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## Draft Educational Note

# Best Estimate Assumption for Expenses

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## ***EDUCATIONAL NOTE***

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### **BEST ESTIMATE ASSUMPTION FOR EXPENSES**

**COMMITTEE ON LIFE INSURANCE FINANCIAL REPORTING**

**JANUARY 2005**

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## MEMORANDUM

**TO:** All Appointed Actuaries in Life Insurance

**FROM:** Micheline Dionne, Chairperson  
Committee on Life Insurance Financial Reporting (CLIFR)

**DATE:** January 26, 2005

**SUBJECT:** Educational Note – Best Estimate Assumption for Expenses

The Committee on Life Insurance Financial Reporting (CLIFR) has developed the attached educational note on determining the Best Estimate Assumption for Expenses. This educational note is intended to encourage consistency in developing assumptions for determining Canadian Generally Accepted Accounting Principles (GAAP) policy liabilities.

In accordance with the Institute's policy for Due Process, this educational note has been approved by CLIFR, and has received final approval for distribution by the Practice Standards Council (PSC). As outlined in section 1220 of the Standards of Practice (hereafter referred to as "Standards"), "the actuary should be familiar with the relevant educational notes and other designated educational material," and be aware that a "practice which the notes describe for a situation is not necessarily the only accepted practice for that situation and is not necessarily accepted actuarial practice for a different situation," and that "educational notes are intended to illustrate the application (but not necessarily the only application) of the standards, so there should be no conflict between them."

CLIFR thanks John Brierley, Cathy Cheoros, Byron Corner, Jim Doherty, Ty Faulds, Camil Lévesque, Anna Manning, Kevin Morrissey and Josephine Robinson for their valued contributions to this educational note.

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**100 INTRODUCTION****110 PURPOSE AND SCOPE**

This educational note describes considerations in determining the best estimate assumption for expenses used in the valuation of Generally Accepted Accounting Principles (GAAP) policy liabilities of life insurers. Section 2350.31 in the Standards of Practice (hereafter referred to as "Standards") reads:

"The actuary would select a best estimate assumption which provides for the expense of the relevant policies and their supporting assets, including overhead. The insurer's other expense is irrelevant to the valuation of policy liabilities. Other expense includes:

expense related to policies which, for the relevant policies, was incurred before the balance sheet date, such as marketing and other acquisition expense, and  
expense not related to the relevant policies and their supporting assets, such as investment expense for the assets which support capital."

While income taxes can be a significant cost, they are not within the scope of this note.

Future income taxes are also not within the scope of this note, such that any future tax timing differences (arising from either GAAP policy liabilities, or other sources) are excluded from consideration.

However, taxes which are more akin to an expense than a tax on income, are considered in this note (including premium tax, investment income tax and value added taxes such as GST and other sales taxes). This note does not deal with internal company allocation of expenses for pricing, transfer pricing, internal reporting or allocations pursuant to sections 456 to 460 of the Insurance Companies Act.

As with any other cash flow projection, the development of the best estimate assumption for expenses usually begins with an analysis of appropriate and available existing experience.

Section 100 of this educational note covers analyzing existing experience and translating this experience into the best estimate assumption for expenses. Section 200 includes considerations for inflation and productivity. Section 300 deals with special situations such as mergers and acquisitions, and how they might impact expense assumptions. Section 400 discusses acquisition expenses as per section 2320.22-24 of the Standards. Finally, Appendix A offers an example of a detailed "road map" that might be used to prepare an expense study, Appendix B gives an example of the treatment of capitalized expenses and Appendix C gives an example of the how to treat productivity improvements.

**120 DETERMINING THE BEST ESTIMATE ASSUMPTION FOR EXPENSES**

The starting point for determining the best estimate assumption for expenses is analysis of existing experience.

Section 2350.33 of the Standards states:

“A stable insurer’s expense experience is pertinent if its expense allocation is appropriate for valuation of policy liabilities (or if the actuary can correct the inappropriateness, e.g., by reallocating corporate expense to operating lines of business).”

Section 1730 of the Standards makes similar observations and provides useful guidance in the setting of appropriate assumptions.

To assess existing experience, the actuary may complete a unit expense study (one such example is detailed in Appendix A) or use an appropriate existing expense study. The steps for completing an expense study are laid out below:

- Determine the scope of the expense study;
- Collect the expense data;
- Check the consistency of the expense data with internal and external reports;
- Determine which expenses will be excluded from the determination of the best estimate assumption for expenses;
- Determine the expense categories to be used;
- Determine the unit expense bases to be used;
- Classify expenses to the expense categories;
- Allocate expenses to the expense categories;
- Determine the unit expenses; and
- Perform reasonability checks on the results of the study.

In all of these steps it is important to:

1. Strike a reasonable balance between required versus needless detail.

For example:

- i) Long-term disability claim expenses are often much higher during the early durations of a claim when management of the claim is intense. Later durations often have less intense ongoing management of the claim. This difference may be recognized in the unit expense development.
  - ii) Address changes tend to be more frequent for people between the ages of 18 to 30, than they are for the ages of 31+. Such differences are usually not recognized, as the difference in the expense of the change and detail required to get to this level is usually not justified.
2. Have a good understanding of the Company’s valuation systems and how the best estimate assumption for expenses is used by these systems.

In most cases, using the unit expense structure from the existing valuation system may not cause material changes in the end result, and may ease the process significantly. However, where this does cause material differences in the GAAP policy liability, the actuary would make an adjustment. For example:

Using policies in force to unitize claim expenses may cause materially different GAAP policy liabilities than using number of claims. In this case, the actuary may adjust the valuation results by:

- Changing the unit expense to be based on the number of claims; or
- Making a manual adjustment to the projected expense cash flows; or
- Using other approaches.

After assessing existing expenses and translating them into unit expenses, the actuary determines the extent to which prior experience can guide future experience. In particular, this educational note will consider how the actuary may reflect the following in the valuation:

- Translating direct, corporate, overhead and other fixed expenses from the expense study;
- Developing trends;
- Expense overruns;
- Special situations such as synergies from a recent acquisition;
- Translating non-recurring expenses in the expense study;
- Handling categories of expenses in the expense study that may not be appropriate to include in the valuation (e.g., acquisition expenses related to policies not yet written);
- Handling expenses in the valuation in aggregate or as unit expenses;
- The impact of different valuation scenarios on inflation and investment income tax; and
- Accounting for expense overruns or profits in the business unit providing services where the company uses a transfer price mechanism.

These will be discussed in detail in the remainder of this note.

Investment expenses, Information Technology and Services expenses and other business functions may be charged to a line of business or operating unit by the use of transfer prices. The actuary considers reflecting these arrangements when determining unit expenses for the valuation. All investment expenses related to assets used to support GAAP policy liabilities are included. The actuary considers accounting for expense overruns or profits in the business unit providing the services for the transfer price.

The actuary may split the unit expenses used in the valuation depending on whether they are subject to adding a margin for adverse deviation (MfAD). Examples of expenses not subject to a MfAD are:

- Investment Income Tax;
- Contractual commissions; and
- Premium Tax.

Once the expense study has been completed, the actuary's understanding of the current and historical expense study data, the process, the factors that influence expenses, and company business operations helps determine the desirable change in expense assumption.

For example, a change in the volume or type of communications to policyholders can trigger significant temporary increases in service levels.

In addition, the actuary considers how business plans might impact or influence future expenses.



**200 METHODOLOGY****210 EXPENSES INCLUDED IN THE VALUATION**

The actuary considers which expenses are included in the valuation by studying:

- Expenses that occur after the valuation date;
- Expenses related to the relevant policies; and
- Expenses related to the assets supporting the GAAP policy liabilities.

The actuary selects a best estimate expense assumption for the relevant policies and their supporting assets, including an appropriate portion of overhead. For example:

- If a holding company administers functions such as human resources, mail distribution, information technology and financial reporting for its subsidiaries, then the associated expenses are included in the best estimate expense assumption of the subsidiaries, as these expenses continue as long as the policies remain in force; and
- Similarly, if a company has outsourced, or a subsidiary is providing, some policy-related functions such as claim payments, salary administration, and external reporting to regulators, then the expense associated with these functions is included in the best estimate assumption. The handling of expenses and related fee income considers whether the entity providing the services is a third party or a related party. If the latter, the actuary usually considers using the actual expenses in the expense assumption.

The actuary includes the portion of overhead that is considered to be policy-related. As outlined in Appendix A, some examples of such expenses include:

- Regulatory reporting;
- Senior management; and
- Legal.

Administration and investment expenses related to Segregated and Mutual Funds incurred by the company are also included in the expense study. For policies with investments in Segregated or Mutual Funds, it is expected that the expenses and the revenue from the related Management Expense Charges are included in the valuation cash flows.

Administration and investment expenses related to Reinsurance (accepted and ceded) incurred by the company are also included in the expense study. For reinsured policies, it is expected that the unit expenses and the revenue from the reinsurance treaty are included in the valuation cash flows.

**220 EXPENSES EXCLUDED FROM THE VALUATION**

The following expenses are excluded from the valuation of GAAP policy liabilities:

- Expenses related to relevant policies, which were incurred before the balance sheet date. For example, expenses associated with:

- a) marketing and other acquisition expenses;
  - b) investment acquisition expenses for assets currently held;
  - c) product development (see Appendix A.710); and
  - d) the development of new reporting techniques, such as embedded value reporting.
- Expenses not related to the relevant policies and their supporting assets, including an appropriate portion of overhead. For example, expenses associated with:
    - a) investment expense for the assets which support capital;
    - b) overhead expenses associated with subsidiaries;
    - c) the development of new markets;
    - d) merger and acquisition expenses incurred prior to the date of the acquisition or merger;
    - e) expenses charged to the Surplus account, or otherwise not allocated to a line of business, after consideration of the validity of such allocation; and
    - f) expenses related solely to “investor relations” and related compliance, such as US GAAP, Securities Exchange Commission (SEC), and Ontario Securities Commission (OSC) reporting requirements.

