

EXPERIENCE RATING

1. Introduction

In November 1997, the Panel of Administrators of the Workers' Compensation Board of British Columbia approved funding for the Employer Services Strategy (ESS). Two major components of the Strategy were to reform the classification and experience rating systems. After extensive stakeholder consultations, a new experience rating plan has been developed and approved by the Board's Panel of Administrators for implementation in 2000. This paper is an introduction to the Board's new experience rating plan (ER).

This document is one of several discussion papers that are available to interested parties during the process of redesigning the WCB's Assessment Department policies and business practices.

2. Background

Experience rating is a method for adjusting employers' compensation premiums to reflect their injury costs. The methodology of experience rating is that employers whose injury costs are below their industry average should get a discount, while employers whose injury costs are higher than their industry average should pay a surcharge. The goal is to encourage those with high injury costs to improve safety, and to encourage those with low injury costs to continue to provide safe workplaces.

As expressed in the Board's 1996 Strategic Plan, the Workers' Compensation Board of BC is committed to an effective experience rating system. A main reason for the Board's commitment to experience rating is to improve equity among employers. Another major rationale is to motivate employers to reduce the economic and social costs of workplace injuries.

2.1 Principles underlying experience rating

2.1 a) Subsidization between employers within the same rate group should be minimized

Experience rating results in discounts for employers whose costs are below their rate group average, and in surcharges for those with above average costs. Experience rating is designed to enhance equity within each rate group by minimizing subsidies between individual employers. As a result of improving equity within the rate groups, experience rating provides financial incentives that lead to safer workplaces.

2.1 b) Self-insurance is not a goal of experience rating

Insofar as experience rating brings individual firms' assessments more in line with their own costs, it increases the degree of self-insurance in the compensation system. However, the desired outcome of experience rating is not self-insurance but, rather, improved safety reflected through reduced injury costs. Experience rating is one way for the Board to encourage employers to improve their safety, and greater self-insurance is

one of the effects of experience rating that provides such encouragement. Increased self-insurance is certainly a *consequence* of experience rating, but it is not an intended goal.

2.1 c) Revenue neutrality

Revenue neutrality means that the surcharges collected from employers in each rate group are equal to the discounts offered to other employers. Revenue neutrality is preferred to imbalances. However, even if experience rating is revenue neutral on the day it is calculated, unavoidable imbalances will emerge as the year progresses due to events such as changes in firms' payrolls or business closures.

Moreover, imbalances may be acceptable if they are the result of significant reductions to a rate group's total injury costs, thereby offsetting the amount of the imbalance. For example, if the Board offers special discounts for participation in a safety program, and adds these discounts to firms' experience adjusted rates, the result will normally be an experience rating imbalance. However, if participation in the program results in a net reduction in the total costs to the Board, there will be a net benefit to all employers in the rate group. In other words, although some employers' experience rated adjustments may be higher than they would be without the incentive program, they would tend to pay less overall because of the reduction in the rate group's total costs (and base assessment rate).

2.1 d) Experience rating should be sensitive to size differences between firms

From an insurance standpoint, the most relevant difference between firms is the level of financial risk that they pose to the Board. The financial risk posed by different firms is often discussed in terms of the size of their payrolls. The true measure of the Board's exposure to risk, however, is the size of a firm's annual base assessment (its payroll multiplied by its base assessment rate):

Payroll	=	measure of a firm's employees salaries
Base Assessment Rate	=	measure of financial risk in rate group
Payroll * Base Rate	=	measure of the Board's exposure to risk

Experience rating is sensitive to size differences between firms, because small firms typically have less of an effect on a rate group's total cost than large firms do. The Board's exposure to risk is greater in the case of large firms, who are more responsible for their group's total injury costs than small firms are. Experience rating is therefore more responsive to larger firms' experience, and this sensitivity is best tied to the size of each firm's base assessment.

Another way of thinking about the relevance of size differences is in terms of firms' injury experience in the short term. When calculating a firm's experience rating, the Board examines a limited "window" of experience. Recent injury costs are more relevant to a firm's experience rating than injuries from the past, hence compensation Boards typically consider only the most recent two to three years' injuries. This creates a problem when firms of different sizes (as reflected in the size of their annual assessments) are ranked relative to each other.

