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Standards of Practice

Actuarial Standards Board

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1000—General

Table of Contents

1000 – General	1002
1100 Introduction	1004
1110 Application.....	1004
1120 Definitions	1004
1130 Interpretation	1011
1140 Judgment.....	1012
1150 Accepted actuarial practice	1013
1160 Scope	1014
1200 Permitted Deviations	1016
1210 Conflict with law	1016
1220 Conflict with terms of engagement	1016
1230 Unusual and unforeseen situations	1017
1240 Materiality	1017
1300 The Engagement	1021
1310 Accepting and continuing an engagement	1021
1320 Financial interest of the actuary	1023
1330 Financial interest of the client or employer.....	1023
1340 General knowledge.....	1024
1350 Knowledge of the circumstances affecting the work.....	1024
1400 The Work	1026
1410 Approximation.....	1026
1420 Event.....	1028
1430 Subsequent events	1029
1440 Data	1033
1450 Models.....	1034
1460 Quality Assurance	1036
1470 Control.....	1037
1480 Reasonableness of result	1038
1490 Documentation.....	1039
1500 Another Person’s Work	1041
1510 Actuary’s use of another person’s work	1041
1520 Auditor’s use of an actuary’s work	1042
1530 Review or repeat of another actuary’s work	1049

1600	Assumptions and Methods	1052
1610	Methods	1052
1620	Assumptions	1052
1630	Provision for adverse deviations.....	1058
1640	Comparison of current and prior assumptions	1058
1700	Reporting	1060
1710	Reporting: external user report	1060
1720	Reporting: internal user report.....	1067
1730	Reporting: oral report.....	1068
1740	Summary report	1068

1100 Introduction

1110 Application

- .01 These Standards of Practice apply to actuarial work in Canada. Responsibility for these Standards of Practice vests in the Actuarial Standards Board (Canada) and approval of standards and changes to standards are made through a process that includes consultation with the actuarial profession and other interested parties. They are intended for the benefit of the public. The work in Canada of a member of a professional actuarial organization is expected to conform to these Standards of Practice.
- .02 The existence of standards is not a substitute for professional judgment or consideration for the needs of the user(s) when performing specific work.
- .03 The authority of these Standards of Practice derives from the powers of those bodies that recognize them for actuarial work in Canada. Among others, these include professional actuarial bodies and relevant laws such as those regulating pensions and insurance. Compliance with these Standards of Practice is also likely to be taken into account when the quality of actuarial work is being considered in a court of law or in other contested situations. However, in such circumstances, deviation from any provision of these Standards of Practice should not, in and of itself, be presumed to be malpractice.

1120 Definitions

- .01 Each term set over dotted underlining has the meaning given in this subsection. A term that is not set over dotted underlining has its ordinary meaning.
- .02 Accepted actuarial practice is the manner of performing work in accordance with these Standards of Practice. Unless the context requires otherwise, it refers to work in Canada. [*pratique actuarielle reconnue*]
- .03 Actuarial cost method is a method to allocate the present value of a benefit plan's obligations to time periods, usually in the form of a service cost and an accrued liability. [*méthode d'évaluation actuarielle*]
- .04 Actuarial evidence work is work where the actuary provides an expert opinion with respect to any area of actuarial practice in the context of an actual or anticipated dispute resolution proceeding, where such expert opinion is expected or required to be independent. A dispute resolution proceeding may be a court or court-related process, a tribunal, a mediation, an arbitration, or a similar proceeding. Actuarial evidence work may include the determination of capitalized values in respect of an individual, or the provision of an expert opinion with respect to a dispute involving an actuarial practice area, such as pensions or insurance, or questions of professional negligence. [*travail d'expertise devant les tribunaux*]