#### 230 CAPITALIZED EXPENSES AND DEPRECIATION

An expense study will usually include the depreciation expenses associated with past capitalized expenses. This approach leads to more stable and explainable unit costs in the development of unit expenses. Typical expenses include furniture, fixtures, computer hardware, and large system expenditures.

An alternative approach considers that depreciation expenses are not cash flows under the Canadian Asset Liability Method (CALM) and such expenses incurred prior to the valuation date are excluded. The policy includes in the cash flows the future capital outlays only when they are expected to occur. If the valuation cash flows include depreciation expenses, then the capitalized asset is included in the assets supporting the GAAP policy liabilities and vice versa.

Appendix B gives examples of possible treatment of capitalized expenses and depreciation.

#### 240 SCENARIO DEPENDENT EXPENSE CASH FLOWS

CALM projects asset and liability cash flows under a variety of interest rate scenarios, consistent with the investment strategy chosen. These cash flows include related asset acquisitions and dispositions expenses associated with activities under the given interest rate scenario and investment strategy. Investment Income Tax cash flows directly depend on the interest rate scenario, and are adjusted accordingly. In addition, inflation rates consistent with the scenario need to be determined. The application of these inflation rates to the expense cash flows is discussed in section 270.

## 250 PRODUCTIVITY

Section 2350.34 in the Standards reads:

“A particular insurer may have an expectation of reduced expense rates, but the actuary would anticipate only a reduction which is forecasted with confidence.”

The actuary may project improvements in economies of scale beyond the valuation date. Fast growing operations, and concrete initiatives, such as the recent acquisition of a portfolio of relevant policies, may justify the projection of improvements. Projections may also apply to established blocks of business where management has a clear plan to reduce unit expenses, and a prior history of successfully reducing unit expenses.

Future productivity gains are assumed for only a temporary period. The temporary period is one for which there is reliable evidence that the actuary may forecast with confidence. For example:

- If the company believes that a unit expense reduction of \$1 per policy will be achieved, the actuary may reduce the unit expense in every year of the valuation by \$1 (before inflation); and
- If the company believes that a unit cost reduction of \$1 per policy every year for the next ten years (i.e., \$1 in year 1, \$2 in year 2, etc.), the actuary includes these productivity gains for a temporary period.

If the actuary is partially or wholly offsetting inflation by expected productivity gains, the actuary ensures that the net inflation assumption is consistent with the economic scenario.

If the expected productivity improvements are based on future investments by the company, then those investments (or their depreciation charges where capitalized) are included in the future projected expense cash flows.

If the expected productivity improvements are based on recent past investments (including integration expenses arising from an acquisition), it may be useful to remove the investment from the experience used to determine the unit expenses and analyze the initiative separately. Appendix C shows an example of this analysis.

The actuary considers the effect of productivity improvements or deterioration in different lines of business and special situations to ensure that the net productivity assumption in the valuation is reasonable in the aggregate. Dynamic Capital Adequacy Testing (DCAT) or other strategic planning projections may be a good source of information to assess the reasonableness of planned productivity improvements.

## 260 NON-RECURRING EXPENSES

This section deals with how to recognize non-recurring expenses not covered in sections 220 and 230.

By definition, non-recurring expenses are not expected to recur in the future. However, it is reasonable to assume that similar non-recurring expenses will occur and are reflected in the GAAP policy liabilities. Historical non-recurring expenses related to the in force policies may give some indication of the level of similar expenses to expect after the valuation date. Historical examples of expenses that may be excluded from the valuation because they are extraordinary in amount and similar expenses are not expected to recur are:

- IT staff that were taken on for a specific project with the expectation that the staff numbers will be reduced when the project is completed (if the IT staff working on a specific project are expected to be retained for other projects, these expenses are usually included in the valuation);
- Major new compliance activities like activity related to the implementation of the new privacy legislation, and money laundering guidelines;
- Implementation of new financial reporting regimes (e.g., embedded value); and
- Implementation of new valuation systems.

Sources of information that could help set this assumption would be:

- The size and nature of the specific one time expenses;
- Historical average spending; and
- Budget and long-term plan assumptions for these types of expenses.

In examining the expense study, it is important to understand what is already included in the unit expenses.

## 270 INFLATION

Section 2350.32 in the Standards reads:

“The assumption would provide for future expense inflation consistent with that in the interest rate scenario.”

Expenses which usually increase in the future due to inflation are identified and inflated appropriately. Examples of such expenses are policy maintenance expenses and overhead expenses. Premium tax and contractual commission rates are not usually subject to inflation.

In some cases, both the underlying expense and the expense base may be subject to future increases, and the unit expense may not increase consistently with the inflation assumption. The actuary reviews both the underlying expense and the expense base, and sets the future increase assumption for the unit expense accordingly. The actuary considers the effect of inflation on the absolute dollar amount of the expenses in the valuation, and the effect of an increase in the number of units in the future arising from the relevant policies, in addition to the inflation effect on the unit expense. For example:

Individual disability claim expenses may be unitized per \$100 of monthly benefit. Applying an inflation assumption to this unit expense may overestimate the expenses, as the projected claims may also be expected to increase thereby partially or fully offsetting the need for an inflation increase. Therefore, the actuary may apply inflation to the expense dollars and re-determine the unit expense including the growth in the claims amount.

## 280 UNIT EXPENSE BASES

The choice of the unit measure considers the causing event or activity. There is not a common terminology for these measures in actuarial literature. Units have also been referred to as

*expense drivers* or *inventories*. The selection of an appropriate unit measure needs to be balanced with the practicality of using the unit selected in the valuation.

Often a proxy is used as a substitute for the true unit measure. For example, the number of policyholder service requests could be a valid unit measure of the policy administration expense, however, the number of policies in force may be used as the proxy for the number of service requests.

The use of proxies balances the need for accurate expense information with the expense, effort and reliability associated with using the true unit measures.

The actuary considers the following in determining which unit measures to use:

- Whether a cause and effect relationship exists between the unit measure and the expense incurred;
- How to strike a reasonable balance between required versus unnecessary detail;
- The valuation systems that use the unit expenses and the implications of a change in choice of unit expense (as opposed to a change in the value of the unit expense);
- Select unit measures that can be accurately tracked, verified and analyzed;
- The unit measures used for pricing and operational control;
- Materiality when selecting unit measures (including proxies);
- The use of consistent unit measures over time to ensure productivity and other trends are properly assessed; and
- The unit measures usually consider only direct expenses and not overhead allocations.

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<b>300 SPECIAL SITUATIONS</b>
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**310 BACKGROUND**

In some situations, experience expense data may either not serve as a basis for the best estimate assumption for expenses, or may not be available.

Before addressing specific special situations, the actuary considers the following principles:

- Future productivity improvements in a valuation are usually reflected with the expenses incurred in projects put in place to generate these productivity improvements;
- There may be an expectation of lower unit expenses in the future. The actuary reflects the lower unit expenses in the valuation if management has a clear plan to reduce unit expenses and a prior history of successfully reducing unit expenses. Future expense reductions are assumed for only a temporary period (see section 250);
- The valuation assumes a going concern, unless the circumstances of the insurer specifically dictate otherwise;
- In some circumstances, the current base of business may be significantly different than the base of business used in the expense study. The actuary use unit expenses at each future date that are different than unit expenses coming from the expense study;
- The best estimate expense assumption covers the total maintenance expenses; and
- Expenses reflected in the valuation are coordinated with accounting provisions (an example is provided in Appendix C).

**320 START-UP OPERATIONS AND EXPENSE OVERRUNS**

For start-up operations, current unit expenses tend to overestimate the GAAP policy liabilities. In setting the long-term best estimate unit expense assumption, the actuary considers the business plan, and the expenses incurred in other lines of business or similar lines of business in the industry. Similar situations may occur in mature blocks of business. An example might arise where two blocks were sharing expenses: after the sale of one block of business, there may be a temporary increase in the unit expenses of the remaining block.

A temporary expense overrun exists when the total current maintenance expenses exceed the long-term best estimate unit expense levels.

Table 1 below illustrates a start-up operation, and two approaches used to reflect maintenance expenses in the GAAP policy liabilities. In one approach, the actuary uses a long-term best estimate unit expense directly in the GAAP policy liabilities and a triangle provision for the overrun as an additional provision (lines 4 and 5 in Table 1). The second approach has the actuary using varying unit expenses to reflect the total expenses and expected volumes (line 3 in Table 1).

Use of an additional provision requires some allocation for the purpose of seriatim policy reporting of negative reserves, cash value deficiencies, tax reserves and similar regulatory requirements (see the Educational Note - Aggregation and Allocation of Policy Liabilities).

**Table 1: Start-Up Operation Business Plan**

Year	Y	Y+1	Y+2	Y+3	Y+4	Y+5
1. Total Maintenance Expenses	\$200,000	\$204,000	\$208,080	\$212,242	\$237,324	\$293,791
2. Projected Number of Policies	100	1,500	2,910	4,235	5,481	6,652
3. Projected Unit Expense	\$2,000.0	\$136.0	\$71.5	\$50.1	\$43.3	\$44.2
4. Long-Term Best Estimate Unit Expenses	\$40	\$40.8	\$41.6	\$42.4	\$43.3	\$44.2
5. Expense Overrun	\$196,000	\$142,800	\$86,970	\$32,156	\$0	\$0

The actuary considers the company business plan in setting the best estimate expense assumption. However section 2350.54 of the Standards cautions about expectations of reduced expense rates and advises:

“A particular insurer may have an expectation of reduced expense rates, but the actuary would anticipate only a reduction which is forecasted with confidence.”