Firms with large assessments (above \$12,000 annually, for example) tend to have a consistent number of injuries each year, and the total costs of these injuries fluctuate relatively little from year to year. Firms with smaller assessments usually have few or no injuries within the chosen window of experience, so both their number and their costs can fluctuate wildly from one year to the next.¹ The Board can get an accurate picture of a large assessment firm's typical injury costs based on two or three years' data. The same can not be said of smaller firms. To get a credible picture of a small firm's injury costs, the Board has to take several years' costs into consideration. However, if experience rating is to reflect recent experience, then only the most recent experience should be taken into account.

To solve the problem posed by smaller firms' limited credibility the Board will use an experience rating formula that responds more slowly to their short-term injury cost trends than it does to large firms' trends. Otherwise, there is a danger that experience rating will make little sense considering their injury experience. For example, a low assessment firm's rates can rise sharply as a result of a single claim, especially if the firm has no previous claims.

For an experience rating plan to accurately reflect upon all employers it has to consider the different credibility of different firms' experiences. Experience rating should be as effective for firms whose costs have limited short term credibility as it is for larger firms; however, it should take its full effect over a longer period of time to better reflect their experience.

2.1 e) Experience rating must not diminish workers' access to the WCB

Experience rating promotes incentives for employers to minimize the costs of workplace injury. While injury prevention may be the simplest way to minimize injury costs, it is not the only way. It is possible for an experience rating system that calculates firms' premium adjustments based on injury costs to promote undesirable forms of cost avoidance. This possibility creates an administrative responsibility to have corrective measures in place in the event that undesirable behaviors occur. The Board's plan to ensure that its responsibilities in this area are met is discussed in separate papers titled *Addressing "Claims Avoidance" Activities* and *Claims Avoidance Initiative*.

¹ For simplicity, this paper generally distinguishes between firms in terms of size – as “larger” and “smaller.” However, for experience rating purposes, the terms “large” and “small” refer to the size of firms' annual assessments. It may be helpful to bear in mind that, though a firm in a low risk industry may have a very large payroll, it will also tend to have a relatively small assessment. For example, with an assessment rate of 10 cents per \$100 of payroll, a Bank with a \$10 million payroll would pay \$10,000 in assessments. At an assessment rate of \$8, a logging firm with a \$10 million payroll would pay an assessment of \$800,000. Accordingly, the exposure to risk associated with the bank is relatively low. Indeed, a fairly large bank may pose the same financial risk as a relatively small logging operation. For experience rating purposes, this bank need not be rated any more aggressively than the logging firm, and may be regarded as a small firm.

3. Old Experience Rated Assessment Plan Shortcomings

The Board's old experience rating system (ERA) had several shortcomings, and did not always reflect the principles outlined above. Most of these shortcomings were related to the system's disregard to the different levels of hazard or risk among different industries and different sized firms.

3.1 All firms are treated the same

3.1 a) Flip-flops

The old plan treated all firms as if their experience was equally credible, violating the principle of sensitivity to different size firms. The time that it took to respond to trends in different size firms' experience was not suitably matched to the size of the firm. Instead, the plan placed a ceiling on the maximum discounts and surcharges that firms could receive. The smallest firms were said to participate at 50%, but this meant only that the maximum surcharges and discounts were 16.7% as opposed to 33.3%. As a result, small firms' assessment rates could easily swing from one maximum to another in a single year.

To illustrate how these flip-flops were tied to a lack of credibility, consider what would happen to a small retail bakery with a \$100,000 annual payroll, and no injury claims for the past several years. The basic premium in retail baking is .86% of payroll, so the firm's total expected costs assessment would be approximately \$860 (this is what "average" would mean for the firm this year).² Now assume that the firm has one injury claim this year. The health care and wage loss payments on a single claim can easily amount to several thousand dollars. The costs of such a claim could therefore push the firm's injury costs far above the average, and the firm could be facing the maximum surcharge next year after having the maximum discount the previous year.

In 1997-98, 1,746 firms "flip-flopped" from the maximum discount to the maximum surcharge due to a single injury claim. (It is clear that smaller firms are the ones most affected by these flip-flops – larger firms tend to have at least a few claims each year.) For many employers, this amounted to a 100% change in their assessments.³ Another 375 firms flip-flopped due to two claims. These numbers do not include those whose experience rated assessments did not flip-flop from one maximum to the other, but who nonetheless saw significant changes in their assessments.

² For experience rating purposes, the Board's administrative expenses, excluded occupational diseases (see Appendix C), and amounts to amortize liabilities would be deducted from this figure.

³ As an illustration of this point, consider a firm with a base assessment rate of \$3.00. At a 33.3% discount the net rate would be \$2.00. If the firm suddenly received a 33.3% surcharge, the new net rate would be \$4.00, which is 100% more than \$2.00. For employers with a maximum discount or surcharge of 16.7%, a flip-flop would reflect a 50% change in their assessment.