- .05 Actuarial present value method is a method to calculate the lump sum equivalent at a specified date of amounts payable or receivable at other dates as the aggregate of the present values of each of those amounts at the specified date, and taking into account both the time value of money and, where appropriate, contingent events. [*méthode de la valeur présente actuarielle*]
- .06 Actuary, as it is used in these standards, means a member of a professional actuarial organization whose work in Canada is expected to conform to these standards. [*actuaire*]
- .07 Anti-selection is the tendency of one party in a relationship to exercise options to the detriment of another party when it is to the first party's advantage to do so. [*antisélection*]
- .08 Appointed actuary of an entity is an actuary formally appointed, pursuant to legislation, by the entity to monitor the financial condition of that entity. [*actuaire désigné*]
- .09 Appropriate engagement is one that does not impair the actuary's ability to conform to the precepts of ethical and professional conduct such as those that may be found in the Rules of Professional Conduct of the Canadian Institute of Actuaries or relevant law or regulation. Unless the context otherwise requires, wherever the word "engagement" is used in these standards it refers to an appropriate engagement. [*mandat approprié*]
- .10 Automatic balancing mechanisms automatically adjust contributions, benefits, and/or parameters of a plan in order to restore the balance between its source of financing and its benefits. The mechanism is prescribed by a set of predetermined measures to be taken, either immediately or later as prescribed, upon being triggered by certain demographic, economic, or financial indicators. [*mécanismes automatiques de compensation*]
- .11 Benefits liabilities are the liabilities of a plan in respect of claims incurred on or before a calculation date. [*obligations liées aux prestations*]
- .12 Best estimate means without bias. [*meilleure estimation*]
- .13 Calculation date is the effective date of a calculation; e.g., the calculation date in the case of a valuation for financial statements. It usually differs from the report date. [*date de calcul*]
- .14 Case estimate at a calculation date is the unpaid amount of one of, or a group of, an insurer's reported claims (perhaps including the amount of claim adjustment expenses), as estimated by a claims professional according to the information available at that date. [*évaluation du dossier*]
- .15 Claim adjustment expenses are internal and external expenses in connection with settlement and administration of claims. [*frais de règlement des sinistres*]
- .16 Claim liabilities are the portion of insurance contract liabilities in respect of claims incurred on or before the calculation date. [*passif des sinistres*]

- .17 Contingent event is an event that may or may not happen, or that may happen in more than one way or that may happen at different times. [*éventualité*]
- .18 Contribution is a contribution by a participating employer or a plan member to fund a benefit plan. [*cotisation*]
- .19 Contribution principle is a principle of policyholder dividend determination whereby the amount deemed to be available for distribution to policyholders by the directors of a company is divided among policies in the same proportion as policies are considered to have contributed to that amount. [*principe de contribution*]
- .20 Credibility is a measure of the predictive value attached to an estimate based on a particular body of data. [*crédibilité*]
- .21 Credit spread, for a fixed-income asset, is the yield to maturity on that asset minus the yield to maturity on a risk-free fixed income asset with the same cash flow characteristics. [*écart de crédit*]
- .22 Definitive refers to a matter that is final and permanent rather than tentative, provisional, or unsettled. [*décision définitive*]
- .23 Development of data with respect to a given coverage period is the change in the value of those data from one calculation date to a later date. [*matérialisation*]
- .24 Explanatory text is text that appears outside of a box in these standards. [*texte explicatif*]
- .25 External user is a user other than the actuary's client or employer. Internal user and external user are mutually exclusive. [*utilisateur externe*]
- .26 External user report is a report whose users include an external user. [*rapport destiné à un utilisateur externe*]
- .27 Financial condition of an entity at a date refers to its prospective ability at that date to meet its future obligations, especially obligations to policyholders, members, and those to whom it owes benefits. Financial condition is sometimes called “future financial condition”. [*santé financière*]
- .28 Financial position of an entity at a date is its financial state as reflected by the amount, nature, and composition of its assets, liabilities, and equity at that date. [*situation financière*]
- .29 To fund a plan is to dedicate assets to its future benefits and expenses. Similarly for “funded” and “funding”. [*provisionner*]