### 330 MERGERS/ACQUISITIONS/DIVESTITURES

The actuary does not anticipate the impact of a merger/acquisition/divestiture that has not taken place at the valuation date.

Where a merger/acquisition/divestiture has taken place, consideration is given to future expenses to integrate/reduce staff and infrastructure. Such amounts are reflected in the valuation in the periods they are expected to be incurred. These additional expenses are coordinated with any accounting provisions on the balance sheet.

In looking at the anticipated expense reductions from a merger/acquisition/divestiture, consideration is given to sources of savings over time. For example, acquisition and overhead expenses may reduce faster than ongoing maintenance expenses given the time to consolidate administration systems.

If management has a clear plan to reduce expenses, the actuary may assume a lower level of unit expenses is possible. GAAP policy liabilities are determined with initial expenses that recognize current expense levels and an ultimate level of expenses. Initial expenses usually exclude the one-time expenses to close the merger or acquisition (such expenses are usually set up as an accounting provision). If the lower unit expenses materialize differently than forecasted, GAAP policy liabilities are re-determined to reflect the level of actual expenses.

### 340 MARKET CONDUCT/LITIGATION

Litigation expenses incurred as a normal part of the business, such as long-term disability (LTD) claim litigation expenses, are included in unit expenses.

For extraordinary litigation expenses, e.g., expenses resulting from class action lawsuits, the actuary coordinates with any accounting provisions on the balance sheet. A policy liability for such expenses is set only when the expense is reasonably certain. The expenses include items such as higher ongoing administration expenses, and legal expenses in determining case-by-case remedies.

### 350 WIND-DOWN OPERATIONS

When a company is closed to new business, or has discontinued a line of business, the actuary usually assumes the company continues as a going concern until it is desirable and practical to reinsure the policies in force or to divest the business.

The actuary considers usage of unit expenses or expenses in aggregate. If unit expenses are used in lieu of expenses in aggregate, the actuary considers increasing unit expenses to reflect the declining units.

When winding down only a part of a company (e.g., line of business) blocks may be treated differently (e.g., excluding the block of business from overhead allocations).

### 360 EXPENSE GUARANTEES

Where the company has provided a guaranteed expense charge on a block of business (e.g., with a group ASO or a closed participating block) for internal reporting purposes, the actuary may use the guaranteed expense charges in determining that block's GAAP policy liabilities. This recognizes the impact of providing the guarantee in the segment that has provided the guarantee. The GAAP policy liabilities of the block making the guarantee then reflects the difference between the actual unit expense and the guaranteed unit expense charges (whether positive or negative) ensuring that expenses required to manage the business are reflected in total.

### 370 OUTSOURCING

Outsourcing occurs when a company contracts a service provider to perform a business function it usually performs itself.

Some examples include:

- Information system management and maintenance (e.g., software development, data entry and processing, data centres, facilities management, end-user support, local area networks, help desks);
- Policy administration (e.g., premium collection, policy assembly, invoicing, and endorsements);
- Claim administration (e.g., loss reporting and adjusting);
- Investment management (e.g., cash management and portfolio management); and



- Back office management (e.g., electronic funds transfer, payroll processing, custody operations, quality control, printing, and purchasing).

The actuary usually includes the fees charged by the service providers in the expenses. Internal expenses of the company related to the administration of the outsourcing arrangement are also included.

Fee increases are coordinated with the inflation assumption. The actuary considers the terms of the outsourcing arrangement and the consistency of projected fee increases with the economic scenarios used in the valuation.

It is unusual to assume non-contractual productivity improvements on the fees in an outsourcing arrangement, even without past fee increases.

Additional risks due to outsourcing, such as the potential insolvency of the provider, are excluded from the best estimate expense assumption, as they are better reflected in the Margins for Adverse Deviation (MfAD). If the actuary believes that default or non-renewal of the agreement is probable, the valuation reflects the recapture of the services provided.

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<b>400 ACQUISITION AND SIMILAR EXPENSES</b>
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**410 PURPOSE**

This section examines which expenses are considered acquisition expenses solely for the purpose of section 2320.22-24 of the Standards which state:

“The term of the liabilities of any other policy ends at the earlier of

the first renewal or adjustment date at or after the balance sheet date at which there is no constraint, and

the renewal or adjustment date after the balance sheet date which maximizes the policy liabilities.

The actuary would extend such term solely to permit recognition of cash flow to offset acquisition or similar expenses

whose recovery from cash flow that would otherwise be beyond such term was contemplated by the insurer in pricing the policy, and

where the value of the additional cash flow recognized by such extension of the term cannot exceed the value of the remaining balance of acquisition or similar expenses.

The balance of acquisition or similar expenses would be written up to zero using an appropriate method. Such method would

have a term consistent with the extended term established at inception,

have a write down pattern reasonably matched with the net cashflow available to offset these expenses at inception, and

be locked in, so the amount of write-down in each period will not fluctuate from the expected amount established at inception provided such balance is recoverable from the additional cash flow recognized at the balance sheet date, and where not fully recoverable at the balance sheet date, is written down to the recoverable amount, with the expected amount of write-down in each future period proportionately reduced.”

**420 DEFERRABLE ACQUISITION EXPENSES**

Acquisition expenses are expenses incurred in the acquisition of insurance policies and annuity contracts. They are expenses that are primarily related to the acquisition of policies, contracts, and certificates or consistently allocated to new business in product pricing or internal expense allocations.

Deferrable acquisition expenses are expenses that are expected to be recovered from policy cash flows beyond the term of the liability.

As an example, consider two policies. The first is a yearly renewable to age 70 term policy, where the term of the liability under section 2320.22 of the Standards is to age 70. The second is a one-year guaranteed investment certificate where the term of the liability is one year.

- The issue expenses are \$1,000 and the renewal expenses are \$400 in year two, \$200 in year three, and \$100 in all subsequent years for both policies;
- The expenses in excess of \$100 per year of the GIC are deferrable acquisition expenses. The \$100 per year are considered to be part of ongoing maintenance expenses; and
- The issue and renewal expenses of the Yearly Renewal Term (YRT) policy are not deferrable acquisition expenses as per section 2320.22 as there are no cash flows beyond the term of the liability.

#### 430 EXPENSES CONSIDERED ACQUISITION FOR SECTION 2320

Examples of expenses usually considered to be acquisition expenses (including related IT, overhead and indirect expenses) are:

- Issue expenses;
- Underwriting expenses;
- First year and some renewal compensation;
- Distribution expenses;
- Agency expenses;
- Marketing and advertising expenses;
- Product development expenses; and
- Reinsurance acquisition expenses.

Acquisition expenses usually exclude non-recurring expenses such as:

- Development of a new product line; and
- Merger and acquisition expenses.

## APPENDIX A

### CONDUCTING AN EXPENSE STUDY

This appendix will outline the basic steps and considerations involved in completing an expense study. The steps are:

- Determine the scope of the expense study;
- Collect the expense data;
- Check the consistency of the expense data with internal and external reports;
- Determine which expenses will be excluded from the determination of the best estimate assumption for expenses;
- Determine the expense categories to be used;
- Determine the unit expense bases to be used;
- Classify expenses to the expense categories;
- Allocate expenses to the expense categories;
- Determine the unit expenses; and
- Perform reasonability checks.

Usually an expense study determines unit expenses based on a single financial year of the company. Consistency with prior period studies is desirable in examining trends and ensuring recent changes in expense levels are reflected. If an expense study is to include multiple years of data, special care is needed to ensure that the units and the related expenses are consistently determined.

#### A.100 SCOPE OF EXPENSE STUDY

Unit expenses can be used for a variety of purposes, including product pricing, the valuation of GAAP policy liabilities, operational management, transfer pricing, Embedded Value, budgeting, DCAT and business planning. The primary objective of the expense study discussed in this appendix is to determine historical unit expenses for use in the valuation of GAAP policy liabilities.

If an expense study was prepared with a broader or different scope, then the actuary reviews it to determine how to modify results to obtain the best estimate expense assumption for valuation purposes.

A review of the current valuation processes used by the company will identify most unit expense bases for the study.

Ideally, the scope of the expense study will include all the business of the company. However, the scope of an expense study may be restricted to a subset, such as the company's individual disability business or its US Division. The subset determines which policies or functions are included in the study. Once the policies have been identified, all related expenses are incorporated in the study.

Care is taken to allocate expenses, especially corporate and overhead expenses, to each subset of the company's business. This ensures these expenses are not undercounted, double counted, or subsidized by a subset's expenses.

Investment expenses, Information Technology and Services expenses and other business functions may be charged to a line of business or operating unit by the use of transfer prices. The actuary considers reflecting these arrangements when determining unit expenses for the valuation. All investment expenses related to assets used to support GAAP policy liabilities are included. The actuary considers accounting for expense overruns or profits in the business unit providing the services for the transfer price.

### **A.200 COLLECTING THE EXPENSE DATA**

The major data source for expenses is the company's general ledger or data warehouse. Many expense accounts in the general ledger are closely correlated to the expense subdivisions required. However, the general ledger rarely has all expense information. Other data sources are:

- The agent/broker payment/payroll systems;
- The staff payroll system;
- Policyholder payment systems;
- Budget, business planning and financial reports;
- Transfer pricing analysis, agreements, and reports;
- Human Resources systems; and
- Investment management systems.