3.1 b) Reduced the quality of insurance for small firms

On average, BC firms with annual assessments of under \$3,000 have approximately one injury every ten years. (Many employers have significantly smaller assessments, and may go for well over a decade with no injuries.) For firms with larger assessments, the average number of injuries increases in proportion to the size of their assessment. The number of injuries varies across industries, but the general idea is that smaller firms' injury costs are less predictable than are larger firms' costs.

Theoretically all workplace accidents are unpredictable, but the old experience rating plan magnified the effect of this unpredictability for smaller firms. The plan used only 30 months of payments on injury claims to calculate firms' experience rated adjustments (two years of claims, plus six months to allow their costs to mature). Once again, 30 months of injury data was not credible enough for smaller firms, and resulted in severe rate swings. These rate swings made it hard for small businesses to predict their compensation costs or, in many cases, to bid confidently on extended projects. Insofar as the goal of insurance is to protect the insured against the adverse effects of accidents, the old experience rating system undermined the quality of the insurance that many firms received.

3.1 c). Firms' experience rating could change due to a small change in payroll

The old system did not properly use firms' assessments as a measure of risk, but tied their experience rating to their payroll. The old maximum discount or surcharge for firms with payrolls above twice the maximum assessable wage (\$113,800 in 1998) was 33.3%. For firms with smaller payrolls, the maximums were set at 16.7%. If a firm's payroll dropped below twice the maximum assessable wages, a 33.3% discount or surcharge would automatically move to 16.7%. The crossing from one level of participation to another was very abrupt, and this had unfortunate results for many employers.

Many smaller firms saw significant changes in their assessment rates as a result of a small change in their payroll, even though there were no changes in their injury costs. In 1997-98, 929 firms that had *no claims* in that year went from a 33.3% discount to a 16.7% discount. Other employers moved from a surcharge of 16.7% to a surcharge of 33.3%, simply as a result of growth in their payroll. These kinds of changes could not be explained in terms of a firm's injury costs, but had significant effects on a firm's competitiveness.

3.2 All industries were treated the same

The old ERA system did not differentiate between firms in low-risk industries and those in high-risk industries. Not only does injury risk vary between different sized firms, but also between different industries. Recall that assessment, not payroll, is the most accurate measure of the Board's exposure to risk concerning a firm. Similarly, the combined assessment of an entire rate group indicates the Board's exposure to risk regarding that rate group. If experience rating is not tailored to the size of individual firms' assessments, it will not be sensitive to the relevant differences in injury risk

between industries either. This has had an unfortunate result for many firms in low risk industries.

Under the old system, employers in low risk industries (whether they were small or large) often paid more through experience rating than the cost of their claims. In other words, a \$100 medical fee sometimes resulted in an employer paying more than \$100 as an experience rating surcharge. This occurred because experience rating based on payroll was far too aggressive for firms in low risk industries, which often had relatively high payrolls. The firms' participation levels were tied to their payroll, but their payrolls were much larger relative to their assessments than they would be in a high risk industry. Many firms in low risk industries participated at 100%, even though their annual assessments were under \$500.

3.3 Imbalances

The old ERA plan had equal maximum discounts and surcharges of 33.3%. It may appear that equal maximum discounts and surcharges would result in a balanced plan – a plan where the total discounts in each rate group were very close or equal to the total surcharges. However, the old use of equal caps tended to promote annual shortfalls. This compromised the goal of revenue neutrality.

Equal discounts and surcharges promoted needless imbalances because the distribution of all firms' experience is not generally balanced around the average. The injury costs of a firm with no claim costs are 100% lower than average, and can go no lower. However, another firm's injury costs can be several hundred percent above average, and can still go higher. Under the old ERA plan, the maximum surcharge of a firm with costs over a thousand percent above average year after year was capped at 33.3%. To avoid future imbalances, a new experience rating plan must somehow accommodate this unequal distribution of firms' experience.

ERA also promoted unnecessary imbalances by using a two-year window of experience, which was considered to be a fair representation of a firm's experience. As many small firms are expected to have approximately one claim every decade, the two-year window often contained no injury costs. ERA did not tie a firm's current experience to its past experience. The result was that many small firms received discounts by default, simply because no costs appeared in the two-year window. These discounts were more a reflection of the firms' size than a credible indication of their performance.

