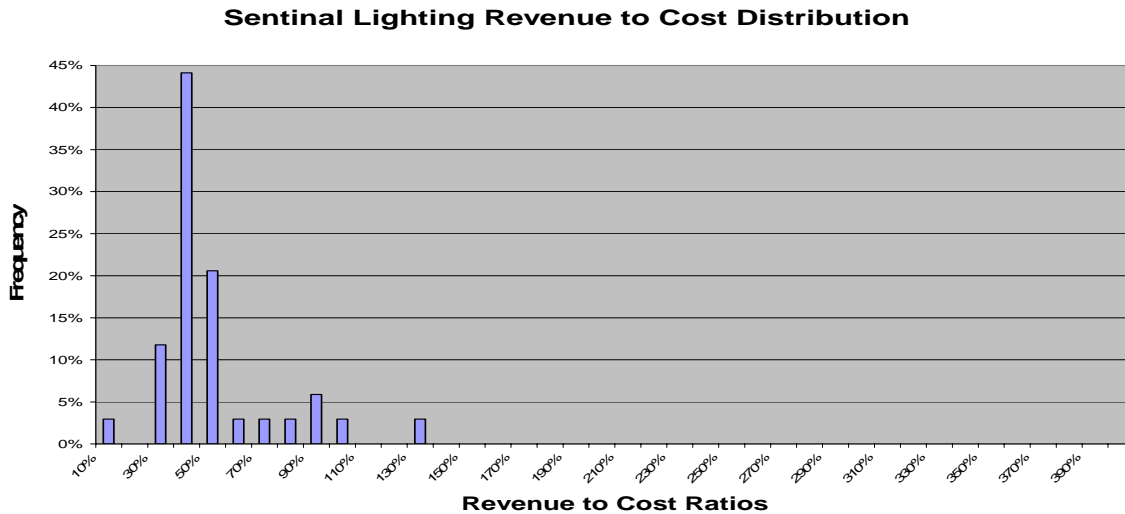
Given the similar nature of sentinel lighting and street lighting, a similar plot showing the distribution significantly to the left of 100% is understandable. As a result, Board staff suggest that the street lighting class range should also apply for sentinel lighting. Board staff suggest that a range of - 30% to + 20% (i.e. 70% to 120%) for this class is reasonable.

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The impact of moving the ratio to within the suggested range, on a percentage basis, may be high in some instances. However, this is a very low cost service to the customer, and on a dollar basis, the impact may not be significant to the customers in this class, or other classes. Any significant adjustments to rates must consider the range of factors associated with rate changes which may not allow for immediate full adjustments.

3.5 Implications Arising from the Determination of Class Specific Revenue to Cost Ratios

Within the ranges suggested, Board staff consider that the resulting rates could be considered cost related and are therefore reasonable.

Board staff suggest that no distributor's revenue to cost ratios should be outside the ranges, without significant justification. If the ratio for a class is outside the reasonable ranges, Board staff would consider that to be an outlier requiring immediate attention. Although the rates would not be solely cost based, with the proposed ranges, the substantive justification for being in the ranges is cost related.

Board staff request comments on the established ranges.

Any distributor with a class ratio that falls outside the suggested ranges should re-align its distribution rates so that all classes fall within the respective ranges. The determination of the new rates from such an exercise should be revenue neutral in total. Therefore, a distributor that proposes a change in the rates of a specific class so that the ratio now falls within the defined range should make offsetting adjustments to the rates of other classes so

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that total revenues from the proposed rates equal to the total revenue requirement. Therefore, for some customer classes, there could be higher than average rate adjustments.

Board staff expect that in the future, with improved record keeping by the utility to better categorize and allocate costs and with the results of other Board studies, such as the rate review currently underway, more narrowly defined ranges for acceptable revenue to cost ratios could be established. In the longer term, Board staff suggest that a narrower set of revenue to cost ratio ranges is preferred.