The "units" and allocation data may be collected from many data sources. These include:

- Policy/Certificate administration and valuation systems;
- Benefit payment systems;
- Transaction files/systems;
- Sales, financial and accounting reports;
- Policy Issue, Underwriting systems and reports;
- Budget and business planning reports; and
- Human Resources, and Agency administration systems.

Sometimes additional analysis or studies are commissioned to obtain data. For example, a time or an activity study may be conducted for a limited period.

### **A.300 RECONCILIATION OF EXPENSE DATA**

Once the expense data have been collected, the actuary performs various reconciliations to internal and external reports for completeness and consistency. For example, the expenses for a study of Canadian Individual Health could be reconciled, in total, to the expenses in the general ledger for that line of business. While expenses may not match, differences are identified and justified.

Another example of a reconciliation tests that the overhead expenses allocated to the particular line of business, when added to the overhead allocations for all other lines of business, reconciles to the total overhead expenses for the company.

**A.400 EXPENSES INCLUDED/EXCLUDED FROM THE VALUATION**

Expense data usually include all expenses related to special situations (see section 300). In order to interpret results and to avoid distorting unit expenses, the study would note special situations and how they are treated in determining unit expenses.

The expense study also reviews the treatment of expenses not allocated to a line of business (e.g., charged to the Surplus account) and considers the validity of such allocation.

Administration and investment expenses related to segregated and mutual funds incurred by the company are also included in the study. For policies with investments in segregated or mutual funds, expenses and revenue from the related Management Expense Charges are included in the valuation cash flows.

Administration and investment expenses related to Reinsurance (accepted and ceded) incurred by the company are also included in the expense study. For reinsured policies, unit expenses and revenue from the reinsurance treaty are included in the valuation cash flows.

**A.500 CATEGORIZATION OF EXPENSES**

There are different ways expenses may be categorized in an expense study. Although numerous categorizations increase the complexity of the study, they also increase the usefulness of the results. In developing a study, the actuary considers and determines the balance between the level of detail in categorizing expenses, the expense of accumulating the data, the benefit, and the usefulness of the results.

The following are examples of different lines of business used to categorize expenses:

Individual Life	Investments <sup>1</sup>	Group Life
Individual Health	Individual Annuities	Group Health
Individual Travel	Individual Disability	Reinsurance Assumed
	Group Annuities	Group Travel
Group Long-Term Disability (LTD)	Group Creditor Life & Health	Affinity
Surplus		Group out-of-country Medical

<sup>1</sup> Investment operations are often treated similar to a line of business

Another level of categorization is the jurisdiction (i.e., Canada, United States, Hong Kong, etc.) the business is written in.

It is not unusual to administer business in a jurisdiction other than the one in which it was written. The actuary determines how best to reflect such situations in the expense study.

Usually, categorization considers the way the business is organized, priced or managed by the company. For example:

- A Group Health product might be organized and priced separately by province or state;
- An Individual Life Product may be country specific; and
- An Investment Operation may be common across several countries.

Categorization may then move across product lines within a line of business or jurisdiction given materiality considerations.

Not all expenses or activities merit the same level of detail. For example, the expense of administration might differ between universal life and term plans, but the difference in the unit expense of processing a death claim may not be material.

Examples of product line categorizations are:

<b>Individual</b>	<b>Annuity</b>	<b>Group</b>
Non-Par Permanent	Payout Annuities	Long-Term Care
Adjustable Premium Life	RRIF/LIF	Medical/Hospital
Participating Life	Equity Linked	Critical Illness
Universal Life	Variable Annuities	Dental
Non-Participating Term	Deferred Annuities	Short-Term Disability
Critical Illness	Mutual Funds	Long-Term Disability
Health insurance	Segregated Funds	Group Term Life
Travel Accident		Affinity Life
Variable Life		Group Permanent Life

Detailed classification of expenses by expense type is covered in section A.700.

**A.600 UNIT MEASUREMENT**

If the valuation projects expense cash flows using unit expenses, then the expense study requires a determination of the units used to calculate the expenses. The company considers the scope and the purpose of the expense study to determine the units to be used.

Refer to section 280 for considerations in determining unit measurements.

Examples of some common unit measures are:

<b>Acquisition</b>	<b>Administration</b>	<b>Benefits</b>	<b>Asset</b>	<b>Overhead</b>
Number of Policies Issued	Number of In Force Policies	Number of Claims	Book Value	Number of In Force Policies
Number of Policy Applications	Certificates In Force	Face/Benefit Amount	Market Value	Certificates In Force
Sales Commission	Service Commission	Number of Terminations	Acquired Value	Premium Income
Certificates Issued	Premium Income	Claims Paid	Disposal Value	Fund Value
Face/Benefit Amount	Number of Billings	Policy Liability	Number of Policy Loans	Surplus
Payment Amount	Number of Terminations	Fund Value	Amount of Policy Loans	Required Capital
Issue Premium	Number of Riders		Mortgage Payment	Employees
	Deposit		Bond Interest	Percentage of Non-Overhead Expenses
	Face/Benefit Amount			
	Fund Value			

Acquisition, administration and claim expenses usually vary by line of business and within a line of business by product type. Therefore, unit measures usually are established at the product line level. Investment expenses usually vary by asset type.

#### **A.700 CLASSIFICATION OF EXPENSES**

Sections A.710 to A.730 deal with expenses directly associated with the activities described. These usually cover salaries, commissions, benefits, supplies, rent, direct Information Technology (IT) and other hardware expenses, direct support services, direct management and any associated taxes (such as PST and GST).

Expenses not directly related to policy activities such as investment expenses (acquisition and administration) are considered in section A.740. Taxes other than income tax are considered in section A.750. Corporate and overhead expenses, including indirect IT, human resources, and corporate financial reporting are discussed in section A.760.

#### **A.710 ACQUISITION RELATED**

While acquisition expenses are usually incurred before the balance sheet date and, therefore, not considered for valuation purposes, they are relevant to products where unamortized acquisition expenses are recognized. In order to properly allocate overhead and other indirect expenses, an expense study needs to consider all expenses within the scope.



The following tables contain examples of acquisition activities, usual unit expense measures, and considerations in determining whether the associated expenses are acquisition expenses for section 2320 of the Standards.

Acquisition Activity	Considerations
New market or product line development	<ul style="list-style-type: none"> <li>• Extraordinary expenses usually excluded from the valuation best estimate expenses.</li> </ul>
Product design and pricing of a new product in an existing product line	<ul style="list-style-type: none"> <li>• Usually not considered an acquisition expense for section 2320.23-24 of the Standards.</li> </ul>
Policy illustration development	<ul style="list-style-type: none"> <li>• Usually not completely priced for in existing products.</li> <li>• May be considered an investment of Surplus.</li> </ul>
Product redesign and/or re-pricing of an existing product for new customers	<ul style="list-style-type: none"> <li>• Usually considered in the pricing of existing products.</li> <li>• May be considered an acquisition expense for section 2320.23-24 of the Standards.</li> <li>• Unit expense usually                             <ul style="list-style-type: none"> <li>◦ per policy sold</li> <li>◦ percentage of direct acquisition expenses;</li> <li>◦ percentage of sales commissions;</li> <li>◦ percentage of sales and service commissions; or</li> <li>◦ percentage of direct acquisition expenses.</li> </ul> </li> </ul>
Recruiting and development of new agents, brokers or sales representatives	
Sales to new customers <ul style="list-style-type: none"> <li>• Prospecting</li> <li>• Sales interviews</li> <li>• Preparing policy illustrations</li> <li>• Policy application and submission</li> <li>• Policy placement</li> </ul>	<ul style="list-style-type: none"> <li>• Often partially outsourced on a commission basis.</li> <li>• Commissions usually a percentage of premium or a flat dollar amount. Future payments may be contingent on certain events (i.e., payment of future premiums, contract still in force).</li> <li>• Includes sales management expenses usually as a percentage of commissions.</li> </ul>
Sales to existing customers <ul style="list-style-type: none"> <li>• Renewal of existing coverage</li> <li>• New coverage</li> <li>• Changes to existing coverage</li> </ul>	<ul style="list-style-type: none"> <li>• Are included in valuation where contractual payment occurs after valuation date.</li> <li>• Are included in the pricing of the product.</li> <li>• Usually considered an acquisition expense for section 2320.23-24 of the Standards.</li> </ul>

*Sales Commissions*

Sales Commissions include commissions, bonuses and overrides paid directly to the agent/broker/sales representative, and the expense of financing new agents/sales

representative. Breakdowns between agents, brokers and other distribution networks may be retained, if the company determines they are material or needed. Commissions include any payment or financial benefit (e.g., sales conventions) made directly or indirectly to an agent, broker or sales representative.

The expense of financing new agents is usually restricted to payments made in lieu of commissions to support new agents. It usually excludes expenses of training, supplies, or other reimbursement, as these are usually included in distribution expenses.

Sales Commissions may exclude overrides paid to managers of the distribution system, as they are usually included in distribution expenses.

Commissions are usually split between first year, renewal, single, dump-in and trailer commissions. Commissions after the valuation date are included in the valuation (see section A.720).

Unit expenses are usually a percentage of premiums or deposits.

#### *Distribution Expenses*

Distribution expenses usually include the expense of:

- Developing new or revised products for sale (including actuarial resources);
- Advertising products for sale;
- Maintaining the agency, brokerage or other distribution IT systems and related administration processes (other than commissions described above);
- Overrides paid to managers of the distribution system; and
- New agent expenses for training, setup, or other reimbursement.