- .30 Funded status is the difference between the value of assets and the actuarial present value of benefits allocated to periods up to the calculation date by the actuarial cost method, based on a valuation of a pension plan, post-employment benefit plan, or social security program. [*niveau de provisionnement*]
- .31 Going concern valuation is a valuation that assumes that the entity to which the valuation applies continues indefinitely beyond the calculation date. [*évaluation en continuité*]
- .32 Indexed benefit is a benefit whose amount depends on the movement of an index such as the consumer price index. [*prestation indexée*]
- .33 Indicated rate is the best estimate of the premium required to provide for the corresponding expected claims costs, expenses, and provision for profit. [*taux indiqué*]
- .34 Insurance contract is a contract under which one party (the issuer) accepts significant insurance risk from another party (the policyholder) by agreeing to compensate the policyholder if a specified uncertain future event (the insured event) adversely affects the policyholder. Insurance contract includes group insurance, third-party contracts where the owner of the contract and the person who is compensated (the policyholder) differ, and all like arrangements substantively in the nature of insurance. [*contrat d'assurance*]
- .35 Insurance contract liabilities in an issuer's statement of financial position are the liabilities at the date of the statement of financial position on account of the issuer's insurance contracts, including commitments, that are in force at that date or that were in force before that date. [*passif des contrats d'assurance*]
- .36 Insurer is a federally or provincially licensed insurance company that is an issuer of insurance contracts. Insurer includes a fraternal benefit society and the Canadian branch of a foreign insurer, but does not include a public personal injury compensation plan or a post-employment benefit plan¹. [*assureur*]
- .37 Internal user is the actuary's client or employer. Internal user and external user are mutually exclusive. [*utilisateur interne*]
- .38 Internal user report is a report all of whose users are internal users. [*rapport destiné à un utilisateur interne*]
- .39 Issuer is the party under an insurance contract that accepts significant insurance risk. [*émetteur*]
- .40 Margin for adverse deviations is the difference between the assumption for a calculation and the corresponding best estimate assumption. [*marge pour écarts défavorables*]

- .41 Model is a practical representation of relationships among entities or events using statistical, financial, economic, or mathematical concepts. A model uses methods, assumptions, and data that simplify a more complex system and produces results that are intended to provide useful information on that system. A model is composed of a model specification, a model implementation, and one or more model runs. Similarly for “to model”. [*modèle*]
- .42 Model implementation is one or more systems developed to perform the calculations for a model specification. For this purpose “systems” include computer programs, spreadsheets, and database programs. [*implémentation du modèle*]
- .43 Model risk is the risk that, due to flaws or limitations in the model or in its use, the actuary or a user of the results of the model will draw an inappropriate conclusion from those results. [*risque de modélisation*]
- .44 Model run is a set of inputs and the corresponding results produced by a model implementation. [*exécution d’un modèle*]
- .45 Model specification is the description of the components of a model and the interrelationship of those components with each other, including the types of data, assumptions, methods, entities, and events. [*spécifications du modèle*]
- .46 New standards means new standards, or amendment or rescission of existing standards. [*nouvelles normes*]
- .47 Periodic report is a report that is repeated at regular intervals. [*rapport périodique*]
- .48 Plan administrator is the person or entity with overall responsibility for the operation of a benefit plan. [*administrateur d’un régime*]
- .49 Policy liabilities in an insurer’s statement of financial position are the liabilities at the date of the statement of financial position on account of the insurer’s policies, including commitments, that are in force at that date or that were in force before that date. Policy liabilities consist of insurance contract liabilities and liabilities for policy contracts other than insurance contracts. [*passif des polices*]
- .50 Policyholder is a party that has a right to compensation under an insurance contract if an insured event occurs¹. [*titulaire de police*]