3.6 A Single Revenue to Cost Ratio Range for all classes

An argument could be made that if there were more data points in the classes other than Residential and GS<50, a clustering around a value would become apparent and a distribution of revenue to cost ratio values would be observed that would be similar to the Residential and GS<50. In addition, such a distribution should be around a value of 1.0 for the rates to be considered cost based, and yet recognize that any judgment in cost allocation of shared facilities, the lines, poles, and transformers, is not perfect.

However, while this may be a long term goal, without significant further examination and analysis, Board staff have determined that given the examination of the filings, at least in the short term, there is merit in having unique, class specific ranges.

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3.7 Summary of Board Staff Proposal on Acceptable Revenue to Cost Ratios

In summary, Board staff recommend the following class specific revenue to cost ratio ranges for the short term:

- Residential and GS<50 kW, a symmetrical range of 80% to 120%

- USL, a symmetrical range of 80% to 120%

- GS 50 to 4,999 kW, a skewed range of 80% to 180%

- Larger load customers assigned to other General Service classifications (e.g. the Large Users over 5,000 kW or a classification with a lower threshold, such as, 2,000 kW), a skewed range of 80% to 180%

- Sentinel and street lighting classifications, a skewed range of 70% to 120%

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4 Range of Customer-related Unit Costs by Class

4.1 Fixed Monthly Charges

In regulated rate making, for various reasons from different stakeholders, the fixed monthly charge is a debated issue. In looking at possible cost justifications for fixed monthly charges the Policy defined two possible cost levels for a lower end of a range, and defined an upper end. Such a range could help establish relevance for setting the levels of fixed monthly charges.

This section examines costs that could underpin the setting of fixed monthly charges.

In responding to the direction to define the lower end, Board staff reviewed the filings, and suggests appropriate ranges taking into consideration the Policy.

4.2 Establishing the Range

The Board defined two alternatives to establish the lower end, or floor for the fixed monthly charge; namely, avoided costs and directly related customer costs. The avoided costs were defined as only meter related costs and billing and collection costs, all of which would be "avoided" if the customer had simply never become a customer in the first place. The directly related costs include the avoided costs plus an allocated proportion of directly identifiable customer costs. The Policy established the upper end unit costs, or ceiling, as the direct costs plus the customer related portion of the revenue requirement for poles, lines, and transformers.

The Board would like to look at a reasonable range for testing the Fixed Customer Charge.

After a review of the filings Board staff determined that the basis of the lower end of the range should be the avoided costs since these costs are easiest to determine, are subject to minimal judgment and thus more accurate. The directly related customer costs involve estimating service on customer premises, and related revenues, service transaction request revenues and late payment charges by class. The greater the number of estimated cost components used in a calculation the less confidence exists in the numbers.

4.3 Range of Results

The following Table 2 and the pie charts in Figure 10 illustrate the results from the filings comparing the amount of the approved customer monthly charges to the range of customer unit costs as determined in the Policy. The Table shows the actual counts in each category by class and the pie chart slices show the percentage proportion of distributors in whose monthly fixed charge is below, in, above and significantly above the range. Significantly above is defined as being above 120% of the ceiling. There is one pie chart for each customer class.

Board staff grouped the fixed customer charges relative to the defined costs levels, avoided, ceiling and maximum.

Table 2

	Res	GS<50	GS>50	LU	Street	USL
Below Floor	1	10	14	0	9	4
In Range	47	36	8	0	55	6
Ceiling to 120%	17	7	2	0	0	0
Above 120%	12	19	65	30	2	3
Total	77	72	89	30	66	13