The expenses incurred in the branch offices that are related to underwriting, issue and policy administration functions are usually excluded from distribution expenses and included in the relevant acquisition or policy administration activity.

Unit expenses are usually a percentage of commissions or a percentage of premiums/deposits.

#### *Issue Expenses*

Issue expenses usually include the expense of issuing (including related reinsurance), or declining to issue, policies, certificates or contracts, whether incurred at head office or in branch offices.

Acquisition Activity	Considerations
Underwriting <ul style="list-style-type: none"> <li>• Non-medical</li> <li>• Guaranteed issue</li> <li>• Medical</li> <li>• Electronic/Instant Issue versus underwriter reviewed</li> <li>• Declined policies</li> <li>• Substandard ratings</li> <li>• Facultative reinsurance ceded issue</li> </ul>	<ul style="list-style-type: none"> <li>• Priced for in existing products.</li> <li>• Are considered an acquisition expense for section 2320.23-24 of the Standards.</li> <li>• Unit expense is usually:               <ul style="list-style-type: none"> <li>• Per policy issued;</li> <li>• Per policy and per thousand issued; or</li> <li>• Per policy issued within Premium Bands.</li> </ul> </li> <li>• Expenses related to “<i>declined policies</i>” is usually spread over all “<i>placed</i>” policies.</li> <li>• Expenses related to substandard ratings may be a percentage of the extra premium charged or spread over all substandard policies.</li> </ul>
Policy Issue	
Automatic Reinsurance Ceded Issue Processing	

#### A.720 ADMINISTRATION RELATED

The following tables discuss the basis for valuing expenses associated with administration activities and considerations in determining whether to use the natural unit or a proxy.

Administration Activity	Considerations
Premium Billing	<ul style="list-style-type: none"> <li>• May vary by type of bill (i.e., electronic funds transfer, or manual) depending on materiality or need.</li> <li>• Unit expense measure is usually per bill or per policy.</li> </ul>
Commissions and Distribution	<ul style="list-style-type: none"> <li>• Unit expense measure is usually a percentage of premium or a percentage of fund value</li> </ul>
Premium Collection	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per bill or per policy.</li> <li>• Usually not offset by interest on late payments since the interest income usually is modelled separately.</li> </ul>
Anniversary Activity <ul style="list-style-type: none"> <li>• Customer reporting</li> <li>• Service Calls</li> </ul>	<ul style="list-style-type: none"> <li>• Unit expenses measure is usually per policy in force.</li> </ul>
Dividend Scale Management	<ul style="list-style-type: none"> <li>• May exclude expenses of developing the dividend recommendation.</li> <li>• May vary by dividend option.</li> <li>• May include tax reporting on accumulating dividends.</li> <li>• Unit expense measure is usually per policy in force.</li> </ul>

Coverage Renewal Processing	<ul style="list-style-type: none"> <li>• May be included in acquisition expenses, if renewal date is beyond the term of liability.</li> <li>• Unit expense measure is usually per coverages renewed or a percentage of premiums renewed.</li> </ul>
Experience Studies	<ul style="list-style-type: none"> <li>• May be based on the same categories as the expense study.</li> <li>• Usually included in policy maintenance expenses.</li> <li>• Unit expense is usually per policy in force, or a percentage of premiums.</li> </ul>
Customer Tax Monitoring and Reporting	<ul style="list-style-type: none"> <li>• Universal Life and other exempt policies have tax limits that are checked regularly.</li> <li>• Unit expense measure is usually per policy in force requiring tax monitoring.</li> </ul>
Reinsurance Administration	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per policy in force or per policy/per \$1000 in force.</li> </ul>
Certificate Administration <ul style="list-style-type: none"> <li>• Eligibility</li> <li>• Benefits covered</li> <li>• Dependents</li> </ul>	<ul style="list-style-type: none"> <li>• May vary by benefit covered or spread evenly across all benefits.</li> <li>• Unit expense measure is usually per certificate in force.</li> </ul>
Policyholder Changes <ul style="list-style-type: none"> <li>• Address Changes</li> <li>• Ownership Changes</li> <li>• Marital Status</li> <li>• Beneficiary changes</li> </ul>	<ul style="list-style-type: none"> <li>• Natural unit is per change but usually uses a proxy.</li> <li>• Unit expense measure is usually per policy in force.</li> </ul>
In force Illustrations	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per policy in force.</li> </ul>
Policy Loans	<ul style="list-style-type: none"> <li>• See the Investment section A.740</li> </ul>
Adjustable Feature Administration	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per Adjustable policy in force.</li> </ul>
Direct Management <ul style="list-style-type: none"> <li>• Recruiting and Staff Development</li> <li>• Managing Administrative Areas</li> </ul>	<ul style="list-style-type: none"> <li>• If not included above, unit expense measure is usually a percentage of other administrative expenses.</li> </ul>

### *Policy Maintenance Expenses*

Maintenance expenses are expenses for maintaining policies, contract or certificates in force, including commissions, premium taxes and other direct taxes, and all associated management, and reporting activities; but exclude claim and termination expenses. Maintenance expenses include those expenses associated with:

- Maintaining and updating policy, policyholder, and certificate information;

- Performing billing operations;
- Par fund administration and dividends;
- Call centre service relating to policyholder inquiries;
- In force illustrations; and
- Policyholder statement mailings.

Maintenance expenses usually include the administration expenses incurred in branch offices for the above business functions.

Maintenance expenses may vary by policy type (e.g., UL versus Term, etc.)

Litigation expenses directly related to policies (e.g., settled class action suits) are included in the expenses for the administration-related activity.

#### *Reinsurance Expense*

Reinsurance expenses include expenses related to administering reinsurance ceded on direct business and all expenses associated with reinsurance assumed. If the related reinsurance allowances had been netted against expenses, these allowances are reversed prior to analyzing the reinsurance expenses.

#### **A.730 BENEFIT RELATED**

Usually, direct benefit processing expenses are only separated into categories that will be used in the valuation.

#### *Benefit Processing Expenses*

<b>Processing Activity</b>	<b>Considerations</b>
Death Claim (including advances)	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per claim paid and/or per \$1000 of claim.</li> </ul>
Accidental Death Claim	Excludes interest paid on late/delayed claim payments.
Long-Term Care	
Critical Illness	
Maturity Claim	
Disability Payment	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per claim paid, or per \$100 of monthly benefit.</li> </ul>
Reinsurance Claim	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per claim paid, per \$1000 of claim, \$100 of monthly benefit or by per claim reinsured.</li> </ul>
Medical/Dental/Travel Claim	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per claim paid, or percentage of claims paid.</li> </ul>

<p><b>Disability Claim Activity</b></p> <ul style="list-style-type: none"> <li>• Initial Adjudication</li> <li>• Rehabilitation Expenses</li> <li>• Evidence Review</li> <li>• Change of Definition</li> <li>• Termination/Death</li> <li>• Termination Appeal</li> <li>• Subrogation</li> <li>• Litigation</li> </ul>	<ul style="list-style-type: none"> <li>• Expenses usually vary by duration since date of claim for the first three to five years, so expenses separated by duration and activity.</li> <li>• Unit expense measure is usually:                         <ul style="list-style-type: none"> <li>• per claim, per activity,</li> <li>• percentage of claim, or</li> <li>• per \$100 of monthly benefit.</li> </ul> </li> </ul>
<p><b>Settlement Option Processing</b></p>	<ul style="list-style-type: none"> <li>• Expense to process claim settlement is usually included in the pricing of the settlement option benefit, expenses usually kept separate from other claim processing expenses.</li> </ul>
<p><b>Annuity Payments</b></p> <ul style="list-style-type: none"> <li>• Survivorship Evidence</li> <li>• Processing</li> </ul>	<ul style="list-style-type: none"> <li>• Unit expenses usually vary by frequency of the benefit payments.</li> <li>• Unit expense measure is usually per payment, per claim or per \$100 per of benefit.</li> </ul>

Benefit processing expenses include all processing expenses related to any policy benefit for the related policies (including death claims, maturity benefits, annuity payments, LTD payments, health claims, etc).

Litigation expenses directly related to claims (e.g., denial of a claim) are included in the expenses for the claim-related activity.

Expenses are usually reported on a basis consistent with claims. For instance, if a death claim includes ancillary benefits such as accidental death, the death claim processing expenses include the related expenses to process the ancillary benefit.

Claim processing expenses do not include the expense of processing other policy terminations (such as the payment of cash surrender values or lapses). See detail below.

Expense related to benefit processing may be separated into the detail above. Or it may be combined for some or all expense classification, and some or all activities depending on the materiality of the expenses and the need.

*Termination Expenses*

<b>Termination Processing Activity</b>	<b>Considerations</b>
<p>Cash Surrender</p>	<ul style="list-style-type: none"> <li>• Unit expense measure is usually per surrender or a percentage of value paid.</li> <li>• Interest paid due to delayed processing is excluded.</li> </ul>

Automatic Surrender	<ul style="list-style-type: none"> <li>Unit expense measure is usually per surrender or a percentage of cash value paid.</li> </ul>
Contractual Changes <ul style="list-style-type: none"> <li>Reduced Paid Up</li> <li>Extended Term</li> <li>Automatic Premium Loan</li> <li>Reinstatement</li> <li>Term Conversion</li> <li>Group Conversion</li> </ul>	<ul style="list-style-type: none"> <li>Unit expense measure is usually per contractual change or per policy</li> <li>May combine all types so data not collected at too detailed a level (depends on materiality or need).</li> </ul>
Lapse	<ul style="list-style-type: none"> <li>Unit expense measure is usually number of lapses.</li> </ul>
Term Expiry	<ul style="list-style-type: none"> <li>Unit expense measure is usually number of policies expired.</li> </ul>

Termination expenses are the expenses related to terminating policies (including related reinsurance) in any manner (e.g., lapse, surrender, or non-forfeiture) that includes commission, other distribution expenses, chargebacks, and the expense of administering the payment of associated benefits. Expenses include the expense incurred to make payment of cash surrender values.