In 1997, 87% of all experience rated employers in BC received discounts – most often at the maximum.⁴ Many of these discounts were granted after only a single year with low injury costs.

⁴ In 1997, 68.7% of employers who were experience rated received the maximum discount. 59.6% received a 16.7% discount; 9.1% received a 33.3% discount. 92% of those receiving a 16.7% discount had a total assessment under \$3,000 in that year.

3.4 The 33.3% maximum discounts and surcharges were too low

Many firms' costs were far below average, but their potential discount was limited to 33.3%. On the other hand, some employers sustained costs that were more than ten times higher than their rate group average, but their potential surcharge was limited to the same 33.3%. Consequently, employers with extremely poor experience had no compelling incentive to reduce their costs. The old ERA system did not handle these extreme cases well, and the subsidy that some firms received from other firms created a perception that investments in safety were uneconomical.

Higher maximums – particularly the maximum surcharge – will allow the new experience rating system to better reflect the experience of the small minority of firms whose costs are outstandingly high or low. The small minority of firms with extraordinary high costs can have a significant impact on what their peers and competitors in a rate group must pay for compensation coverage, and on the overall costs of compensation in BC.

4. The New Experience Rating System

The Board's new experience rating plan (ER) is designed to address the problems discussed above. This goal will be achieved mainly by:

- using an experience rating formula (described in Appendix A) that adapts to different firms according to the size of their annual assessments; and
- increasing the maximum discounts and surcharges.

The features of the new plan, and how these features will address the shortcomings of the old ERA system, are described below.

4.1 Features of the New ER Plan

4.1 a) All firms participate

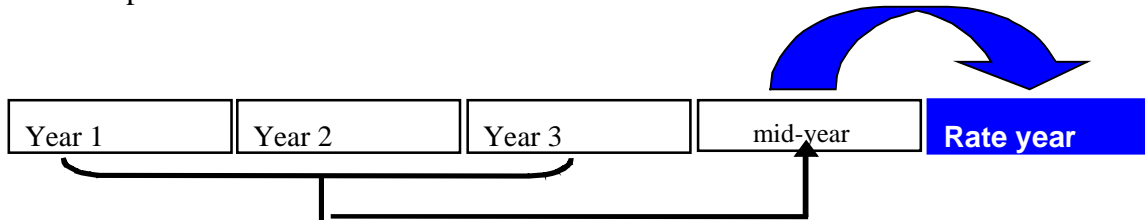
The new ER plan is applied to all employers. Rather than have separate plans (or no plan) for some firms, the same basic formula is applied to all firms. Employers whose average costs are below the rate group average receive a discount. Employers whose average costs are above the rate group average receive a surcharge.

Applying the same formula to all firms does not mean the formula has the same effect on each firm. Unlike the old ERA plan, the new formula uses a concept called graduated participation that automatically adapts to the size of each firm's annual assessment.

4.1 b) 3 year window of experience

The new ER plan uses three years of injury claims to calculate employers' experience rating adjustments. As illustrated below, new payments made in year 3 on all claims falling in the three-year window are used in year 4 (the current year) to calculate ER

adjustments for the next year (the Rate Year). The new payments are tracked until the middle of the fourth year. ER thus incorporates 12 more months of experience than the old ERA plan.



4.1 c) Weighted averages

Unlike the old ERA plan, experience rating is calculated using a weighted average of each firm's experience over the three-year window. The Board's initial proposal was to weight each year by the same amount (33.3%). However, stakeholders raised the concern that the plan would not be responsive enough to employers' most recent experience. Experiments with a two-year window indicated that the plan would be quite volatile if only two years' experience was used.

The new experience rating plan will use the following weightings:

- Year 3 = 50% weighting
- Year 2 = 33.3% weighting
- Year 1 = 16.7% weighting.

The use of these weightings provides an attractive balance between a three-year window and a two-year window. On the one hand, the window is long enough to give a more credible picture of medium to small firms' experience than the old ERA plan. On the other hand, the weightings ensure that the plan is more responsive to employers' most recent experience than to claim costs from prior years.

4.1 d) Graduated participation

In the new experience rating plan, how quickly a firm's experience rating adjustment can approach the maximum thresholds depends on the size of its base assessment, not its payroll. This allows the Board to provide a system that is sensitive, both to the risk associated with different firms and to the credibility of their cost experience.

Another way of addressing the new system's sensitivity to different sized firms is in terms of their level of *participation* in ER. Firms with low annual assessments participate to a lesser degree than do firms with high annual assessments. As firms grow, and their annual assessments increase, they graduate through higher levels of participation.