Figure 10 Group Fixed Monthly Customer Charge
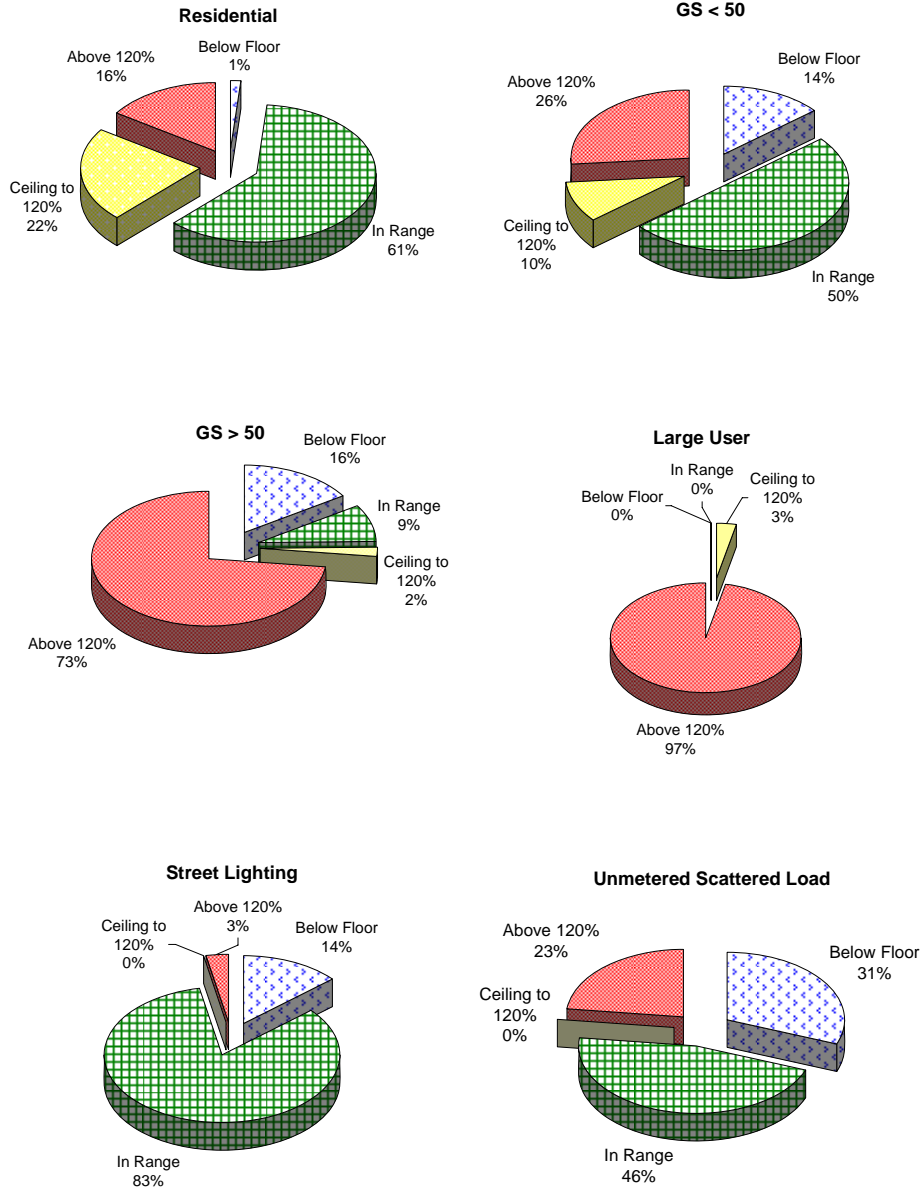
The overall observation from the pie charts is that there are a significant number of utilities with fixed monthly charges above the maximum of 120%. To a lesser degree, there are customer classes with fixed charges that do not contribute sufficiently to costs.

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The GS>50 and Large User classes, both of which are large over contributing classes with high revenue to cost ratios, have fixed monthly charges above the maximum. While street lights as a whole are significantly under contributing with low revenue to cost ratios, their fixed monthly charge is mostly in the defined cost range.

4.4 Recommended Range for Fixed Monthly Charges

Board staff suggest that the floor for the range of the monthly fixed charges of avoided costs is reasonable. Therefore a class monthly fixed charge should not be below this level and, if necessary, a distributor should bring all of its customer monthly fixed charges to this level at the time of its next rebasing rate application.

Board staff seek comments on the recommendations for setting fixed monthly customer charges.

With respect to the ceiling, given the uncertainties in the unit costs determined by the model based on the sensitivity analyses, the sensitivities to judgments in cost allocation and the number of utilities with customers above the maximum, Board staff suggest that the upper end of the range should be 20% above the ceiling outlined in the Policy. Therefore a distributor that has customer monthly fixed charges 20% above the ceiling should bring them down to or below this level at the time of its next rebasing rate application.