#### A.740 INVESTMENT RELATED

##### *Investment Expenses*

Investment Activity	Considerations
Acquisition of: <ul style="list-style-type: none"> <li>Bonds</li> <li>Equities</li> <li>Mortgages</li> <li>Real Estate, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Currency of the asset or currency conversion rates is considered.</li> <li>Unit expense measure is usually basis points (bps) of purchase price (amount of policy loan).</li> </ul>
Administration of Asset Classes <ul style="list-style-type: none"> <li>Accounting</li> <li>Trustee</li> <li>Analysis of return, credit risk, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Unit expense measure is usually bps of Book Value or bps of purchase price.</li> </ul>
Disposal of Assets	<ul style="list-style-type: none"> <li>Internal sales/transfers between funds (including the Surplus Fund)</li> <li>Unit expense measure is usually bps of sale price.</li> </ul>
Interest Payments	<ul style="list-style-type: none"> <li>Unit expense measure is usually bps of loan amount.</li> </ul>
Maturity of Assets	<ul style="list-style-type: none"> <li>Unit expense measure is usually bps of maturity amount or per maturity.</li> </ul>

Default of an Asset	<ul style="list-style-type: none"> <li>Unit expense measure is usually bps of Book Value, bps of Market Value or per default.</li> </ul>
Mortgage Renewal	<ul style="list-style-type: none"> <li>Unit expense measure is usually per renewal or percentage of renewal amount.</li> </ul>
Property Management <ul style="list-style-type: none"> <li>Renovations</li> <li>Building upgrades</li> <li>Repairs</li> <li>Maintenance</li> <li>Lease Renewal</li> </ul>	<ul style="list-style-type: none"> <li>Expenses usually include amortization of major renovation/upgrade expenses.</li> <li>Unit expense measure is usually bps of property income/rental income or percentage of appraised value.</li> </ul>
Head/Regional Office	<ul style="list-style-type: none"> <li>Expenses include a deemed occupancy cost of all actual property management expenses.</li> <li>Unit expense measure is usually bps of appraised value or dollar amount of imputed rent.</li> </ul>

Expenses related to policy loans are usually included in policy maintenance expenses. However, a company may treat these expenses as investment related, and use either a per policy or a bps on loan value as the unit expense.

Investment expenses include all expenses incurred within the investment area (including commissions and fees to service providers incurred in conjunction with investments, and interest on money borrowed to finance investments). Investment expenses include the expenses incurred to acquire, maintain, and dispose of investments.

Expenses related to investment activities may be separated into the detail above or combined for some/all asset classes and some/all activities depending on the materiality and the need.

Expenses may be separated by Fund (e.g., Par Fund, Surplus, Non-Par Fund). If assets are shared between funds (including surplus), expenses are consolidated and an average unit expense is determined.

#### *Property Management Expenses*

Property management expenses include repairs, renovations, upgrades, maintenance, insurance and other expenses related to the general operation of all real estate properties (including property for the company's own use). Expenses related to the rental of such properties, legal fees and staff personnel expenses for individuals engaged solely in real estate-related functions (including lease and rental renewals) are also included.

The company incurs neither cash rental expenses nor cash rental income on real estate that it owns and occupies. The actuary recognizes a realistic level for such expenses in Investment expenses within the scope of the expense study.

#### **A.750 TAXES OTHER THAN INCOME TAX**

Premium tax rates vary by jurisdiction. They are usually expressed as a percentage of premiums, less cash dividends paid to policyholders. Since premium tax is projected separately in the valuation, it is excluded from other expenses in determining unit expenses.



In the study, the company determines the weighted average premium tax rate. In jurisdictions where value added taxes are applied to premiums, deposits, contributions, the value added taxes are treated similarly to premium tax.

Value added taxes applied against other expenses are included with the relevant expenses (e.g., included in policy maintenance expenses).

Investment Income Tax (IIT) is usually determined separately from the valuation unit expenses as IIT is projected in the valuation separately using the Part XII formula.

#### **A.760 CORPORATE AND OVERHEAD EXPENSES**

Corporate and Overhead expenses are separated into categories only as detailed as is required for the valuation unit expenses.

Often, expenses related to shareholder activities and non-recurring expenses are recorded in corporate or overhead expenses. Sections 200 and 300 describe the appropriate recognition of these expenses.

The company may have decentralized some business functions to be carried out at a corporate to operational level(s). For the purposes of an expense study, such expenses may be included in overhead regardless of where the business function is performed. Alternatively, overhead expenses may be included at the operational level as direct expenses.

Historically centralized corporate functions may now be performed at the company's line of business level. It may be useful to analyze these expenses by ignoring where the functions are performed. For example, information technology may be distributed throughout the organization, with some expenses incurred at the operational level (e.g., group or individual) and other expenses incurred as a shared corporate service.

Section A.800 describes allocating these expenses to line of business, jurisdictions or product lines.

#### *Financial Reporting*

Financial reporting includes all financial reporting, accounting, tax compliance, and corporate actuarial and audit functions.

Corporate actuarial functions include the following:

- Valuation of policy liabilities (GAAP, tax, internal management, Embedded Value, US GAAP, etc.);
- Dynamic Capital Adequacy Testing (DCAT);
- Earnings analysis, such as Embedded Value, Sources of Earnings, Earning at Risk;
- Capital analysis and management, such as Minimum Continuing Capital and Surplus Requirements (MCCSR), capital planning, Value at Risk, policyholder and shareholder dividend recommendations;
- Risk management programs and reporting, including asset/liability management;
- Long-term projections of actuarial elements for corporate/business planning; and

- Research related to the above functions.

Expenses for voluntary and mandatory peer review are included.

Actuarial functions related to product pricing and design, information system design, marketing and day-to-day acquisition, administration or investment operations are usually excluded.

Financial reporting and accounting functions include:

- The maintenance of the company's general ledger and data warehouse, excluding those related directly to policy, agent/broker compensation and investment accounting;
- Preparation of all corporate financial statements for policyholders, shareholders and regulators; and
- Tax planning and compliance.

These expenses include the expense of both internal and external audit functions, including fees paid for regulatory audits.

#### *Human Resources*

Human resources expenses provide the human resource function for the business operations included in the scope, wherever performed. This includes payroll and benefit accounting. Staff training expenses may be included in direct expenses or with human resources, as long as expenses are not double counted. Expenses associated with sales training for sales personnel are usually excluded from human resources expenses (see section A.710 – Distribution Expenses).

#### *Information Technology*

Expenses related to operating and maintaining current IT systems are usually allocated to their supporting function (e.g., the policy issue process, investments, or human resources). The IT expenses allocated to the corporate, overhead or investment functions are included in these functional expenses if allocated to line of business, jurisdiction and product line.

If the allocation of IT expenses is handled through a transfer pricing mechanism, the profit or loss in the business unit providing the transfer price is allocated consistently with the related function.

Development of new systems or functions may be considered non-recurring expenses. (See section 260). For other IT expenses that are capitalized, see section 230.

#### *Legal*

Legal expenses (both internal and external) except those related to direct expenses (e.g., policy contract development, or claim litigation) are handled similarly to Other Corporate.

#### *Other Corporate*

Other corporate expenses include all corporate expenses not described above or already allocated directly to line of business, product line, or operating unit.

These include (but are not limited to):

- Expenses associated with the Chief Executive Officer, Chief Operating Officer, etc.;

- Expenses associated with the Board of Directors and Corporate Secretariat;
- Administrative expenses of financing, restructuring, mergers and acquisitions; and
- Unallocated expenses associated with the Chief Financial Officer.

Other corporate expenses may be included if they are centralized and not easily allocated. Examples are:

- Expense of executive or staff cafeterias, or fitness facilities;
- Centralized printing, or filing;
- Communication expenses such as company website development and maintenance;
- Premises management;
- Expense of unused premises;
- Mergers and acquisitions;
- Non-Financial compliance reporting;
- CompCorp and other industry insurance fees and charges;
- Strategic research;
- Investor relations;
- Treasury operations; and
- Furniture and fixtures – amortization on major purchases.

#### **A.800 ALLOCATION OF EXPENSES**

A methodology is needed to allocate Corporate and Overhead expenses to expense classes, as well as direct expenses between expense classes or categories (see sections A.500 and A.700).

Most companies have well established allocation methodologies. Each time an expense study is conducted, the company would determine whether or not the allocation methodologies continue to be appropriate.

Examples of different allocation methodologies are:

- Transaction Based;
- Activity Based;
- Time Study Based;
- Expense Based;
- In force Based; and
- Staff Based.

Within an expense study, different methodologies may be used. Activity and transaction based methodologies are often used for allocating direct expenses, while other methodologies may be used for corporate or overhead expenses.

For projecting unit expenses in a valuation, it may be necessary to use a proxy (such as policies in force) for practical purposes.

Some examples are:

- The expense of underwriting expenses may be allocated across product lines by total face amount of cases underwritten. However, for unit expense purposes, these are often based on face amount of cases placed. This recognizes different placement ratios by product while still building total expenses into product pricing (i.e., the company cannot recover expenses from policies not placed); and
- Routine policy changes (e.g., address changes, banking information changes, or premium payment changes) may be allocated across products by changes processed. For unit expense purposes, these may be expressed as an expense per policy in force.