To ensure that experience rating is meaningful for even the smallest firms, a minimum participation level is set for each rate group. By default, the minimum participation level is 10%. Minimum participation levels can, however, be varied to suit different rate

groups. For example, in rate groups where there is a significant difference between the average costs of small and large firms, the minimum could be adjusted to make the plan more or less responsive to the smaller firms. In rate groups where the cost experience of smaller firms is significantly higher than among larger firms, a higher minimum may be appropriate.

4.1 e) Graduated participation minimizes credibility problems

Graduated participation works like a sliding scale. If a firm participates at 90%, its new ER will be determined by 90% of the firm's most recent experience and only by 10% of last year's ER. At the other extreme, the experience rating of a firm participating at only 10% would be 90% determined by the previous year's ER. Graduated participation thus allows the new plan to tie each year's experience rate to the last years', thereby adding a degree of credibility from employers' claims history to round out their recent experience. Depending on the size of their annual assessments, employers participate at any level between 10% and 100%.

By tying each firm's ER adjustment to its last year's adjustment, graduated participation addresses many of the old ERA plan's problems. The limited credibility of small firm's short-term experience no longer results in flip-flops in their premiums. Furthermore, no firm experiences a significant change in ER resulting from a small change in payroll. All firms have the same maximum discounts and surcharges, and the only effect of payroll changes is to gradually dampen or quicken the responsiveness of ER. Unlike the old ERA plan, the new ER system no longer compromises the quality of insurance received by smaller firms.

4.1 f) 100% maximum surcharge, 50% maximum discount

The new experience rating plan has a maximum 50% discount and a maximum 100% surcharge. The point of the 100% maximum surcharge is to allow the experience rating system to capture and properly rate a very small minority of large firms whose experience is uniquely and consistently poor. This small minority of firms has a significant impact on what their peers and competitors in a rate group must pay for compensation coverage, and on the overall costs of compensation in BC.

Firms will never reach a 100% surcharge overnight. Indeed, apart from the few firms with multi-million dollar annual assessments, employers would have to maintain an experience of at least 3 times worse than the rate group average over many years to reach the maximum 100% surcharge. Seemingly, this may sound like the new plan is too lenient. However, the point of having a high potential surcharge is not to have employers reach it – that will not be a measure of success. The success of the new plan will be measured in terms of how many firms improve their average experience.

A major purpose of the 100% maximum surcharge is to prevent firms from imposing excessively high costs on their peers and competitors, thereby deriving an unfair competitive advantage. It is in these extreme cases that investments in safety are necessary, and would do the most to benefit all firms in the rate group. The 100% maximum surcharge is a financial incentive for employers with extremely high costs to

make an investment in reducing these costs. Meanwhile, the 50% maximum discount gives employers with very low costs greater rewards than the current ERA plan.

4.1 g) Per claim limit

A per claim limit is a cap on the cost of individual claims that the Board uses to calculate a firm's ER. In the context of experience rating, the excess costs are not removed from the rate group, but are simply taken off employers' accounts for the purpose of the ER calculation. The following per claim limit is used to calculate employers' experience rated adjustments:

Amount of claim	Amount used to calculate ER
Up to \$70,000	100%
Next \$50,000	50%
Amounts above \$120,000	10%

The Board uses a per claim limit for two reasons. The first is to ensure that ER does not overly penalize an employer for having a single, extremely high cost accident. For example, without a per claim limit, a very safety conscious, large employer might earn a significant ER discount over several years, only to lose it as a result of a single disastrous claim. A per claim limit would prevent ER from being overly punitive in extreme situations.

The second reason for the per claim limit is to prevent extremely high cost claims from skewing the ER system through their disproportional effect on the rate group average. Recall that an individual firm's ER is calculated by comparing its injury cost rate to the rate group average cost rate. The inclusion of the full amount of extremely high cost claims would significantly raise the rate group average, making ER less responsive to firms with a high number of relatively low cost claims. For example, two employers might be identical in every respect except for the following:

- Fifty accidents happened at one work-site, and only 1 accident at the other. However;
- the fifty accidents at one work-site each cost \$100, but the single accident at the other work-site cost \$1,000,000.

Without a per claim limit, the first employer might receive an ER discount, but the second will likely start moving toward a higher surcharge. The overall effect would be to provide relatively weak incentives for injury prevention. Over time the number of very high cost claims could actually rise instead of fall, since the likelihood of high cost claims depends on the total number of average claims. A per claim limit would ensure that the system is responsive to the average claim, and therefore more effective in encouraging prevention efforts. It is expected that this approach will be the most effective in reducing the total number of claims -- both low cost and high cost.