The determination of the new rates from such an exercise should be revenue neutral within the class, if other rate setting factors are sufficient. In this situation therefore, a distributor that proposes a change in a monthly fixed charge within a class must make offsetting adjustments to the variable component of the distribution rate so that class revenues from the proposed rates remain constant.

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5 Other Matters

The Policy outlines the cost allocation treatment for a number of per-unit cost outputs. This section addresses metering and line transformer costs, costs associated with customers with load displacement facilities, and the requirement for inputs at a finer level of detail than is required in the Uniform System of Accounts.

5.1 Metering Costs

The model calculates the fully allocated metering cost for the GS<50 class. The calculated metering cost is to provide a reference point for establishing a USL Meter Credit, referenced in the Policy as a cost-based differential between the monthly fixed charge applicable to metered and unmetered customers.

Figure 11

GS<50 Fully Allocated Metering Costs

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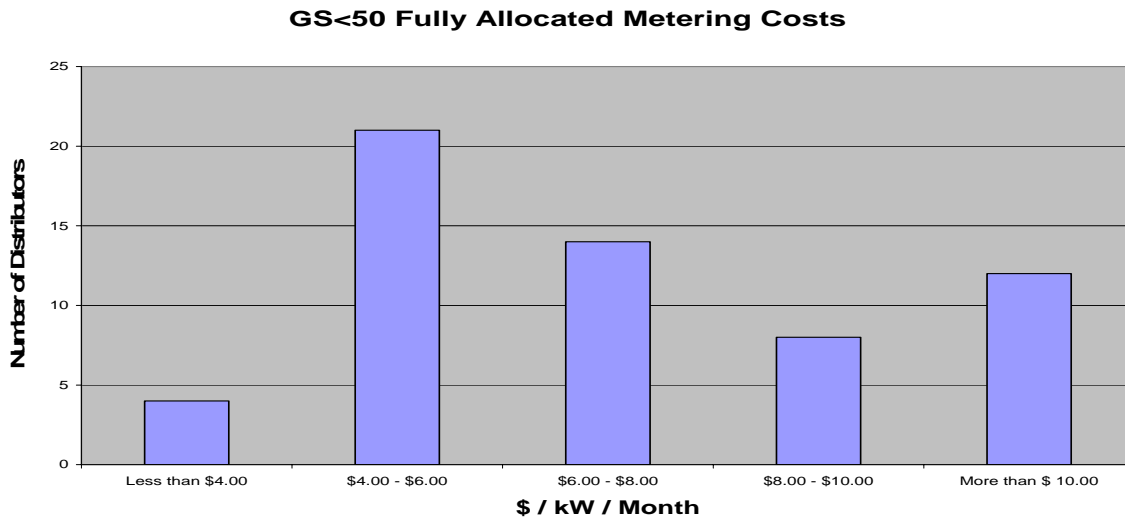
The simple mean of the USL Meter Credit in the filings is $8.23. However, there is a large variance around this value. The widely dispersed values can be seen in Figure 11. Further, the calculated values of metering cost do not cluster around a common ratio of cost to the respective monthly fixed service charges. As a result, Board staff consider that a provincial average value for either a credit or a ratio is inappropriate. Board staff is uncertain whether the calculated value for metering cost in individual cost allocation studies should be used by the utility in designing rates for unmetered scattered load customers.

*GS<50 metering costs vary significantly in the filing material.*

5.2   Line Transformer Costs

The Policy determined that the cost allocation model would detail the underlying costs for establishing the unit credit for customers owning their own transformation. To accomplish this, the model calculates the fully-allocated line transformer costs of serving those customers who do not provide their own transformer.

Line transformer costs vary significantly in the filing material.

This calculation of transformer cost is of greatest interest for the GS>50 class. The simple average of the unit cost is $0.78 per kW per month, in the cross-section of filings. However, there is a large variance around the mean, ranging from less than $0.40 to over $2.00. The point is illustrated in Figure 12 for the GS>50 class. There is also little evidence of clustering around a central value in the other rate classes.