The allocation of some expenses may be to other expenses, which themselves will be allocated to a line of business, jurisdiction or product. This ordering of allocation of expenses (or hierarchy) is important to establish early in the process to avoid double or under counting expenses. For example:

- Some human resources expenses may be allocated to IT. When IT expenses are then allocated to a line of business, it includes the human resources. In addition, some IT expenses may have been previously allocated to human resources creating a complex circle of inter-dependencies.

#### **A.810 TRANSACTION BASED**

A transaction-based methodology is usually used for direct expense allocations. It uses the number or amount of transactions (e.g., the number of cases received for underwriting, declines, issues, rated, number of claims, premium received, premium billings made, etc.) recorded in an administration or accounting system to allocate expenses.

While transaction-based methodologies are inherently simple, the base assumption (all transactions are equal in expense) is often too simplistic. To overcome this flaw, transactions are weighted to reflect their relative complexity or expense. The relative weighting may be determined through time studies or a management interview process.

Sometimes, the size or amount of the transactions is used with the number of transactions as a proxy for complexity (e.g., \$5,000,000 death claims are more complex and require more expense to process than \$50,000 claims).

#### **A.820 ACTIVITY BASED**

Activity-based and transaction-based methodologies are similar except for the level of detail for capturing transactions and expenses. Given the greater detail, activity-based methodologies are often useful to line management in understanding and managing their expenses, and is often key to its selection.

An example of the “activities” related to a death claim:

Activity
Recording of claim received
Notifying reinsurer of claim received
Sending file to reinsurer for review
Internal review of claim
Claim investigations
Approval from reinsurer
Communication of approved claims
Processing of funds
Communication of disputed claims
Claims appealed
Litigation and settlement
Processing of funds

If all of these activities are captured at the detail level required, then allocation at the activity level will follow. However, this is often not the case and the information may be translated into weights to be applied to known transactions for allocation.

These allocations are often built from time studies. Before using them, the actuary considers the elapsed time since the last study and later trends. Actively managing expenses this way increases the usefulness and timeliness of such information.

#### **A.830 TIME STUDY BASED**

This type of methodology asks individuals to track their time spent on various activities. This may be done on a sampling basis or continuous basis.

The sampling approach may support activity-based or transaction-based weightings, or support a direct allocation of overhead expenses. Consideration is given to frequency, timeliness, and appropriate sampling techniques of these studies.

#### **A.840 EXPENSE BASED**

This type of methodology is often used for direct line management, indirect expenses and overhead. It is sometimes referred to as a dollar chase dollar approach. This allocation considers management time relative to the expenses they manage. Variations include:

- All expenses managed;
- Staff salary expenses only;
- Direct expenses only; and
- Direct and some allocated expenses such as rent, equipment, furniture and fixtures.

Some common examples are:

- Sales management expenses as a percentage of commissions paid;

- Premium taxes as a percentage of premiums less dividends paid;
- Direct management as a percentage of their staff salaries;
- Divisional overhead as a percentage of other divisional expenses;
- A portion of corporate overhead as a percentage of MCCSR required; and
- Investment overhead expenses as a percentage of assets.

#### **A.850 IN FORCE BASED**

This methodology is often used as proxy for a transaction-based or activity-based allocation where transaction counts are not available. The assumption that expenses vary directly in relation to in force statistics is often flawed, resulting in the need for relative weightings supported by periodic time studies. In force studies are sometimes used to allocate overhead expenses.

#### **A.860 STAFF BASED**

This methodology is usually used for staff support functions such as human resources, payroll, sales payroll, cafeteria, and facilities. Important considerations when using this methodology include:

- Whether permanent full-time, temporary, contract and casual employees are weighted equally; and
- Whether any distinction is made between agents, brokers or other distributors.

#### **A.900 UNIT EXPENSES**

Section A.500 described the level of detail unit expenses may be categorized (product, jurisdiction, etc.). Section A.600 described the unit measurements that are collected in these various categories. Section A.700 described the classification of expenses (acquisition, administration, claims, etc.) into various classes. Section A.800 described methods to allocate expenses to this array of categorization and classification.

At this stage of the expense study, the actuary may have expenses in a form like the following:

	<b>Guaranteed Interest Accumulation Products</b>	<b>Segregated Fund Deposit Accounts</b>	<b>Canadian Individual Life Term Products</b>	<b>etc.</b>
Disability Claims	<ul style="list-style-type: none"> <li>• Direct and allocated Expenses, e.g.,               <ul style="list-style-type: none"> <li>• first, second, third + year adjudication</li> <li>• cheque payment</li> <li>• litigation</li> <li>• corporate overhead</li> </ul> </li> <li>• Potential unit measurements and their related volume, e.g.,               <ul style="list-style-type: none"> <li>• Number of inforce claims – first, second, third + year</li> <li>• Amount of claim</li> <li>• Number of re-checks</li> </ul> </li> </ul>			
Underwriting Expenses				
Issue Expenses				
etc.				

This section describes determining an appropriate base for valuation purposes. Included is a table showing a detailed summary of classes of expenses, and possible unit measures, usually included in the valuation of GAAP policy liabilities. The measures listed could be used alone or in combination.

#### **A.910 CONSIDERATIONS IN DETERMINING A BASE FOR UNIT EXPENSES**

The ideal base for unit expenses for use in the valuation:

- Represents a direct underlying relationship between the base and the underlying expenses (i.e., when the base increases/decreases then the underlying expenses also increase/decrease in a direct linear relationship);
- Is easily projected in the valuation using existing bases in the company's valuation systems (e.g., policies in force, claims, billings, lapses, or renewal).

For example, detailed disability claim unit expenses could be the sum of:

- an expense per initial claim; plus
- an expense per payment; plus
- an expense per adjudication re-check; plus

- an expense per \$100 of claim; plus
- an expense per litigated case.

However, disability claim unit expenses used in the valuation are usually simpler in structure, such expense per claim, varying by duration since claim, plus an expense per \$100 of claim.

In completing the expense study, the actuary considers:

- the limited number of base units available from the valuation system; and
- the detailed expense information obtained from the study;

to determine the best estimate unit expenses for use in the valuation.

For example, the expense per adjudication re-check is translated into an expense per payment, varying by duration, by considering the frequency of re-check, by duration, since initial claim.

- Where these bases do not exist, a reasonable compromise balances the expected difference in trends between the practical base, and the desired base. If the actuary observes a recent increase in litigation on claims, unrelated to product differences, the expense per claim increases faster than the underlying inflation trends;
- If the current valuation system does not project trends in disputed claims separate from regular claims, consideration is given to using claims projections as a proxy; and
- If there is indication that differences in trend will continue, consideration may be given to temporarily increasing claim expenses faster than the normal inflation assumption.

Section A.700 provides details of typical unit expenses bases available in a valuation system.

#### **A.1000 TESTING AND RECONCILIATION**

The unit expenses determined in the expense study may be compared to the unit expenses in available external studies or various actuarial models (such as pricing, DCAT, etc.). If material differences exist, the actuary usually investigates whether an error has occurred (e.g., in the data used, the definition of the data, or in the units used). If differences result from a new allocation methodology, further analysis determines its reasonableness.

The unit expenses can also be compared to unit expenses from past expense studies. The trend line is reviewed to identify and investigate unusual results.

The unit expenses applied to the units from company reports, plus the expenses excluded from the expense study are compared to the total expenses published in various reports. For example, the policy maintenance unit expense times the average number of in force policies over the year is expected to approximate the total policy maintenance expenses in the company's general ledger. The actuary investigates discrepancies.

A sources of earnings analysis can:

- identify trends in expenses that may indicate the need to conduct a new expense study; or
- identify errors in the results of an expense study.



**APPENDIX B**  
**TREATMENT OF CAPITALIZED EXPENSES AND DEPRECIATION**

The following are two examples of possible ways to treat capitalized expenses and depreciation in the determination of the unit expenses. For simplicity purposes, the examples assume expenses are totally related to administration expenses. Where a portion, or all, of the expense is related to acquisition, the portion of the asset related to acquisition expenses usually is excluded in the assets backing the liability.

**B.100 PURCHASE OF PCs**

The company spends \$3,000,000 every third year to replace all their PCs. This expense is capitalized and the PCs are depreciated over a three-year period. The term of the liability is 9 years. Invested assets earn 5%.

Duration	Asset	Depreciation Expense	Free Cash Flow	Units
0	3,000,000	1,000,000	3,000,000	1,000,000
1	2,000,000	1,000,000		1,000,000
2	1,000,000	1,000,000		1,000,000
3	3,000,000	1,000,000	3,000,000	1,000,000
4	2,000,000	1,000,000		1,000,000
5	1,000,000	1,000,000		1,000,000
6	3,000,000	1,000,000	3,000,000	1,000,000
7	2,000,000	1,000,000		1,000,000
8	1,000,000	1,000,000		1,000,000

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Approach 1

Do not treat depreciation as a cash flow on either side of the balance sheet. Unit Cost \$3 per unit every three years.

<b>Duration</b>	<b>Non-Invested Asset</b>	<b>Invested Asset</b>	<b>Asset Cash Flow</b>	<b>Liability</b>	<b>Liability Cash Flow</b>	<b>Investment Income</b>	<b>Change in Reserve</b>	<b>Expense</b>
0	3,000,000	4,830,159		7,830,159				
1	2,000,000	5,071,667		7,071,667		241,503	(758,492)	1,000,000
2	1,000,000	5,325,250		6,325,250		53,523	(746,417)	1,000,000
3	3,000,000	2,591,513	3,000,000	5,591,513	3,000,000	268,263	(733,737)	1,000,000
4	2,000,000	2,721,088		4,721,088		129,576	(870,424)	1,000,000
5	1,000,000	2,857,143		3,857,143		136,054	(863,946)	1,000,000
6	3,000,000	0	3,000,000	3,000,000	3,000,000	142,857	(857,143)	1,000,000
7	2,000,000	0		2,000,000		0	(1,000,000)	1,000,000
8	1,000,000	0		1,000,000		0	(1,000,000)	1,000,000
9	0	0				0	(1,000,000)	1,000,000

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Approach 2

Treat depreciation as a real cash flow for both assets and liabilities. Unit cost \$1 per unit per year.