5. Special Programs

Although the purpose of this paper is to discuss the new ER plan, the Board is committed to adding special rate modification programs once the plan is implemented. These special programs would be implemented in collaboration with other areas of the Board. For example, the Prevention Division would help to determine where there would be a reduction in claims if the Board offered special incentives for employers to participate in a prevention program.

These special programs would reward employers who make certain investments in safety or return to work initiatives. Incentive awards would be based on broader criteria than costs alone. For example, employers with below average frequency and duration of injury could receive special discounts, regardless of whether they are receiving ER surcharges or discounts under the basic, cost-based plan.

The Board is also proposing to use special experience rated adjustments for employers who wish to be experience rated as a group. For example, smaller employers in the same industry may want to receive a combined experience rating in order to participate in the plan at a higher level and be rated more responsively in the short term.

Finally, the Board is examining the potential of collective experience rating for employers in the same geographic areas. A pilot “Safe Communities” program is under consideration for the city of Port Coquitlam. Rewards would be offered to participants for collectively beating a benchmark, such as their past combined average costs. Similar programs may also be made available in other contexts, such as shopping centres.

6. Conclusion

6.1 How different employers perceive the plan

The 50% discount and the 100% surcharge are best understood as theoretical, mathematical boundaries of the new experience rating plan, not as caps on experience rating. The old ERA plan could theoretically result in surcharges much higher than 100% if it were not capped at 33.3%. For example, under ERA, employers whose average costs within the two-year window are ten times worse than their peers would receive surcharges of 333.33%.

The new ER plan opens the old 33.3% caps to a 50% to 100% range in order to capture wider differences in firms’ average cost experiences. However, extreme differences are reflected in adjusted rates over a longer period of time than under the old ERA plan. As a result of graduated participation, employer’s experience is weighted depending on the credibility of their three years of experience. If the latest three-year average is not 100% credible, only a part of it is captured in each subsequent ER calculation.

Under the new ER plan, the vast majority of employers are assessed at less than 30%. Moreover, most employers' ER adjustments fall within the current 33.3% maximums. Employers with consistently high or low costs are eventually exposed to higher discounts or surcharges, but these reflect only a small minority.

6.1 a) Low assessment (small) firms (10% participation)

Firms participating at 10% have approximate annual assessments of \$10,000 to \$15,000. If a firm participating at 10% has costs that are 3 times above its rate group average, it takes four to six years to reach and surpass a 33.3% surcharge. It takes almost ten years for the same firm to reach a 50% surcharge. It requires a minimum ten to twelve years with no injury costs to reach and surpass a 33.3% discount. The firm would require many more years to reach either the maximum discount or surcharge.

A single bad or good year does not significantly affect a smaller firm's premiums. However, employers are made aware of the effect of sustaining that level of injury costs. Unlike the old ERA plan, it is possible for employers to get realistic projections of the effects of sustaining their current cost experience.

Perhaps the most significant change of the new ER plan is that its effects make better sense to low assessment and small employers. Under the new ER system, a single bad year does not result in a very large change in these employers' premiums. However, after a few years of high injury costs, it is clear that continuing high costs eventually lead to surcharges higher than the old 33.3% maximum.

The Board will undertake to convey to employers simple projections of their future discounts and surcharges, based on their recent injury costs, sending a clearer message that "prevention today will pay tomorrow". Perhaps the most damaging part of the old ERA plan is the message it conveyed to smaller employers when a single bad year resulted in a 50% to 100% change in their premiums. Prospects of rising future ER adjustments were not utilized under ERA to encourage safety: severe and immediate short-term rate swings effectively made future ERA adjustments irrelevant to employers.

6.1 b) Medium and high assessment firms (10% to 100% participation)

The ER plan is the same for all firms. However, ER will take less time to significantly affect the rates of medium and large firms as it does for small firms. A medium sized firm participating at 50% could see its experience rate move approximately 35% as a result of an exceptionally high cost year (costs at least 3 times the group average). If the poor trend is sustained, the firm could reach a 75% surcharge after five years. The same firm could reach a 33% discount after three years with zero claims costs, and a 45% discount after five years.

A firm with a large assessment (approximately \$800,000 to \$1.3 million) participating at 90% could *theoretically* reach a maximum surcharge after 5 years of costs at least 3 times higher than the rate group average. The same firm could reach the maximum discount within the same time frame. It is worth noting, however, that the experience of larger firms has a much stronger effect on the base assessment rate than that of smaller firms.