Figure 12

GS>50 Fully Allocated Line Transformer Cost
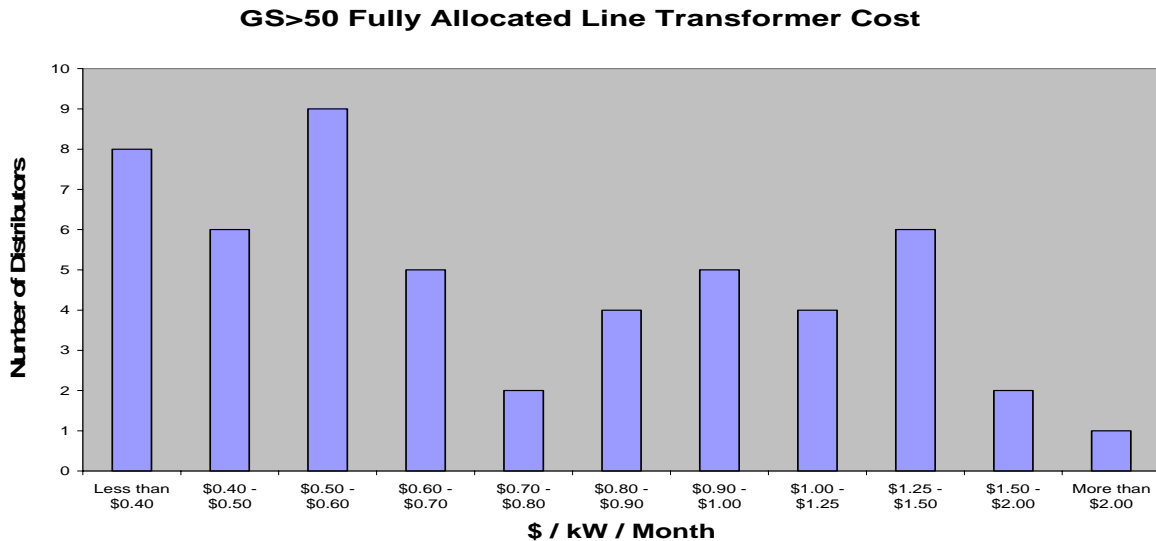
A possible explanation in the wide variation in results is that preparing the inputs for this calculation is one of the most complex aspects of the cost allocation model. While the distributor receives an estimate of the peak load from Hydro One for the entire class, the distributor must make its own estimate of the peak load for any customer class where some customers receive transformer service and others provide their own transformer. These estimates are required to calculate a specific cost allocator in the model, the line transformer non-coincident peak, referred to as LTNCP. This allocator is used only for line transformer costs.

With the non-uniform results, Board staff have concluded that the determination of a uniform average value and requiring the distributors to adjust the current credits to that value is not feasible. Board staff are uncertain whether the calculated value for metering cost in individual cost allocation studies should be used by the utility in designing its own transformer ownership allowance.

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5.3 Customers with Load Displacement Generation

The Policy outlined that a standard methodology across all utilities would be desirable to deal with customers with load displacement generation, as stated in the generic Hearing RB-2005-0020/EB-2005-0529. The distributors who have an approved Standby Charge were required to calculate a class revenue requirement for the customers with load displacement generation. The calculated fully allocated costs, expressed in $/kW/Month are shown in Figure 13. The denominator used is the sum of the twelve monthly peak hours at the total distribution system level, referred to as DNCP12, for load displacement generation. While the figure shows that most filed values are in a range between $2 and $5 per kW per month, the results cannot be said to cluster closely around a common mean value.

There was insufficient data in the filings to provide a strong set of results.

With the non-uniform results, Board staff have concluded that the determination of a uniform average value and requiring the distributors to adjust the Standby charges to that value is not feasible. Board staff note that the distributed generation review now underway may provide a forum in which to consider the variability of these results.