- .51 Premium liabilities are the portions of insurance contract liabilities that are not claim liabilities. [*passif des primes*]
- .52 Prescribed means prescribed by these standards. [*prescrit*]
- .53 Property and casualty insurance is insurance that insures individuals or legal persons
- Having an interest in tangible or intangible property, for costs arising from loss of or damage to such property (e.g., fire, fidelity, marine hull, warranty, credit, legal expense, and title insurance); or
 - For damages to others or costs arising from the actions of such persons (e.g., liability and surety bonds) and for costs arising from injury to such persons (e.g., automobile accident benefits insurance). [*assurances IARD*]
- .54 Provision for adverse deviations is the difference between the actual result of a calculation and the corresponding result using best estimate assumptions. [*provision pour écarts défavorables*]
- .55 Public personal injury compensation plan means a public plan
- Whose primary purpose is to provide benefits and compensation for personal injuries;
 - Whose mandate may include health and safety objectives and other objectives ancillary to the provision of benefits and compensation for personal injuries; and
 - That has no other substantive commitments.
- The benefits and compensation provided under such public plans are defined by statute. In addition, such public plans have monopoly powers, require compulsory coverage except for those groups excepted by legislation or regulation, and have the authority to set assessment rates or premiums. [*régime public d'assurance pour préjudices corporels*]
- .56 Recommendation means text that appears in a box in these standards. Similarly for “recommend”. [*recommandation*]
- .57 Related experience includes premiums, claims, exposures, expenses, and other relevant data for events analogous to the insured events under consideration other than the subject experience and may include established rate levels or rate differentials or external data. [*expérience connexe*]
- .58 Report is an actuary's oral or written communication to users about his or her work. Similarly for “to report”. [*rapport*]

- .59 Report date is the date the actuary specifies as such in the report. It usually differs from the calculation date. [*date du rapport*]
- .60 Scenario is a set of consistent assumptions. [*scénario*]
- .61 Service cost is that portion of the present value of a plan's obligations that an actuarial cost method allocates to a time period, excluding any amount for that period in respect of unfunded accrued liabilities. [*cotisation d'exercice*]
- .62 Social security program means a program with all the following attributes regardless of how it is financed and administered:
- Coverage is of a broad segment, or all, of the population, often on a compulsory or automatic basis;
 - Benefits are provided to, or on behalf of, individuals;
 - The program, including benefits and financing method, is mandated by law;
 - The program is not financed through private insurance; and
 - Program benefits are principally provided or delivered in the form of periodic payments upon old age, retirement, death, disability, and/or survivorship.
[*programme de sécurité sociale*]
- .63 Subject experience includes premiums, claims, exposures, expenses, and other data for the insurance categories under consideration. [*expérience visée*]
- .64 Subsequent event is an event of which an actuary first becomes aware after a calculation date but before the corresponding report date. [*événement subséquent*]
- .65 Trend is the tendency of data values to change in a general direction from one coverage period to a later coverage period. [*tendance*]
- .66 User means an intended user of the actuary's work. [*utilisateur*]
- .67 Virtually definitive refers to a matter that is almost certain, but that lacks one or more formalities like ratification, due diligence, regulatory approval, third reading, royal assent, or proclamation. However, a decision that still involves discretion at an executive or administrative level is not virtually definitive. [*pratiquement définitive*]

- .68 Work means work that is commonly, but not necessarily exclusively, performed by actuaries in assessing, measuring, and evaluating risks and contingencies and usually includes
- Acquisition of knowledge of the circumstances affecting the work that the actuary is undertaking;
 - Obtaining sufficient and reliable data;
 - Selection of assumptions and methods;
 - Calculations and examination of the reasonableness of their result;
 - Use of other persons' work;
 - Formulation of opinion and advice;
 - Reporting; and
 - Documentation. [*travail*]

1130 Interpretation

Recommendations

- .01 These standards consist of recommendations and explanatory text.
- .02 A recommendation is the highest order of guidance in these standards.
- .03 Each recommendation is in boxed text where it is accompanied by its effective date, shown in square brackets.

Explanatory text

- .04 The explanatory text supports and expands upon the recommendations. The explanatory text consists of definitions, explanations, examples, and useful practices.

Effective date of recommendations

- .05 The notice of adoption for new standards would indicate their effective date and whether early implementation is permitted and may provide additional direction regarding the application of new standards.
- .06 Subject to the notice of adoption, a recommendation applies to work with a calculation date that is on or after the recommendation's effective date. Superseded recommendations that were in effect at the calculation date would apply to work with a calculation date prior to the effective date of new standards unless early implementation is permitted and applied to the work.