In a sense, the larger the firm is, the harder it is for the firm to deviate from the group average. As the firm's experience will to a large extent *determine* the average, it would be difficult for the firm to deviate far enough to ever reach the 100% surcharge.

6.1 c) Firms with fluctuating annual assessments

The new experience rating plan is designed to smoothly accommodate changes in a firm's payroll in a way that makes sense to employers. A firm that has gone through a quick decline (i.e., from 75% to 10% participation in one year) would find that the percentage discount or surcharge that accumulated in the recent past is being carried forward over a longer period of time than under the old ERA. A firm that is going through a period of fast growth would find that its experience rated adjustments are less affected by prior year's adjustments than in the past. Instead, ER would begin to respond more quickly to the most recent year's injury cost record.

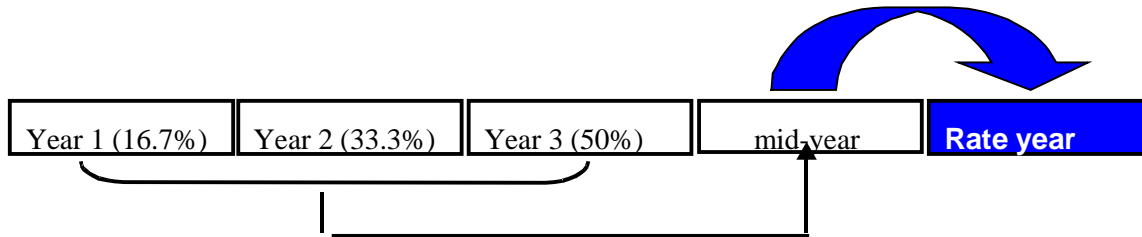
The Workers' Compensation Board of British Columbia's new experience rating system, in conjunction with the entire ESS project, will improve workplace safety as well as the Board's client services.

Thank you for your interest in the Workers' Compensation Board's new experience rating structure. For more information, please contact:

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Assessment Department, Employer Service Centre
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Appendix A. Experience Rating Formula

The new experience rating plan uses a weighted three-year window of experience to calculate employers' rate adjustments.



Calculating costs

Costs used for the purpose of ER are calculated as shown in the table below. Any payments on claims falling within the three-year ER window are counted in the year the claim was registered with the Board. (Note that the payments are calculated up to the middle of each year). For example, 1996 claims would include the \$25 in payments made in 1997, and the \$10 in payments in 1998. As the capture period is limited to three years, changes in the costs of claims from before 1996 would no longer be considered.

Payment Year:	1996 payments	1997 payments	1998 payments	Total claim costs to date
1996 claims	\$150	\$25	\$10	\$185
1997 claims		\$200	\$65	\$265
1998 claims			\$175	\$175

Calculating ER

Only three components are needed to calculate ER for a firm:

1. ***the firm's Performance Index in each year of the window:*** reflects a firm's cost experience each year -- how far the firm's injury costs were above or below the rate group average.
2. ***the firm's Participation Level in each year of the window:*** reflects the size of a firm's annual assessment in each year.
3. ***the result of the past year's ER formula (ER Factor):*** incorporates the firm's past experience.

Each component is described below.

1 Performance index (PI)

A firm's performance index is the ratio of a firm's actual to expected costs (ER assessable costs only). A firm's expected costs are equal to its base assessment multiplied by the percent of the rate group's total costs that are used to calculate ER. This percentage is called the "expected cost factor". A firm's performance index is calculated as follows:

$$\frac{\text{Firm's injury costs used for ER calculation}}{\text{Firm's Base Assessment * the Expected Cost Factor.}}$$

Alternatively, a firm's annual performance index is calculated by dividing the firm's cost ratio by the rate group cost ratio, where:

$$\begin{aligned} \text{Firm Ratio} &= \text{the firm's ER costs} \div \text{the firm's payroll}^5 \\ \text{Rate Group Ratio} &= \text{the rate group's ER costs} \div \text{the rate group's payroll} \end{aligned}$$

For ease of communication, the Board relates firms' cost experience in terms of a simple ratio of actual to expected costs. For ease of calculation, the new ER system uses ratios of actual to expected costs as measures of employers' performance. The relationship between the resulting performance index and an above/below average scale is illustrated in Table 1 below:

Table 1:	% above or below average costs	Performance Index	Description
<i>High injury costs</i>	200%	3	Triple the average
	100%	2	Twice the average
Average costs	0%	1	Average (no ER adjustment)
<i>Low injury costs</i>	-50%	.5	Half the average
	-100%	0	Zero costs

Updating performance indices (PI)

New payments on claims from prior years within the ER window affect the original performance index calculation for those years. For example, the additional 1997 and 1998 payments on a 1996 claim would raise the 1996 performance index. This revised 1996 performance index would be used to calculate the latest three-year weighted averages.