Reflect actual through setting up cash. This essentially treats the asset as part of the invested assets with an expected interest return of 0.0%. Sometimes these assets have an imputed return, which is used in the interest track development.

<b>Duration</b>	<b>Non-Invested Asset</b>	<b>Invested Asset</b>	<b>Asset Cash Flow</b>	<b>Liability Liability</b>	<b>Liability Cash Flow</b>	<b>Investment Income</b>	<b>Change in Reserve</b>	<b>Expense</b>	<b>Net Income</b>
0	3,000,000	4,830,159		7,830,159					
1	2,000,000	5,071,667	1,000,000	7,071,667	1,000,000	241,708	(758,492)	1,000,000	0
2	1,000,000	5,325,250	1,000,000	6,325,250	1,000,000	233,583	(746,417)	1,000,000	0
3	3,000,000	2,591,513	1,000,000	5,591,513	1,000,000	266,263	(733,737)	1,000,000	(0)
4	2,000,000	2,721,088	1,000,000	4,721,088	1,000,000	129,576	(870,424)	1,000,000	0
5	1,000,000	2,857,143	1,000,000	3,857,143	1,000,000	136,054	(863,946)	1,000,000	-
6	3,000,000	0	1,000,000	3,000,000	1,000,000	142,857	(857,143)	1,000,000	-
7	2,000,000	0	1,000,000	2,000,000	1,000,000	0	(1,000,000)	1,000,000	-
8	1,000,000	0	1,000,000	1,000,000	1,000,000	0	(1,000,000)	1,000,000	-
9	0	0	1,000,000	0	1,000,000	0	(1,000,000)	1,000,000	-

**B.200 PURCHASE OF FURNITURE**

The company spends \$12,000,000 over a two-year period to refurbish the company's head office. These expenses are capitalized in the year they are incurred and depreciated over a 10-year period. The term of the liability is 9 years.

	<b>Asset</b>	<b>Depreciation expense</b>	<b>True cash flow</b>	<b>Units</b>
0	10,000,000	1,000,000	10,000,000	1,000,000
1	9,000,000	1,000,000		1,000,000
2	8,000,000	1,000,000		1,000,000
3	3,000,000	1,000,000		1,000,000
4	2,000,000	1,000,000		1,000,000
5	1,000,000	1,000,000		1,000,000
6	3,000,000	1,000,000		1,000,000
7	2,000,000	1,000,000		1,000,000
8	1,000,000	1,000,000		1,000,000

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Approach 1

Do not treat depreciation as a cash flow on either side of the balance sheet. Unit Cost is \$0 per unit.  
 Treat the non-invested asset similarly to unamortized gains.

Duration	Non-Invested Asset	Invested Asset	Asset Cash Flow	Liability	Liability Cash Flow	Investment Income	Change in Reserve	Expense	Net Income
0	10,000,000	0		10,000,000					
1	9,000,000	0		9,000,000		0	(1,000,000)	1,000,000	-
2	8,000,000	0		8,000,000		0	(1,000,000)	1,000,000	-
3	7,000,000	0		7,000,000		0	(1,000,000)	1,000,000	-
4	6,000,000	0		6,000,000		0	(1,000,000)	1,000,000	-
5	5,000,000	0		5,000,000		0	(1,000,000)	1,000,000	-
6	4,000,000	0		4,000,000		0	(1,000,000)	1,000,000	-
7	3,000,000	0		3,000,000		0	(1,000,000)	1,000,000	-
8	2,000,000	0		2,000,000		0	(1,000,000)	1,000,000	-
9	1,000,000	0		1,000,000		0	(1,000,000)	1,000,000	-

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Approach 2

Treat depreciation as a real cash flow for both assets and liabilities. Unit cost is \$1 per unit per year. Reflect actual through setting up cash. This essentially treats the asset as part of the invested assets with an expected interest return of 0.0%. Sometimes these assets have an imputed return which is used in the interest track development.

Duration	Non-Invested Asset	Invested Asset	Asset Cash Flow	Liability	Liability Cash Flow	Cash Investment Income	Change in Reserve	Expense	Net Income
0	10,000,000	0		9,000,000					
1	9,000,000	0	1,000,000	8,000,000	1,000,000	0	(1,000,000)	1,000,000	-
2	8,000,000	0	1,000,000	7,000,000	1,000,000	0	(1,000,000)	1,000,000	-
3	7,000,000	0	1,000,000	6,000,000	1,000,000	0	(1,000,000)	1,000,000	-
4	6,000,000	0	1,000,000	5,000,000	1,000,000	0	(1,000,000)	1,000,000	-
5	5,000,000	0	1,000,000	4,000,000	1,000,000	0	(1,000,000)	1,000,000	-
6	4,000,000	0	1,000,000	3,000,000	1,000,000	0	(1,000,000)	1,000,000	-
7	3,000,000	0	1,000,000	2,000,000	1,000,000	0	(1,000,000)	1,000,000	-
8	2,000,000	0	1,000,000	1,000,000	1,000,000	0	(1,000,000)	1,000,000	-
9	1,000,000	0	1,000,000		1,000,000	0	(1,000,000)	1,000,000	-

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**APPENDIX C**  
**TREATMENT OF PRODUCTIVITY**

As noted in section 250, if the expected productivity improvements are based on recent past investments, the actuary may remove the investment from the experience used to determine the unit expenses, and analyze the initiative separately.

For example:

This year, the company has spent \$12 million on significant administrative systems improvements with an expected payback period of three to five years. Due to the size and nature of the expenditure, the company capitalized \$10 million of the expenditure this year, and the amortization expense has been set at 2 million per year in each of the following five years. There are 500,000 policies in force and the \$2 million of expense not capitalized has caused an unusual increase in projected unit expenses of \$4/policy. (Every \$1 increase in the administration per policy expense causes a policy liability increase of \$4 million.) The expense study is illustrated in the table below.

<b>Expense Type</b>	<b>Policies in Force</b>	<b>Total Expense</b>	<b>Unit Cost</b>
Total Administration Expenses	500,000	\$17,000,000	\$34.00
In Year Project Cost (portion not capitalized)	500,000	\$2,000,000	\$4.00
Normal Administration Expense	500,000	\$15,000,000	\$30.00

The company expects that this project will reduce administrative expenses between \$4/policy and \$2/policy. In examining the business case, the actuary determines that there is a high likelihood of success with the initiative. The decision is made that only a portion of the benefit of the initiative is recognized in the GAAP policy liabilities. The Appointed Actuary believes that an improvement of \$4.75/policy can be projected with confidence, which on a present value basis is valued at \$9 million. However, in the next year, only \$2.75 of the \$4.75 is expected reducing the impact of the projection to \$18 million.

Non-recurring expenses have been budgeted, and reflected in the long-range plan at an increased level of \$4 per policy. This reflects the depreciation expense over the next few years, but also the expectation that this level of spending will continue in the future. The portion capitalized is included as an asset backing the policy liabilities. The best estimate expenses including depreciation used in the valuation are \$31.25 per policy next year, and \$29.25 thereafter. For simplicity purposes, inflation has been ignored.

The impact on the financial statements in the year of the initiative is illustrated below.

(\$million)	Impact On Income Statement	Impact on Balance Sheet	
		Assets	GAAP Policy Liabilities
Total Investment in the Project	(12)	(12)	
Portion Capitalized	10	10	
Impact on GAAP policy liabilities of increased non recurring costs	(16)		16
Decision on Projection with Confidence	18		(18)
Total Impact in Year	(0)	(2)	(2)

The above illustrates that the actuary has recognized a net long-term unit cost reduction of \$0.75/policy to \$29.25/policy. (\$30 increased to \$4 for a long-term level of non recurring expenses and reduced by \$4.75 for the benefits of the project.)

At the next year-end, with the depreciation charge included in the projected unit expenses, the unit cost is \$0.50/policy higher than the current year best estimate valuation assumption.

Expense Type	Policies In Force	Total Expense	Unit Cost
Last Year's Valuation Best Estimate	500,000	\$15,625,000	\$31.25
Total Administration Expenses	500,000	\$15,875,000	\$31.75
In Year Project Cost Amortization	500,000	\$2,000,000	\$4.00
Normal Administration Expense	500,000	\$13,875,000	\$27.75

By this year-end, the estimated current expense savings has now reached \$4.50 /policy (ignoring the depreciation charge). The full in year cost has reflected approximately ½ of the savings due to the staged implementation. Ultimate expense savings before the \$4/policy depreciation expense are now expected to increase from the \$4.75 original estimate to between \$6.75 and \$9. While the expected benefit this year was not quite realized, the ultimate savings are projected to come in a little higher than the original projections of \$4 to \$8 per policy. With this information, the actuary decides to reduce the best estimate assumption by a further \$2/policy to \$27.25, reflecting the low end of the expected savings (\$30 - \$6.75 +\$4 depreciation) resulting in a reduction in reserves of \$8 million. The total impact on income in the year is the \$8 million reserve release, offset by the \$0.25 million difference between the valuation best estimate and total expenses, including the unusual depreciation charge for a positive net impact of \$7.75 million.