Figure 43

Fully Allocated Costs of Distributed Generation
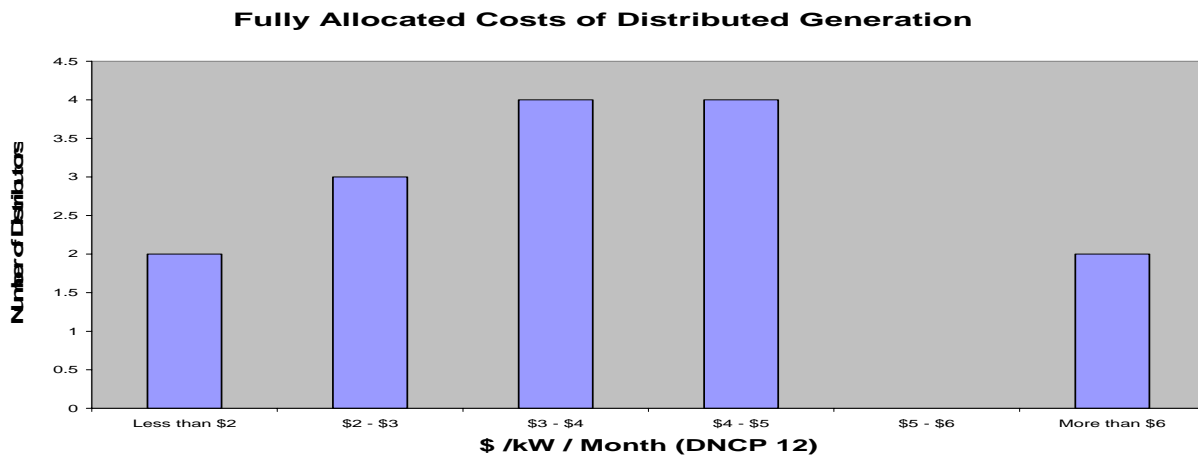
5.4 Cost Account Inputs

For some cost functions in the cost allocation methodology, the Uniform System of Accounts (USoA) is more detailed than necessary, and the Model groups accounts together so that they can be reported more concisely. On the other hand, for many types of costs (particularly capital investments and related costs) the USoA is less detailed than required by the methodology and the Model.

If sub-accounts have been set up by a distributor that correspond fairly closely to the requirements of the cost allocation framework, then that information can be used. Where this situation does not occur, however, it has been necessary for the distributor to make estimates of how much of an account goes into each of two (or more) cost functions. It is apparent from the filings that distributors have put a great deal of effort into breaking out their accounts for the detail required in the Model.

The Board staff review of the cost allocation filings was not intended to determine the appropriate accounting structure. To the

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extent that distributors are able to anticipate the detailed requirements for the Model, while setting up sub-account structures and doing budgets, they should do so. The outcome will be less work required, and less need for retrofitting data to a cost allocation model.

6 Summary for Discussion

The following are the areas that Board staff would like to receive comments on. Board staff invite interested parties to express their opinions on the following questions:

What is the appropriate range for the revenue to cost ratio for customer classes?

Board staff consider that the sensitivities to assumptions and judgments that are incorporated in the Board approved cost allocation methodology should be considered in comparing revenues to allocated costs. As a result, Board staff propose that the ranges proposed in section 3.7 of this report be used for rebasing.

What is the appropriate cost range to test the fixed monthly customer charge?

Board staff propose that the floor of the range of unit costs for comparison to fixed monthly costs be the avoided costs. The avoided cost is a relatively easy to determine and accurate cost. Board staff also propose that a maximum upper boundary of 20% above the ceiling defined in the Policy is reasonable. This maximum value reflects the sensitivity of the upper unit cost to the judgments in the cost allocation methodology.

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Should the establishment of a USL metering credit be based on an individual utility's costs?

The observed range for metering costs did not show a trend. Board staff propose that the establishment of metering costs for USL be assessed on each distributor's application, and not per a provincial average.

Should the establishment of a transformer credit be based on an individual utility's costs?

The observed range for metering costs did not show a trend. Board staff propose that the transformer credit be set on each distributor's application, and not per a provincial average.

Should the determination of appropriate Stand-by rates for customers with load displacement generation be based on an individual utility's costs?

With the non-uniform results, Board staff propose that the determination of a stand-by rate for customers with load displacement generation be set on each distributor's application.

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