⁵ Base assessments can be used instead of payroll, providing the base assessment is used in calculating both the firm ratio and the rate group ratio. Using this calculation, the rate group ratio is identical to the expected cost factor described above.

2 Participation Level

A firm's annual participation level reflects the size of its annual assessment. Participation is calculated based on the size of each firm's assessment relative to a constant, as follows:

Participation Level =

$$\frac{\text{Firm's Annual Base Assessment}}{\text{Firm's Annual Base Assessment} + \text{Participation Constant}}$$

The Participation Constant

In order to compare firms to each other according to their assessments, their assessments have to be measured relative to something else. The participation constant is a number that is used for this kind of comparison. The participation constant is roughly equal to twice the maximum insurable earnings. This value controls employer participation in the experience rating plan. The higher the participation constant, the less employers participate in the plan. The lower the participation constant, the more employers participate in the plan. This value could change over time.

3 Result of Last Year's ER formula (Last year's ER Factor)

Last year's ER Factor incorporates the firm's past experience into the calculation of ER. The participation and experience used in calculating a firm's ER is the average experience and participation over the course of the three-year ER period. Bearing that in mind, the experience rating formula is:

$$(A * B) + ((1-A) * C)$$

Where

A = the firm's weighted average participation level

B = the firm's weighted average performance index

C = the result of last year's ER formula (last year's ER Factor)

The ER Factor is simply the result of the ER formula. It is in the ER formula that last year's ER calculation supplements the credibility of an employer's experience. A participation level of 100% implies that the Board can get a fully credible picture of the firm's experience by considering only the information in the three-year ER window. A participation level of less than 100% implies some lack of credibility within the three-year window. This lack of credibility is calculated by subtracting the firm's average participation level from 100%. Thus, the experience of a firm with a 40% participation level lacks 60% of the credibility required for experience rating (1 - 40% = 60%). By including each firm's last year's ER Factor in the calculation, the Board is in effect picking up the credibility it requires from the previous year.

B. Adjusting the base assessment rate

The ER Factor is used to adjust the following year's base rate. The ER formula will always yield a result between 0 and 3. Comparing this with Table 1 above, a firm that consistently has zero

costs will eventually earn a score of 0 (costs 100% below average). A firm with costs that are at least five times its group average would eventually reach a score of 3 (200% above average). For a consistently average firm, the result of the formula will be 1. The equation for adjusting the base assessment rate using the ER Factor is as follows:

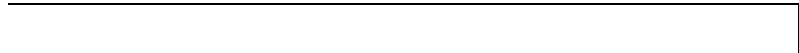
$$\frac{\text{Base Rate} * (\text{ER Factor} - 1)}{2}$$

Why subtract 1?

The reason 1 is subtracted from the experience rating formula is to properly scale the ER Factor, ensuring that firms with average costs receive no discount or surcharge. Recall from Table 1 (inset below) that a firm’s experience is simply a way to scale a firm’s percent difference from the group average to make it more intuitive and useful. An experience of 1 is equivalent to a variance of 0% from the average. Subtracting 1 reconciles the experience rating formula with the firm’s variance of 0%, resulting in a 0% adjustment to the firm’s base rate. Subtracting 1 also ensures that firms with below average costs receive the appropriate discount. If the result of the ER formula is less than 1 (reflecting below average costs), subtracting 1 accurately translates the result into a negative adjustment to the base rate (a discount).

Why divide by 2?

% above/ below avg	Experience Level
-200%	3
-100%	2
0%	1
50%	.5
100%	0



Since the top half of the equation will always result in a number between 0 and 3, it would by itself result in a maximum discount of 100% (the base rate times -1) and a maximum surcharge of 200% (the base rate multiplied by (3-1)). This is because of the direct correspondence between the experience level and the percentage that a firm’s costs are above or below average. The top half of the equation is divided by 2 to limit the maximum discount and surcharge to 50% and 100%, respectively.

The final experience adjusted assessment rate is calculated by adding the base assessment rate to the result of the above calculation.

$$\text{Base Rate} + \frac{\text{Base Rate} * (\text{ER Factor}-1)}{2}$$