General standards and practice-specific standards

- .07 These standards consist of general standards and practice-specific standards. With the exception noted below, the general standards apply to all areas of actuarial practice. In addition, the standards in part 4000 apply to all areas of actuarial practice if the actuary's work in an area meets the definition of actuarial evidence work.
- .08 Usually, the intent of the practice-specific standards is to narrow the range of practice considered acceptable under the general standards.

- .09 In exceptional cases, however, the intent of practice-specific standards is to define as acceptable a practice that would not be acceptable under the general standards, in which case that intent is specifically noted by words in a practice-specific recommendation like: “*Notwithstanding the general standards, the actuary should...*”, followed by the explanatory text.

Drafting

- .10 “Should” is the strongest mandating word in these standards, appearing only in recommendations, often in the expression, “The actuary should...”
- .11 “Would” is a suggestive word appearing in the explanatory text, often in the expression, “The actuary would...”, and is less forceful than the mandative “should”.
- .12 “May” is a permissive word, appearing in both recommendations and the explanatory text, often in the expression, “The actuary may...” and often with conditions attached. It defines a safe harbour. For example, in paragraph 1510.01, the recommendation is that “The actuary may use and take responsibility for another person’s work if such actions are justified.” and the explanatory text describes steps that constitute justification. The actuary who is satisfied that the actions are justified has done all that may be reasonably expected and has therefore complied with accepted actuarial practice, even if the use turns out not to be well-founded.
- .13 The examples are often simplified and are not all-inclusive.

1140 Judgment

- .01 The actuary should exercise reasonable judgment in applying these standards. A judgment is reasonable if it is objective and takes account of
- The spirit and intent of the standards;
 - Precepts of ethical and professional conduct intended to guide the conduct of the actuary;
 - Common sense; and
 - Constraints on time and resources. [Effective February 1, 2018]

Need for judgment

- .02 While these standards are drafted so that they are, as much as possible, understandable by lay persons, the judgment of the actuary is necessary for their application.
- .03 The exercise of judgment is not clear-cut, except perhaps in hindsight. A judgment that is reasonable at its making is not made unreasonable by later hindsight.

- .04 A judgment that is completely subjective would not be reasonable even though it may be based on honest belief. A reasonable judgment would be objective and demonstrably take account of the criteria listed in the recommendation and discussed below.
- .05 There is a reasonable range of assumptions that may be selected by an actuary for particular work and that might produce materially different results. Sometimes, it is desirable that actuaries produce results within a relatively narrow range, in which case the practice-specific standards may prescribe certain assumptions and/or methods to achieve that purpose.

Spirit and intent

- .06 In applying a specific standard, it is important to be guided by the spirit and intent behind it.

Common sense

- .07 A strained interpretation of a recommendation is inappropriate.
- .08 An outlandish result or a seeming impossibility of applying the standards would indicate either a misinterpretation of the standards or their inapplicability to the situation.

Constraint on time and resources

- .09 The actuary would normally perform work in compliance with accepted actuarial practice. However in some circumstances within the scope of an appropriate engagement, the actuary's work may be constrained by available time and resources. In such circumstances, the actuary would adopt an interpretation and application that strikes a reasonable balance between compliance and modifications due to the constraints, after consideration of accepted actuarial practice with respect to materiality and the use of approximations. The actuary would report to the user any deviation from accepted actuarial practice.

1150 Accepted actuarial practice

- .01 Work in Canada should conform to accepted actuarial practice except when it conflicts with law or the terms of an appropriate engagement. A user of the actuary's work may assume that it is in accordance with accepted actuarial practice except when the actuary reports otherwise.
[Effective February 1, 2018]

- .02 These standards are the only explicit articulation of accepted actuarial practice for work in Canada. Explanation, examples, and other useful guidance may also be found in
- New standards, not yet effective but whose early implementation is appropriate;
 - Educational notes of the Canadian Institute of Actuaries;
 - Actuarial principles;
 - Exposure drafts;
 - Historical records;
 - Canadian and international actuarial literature; and
 - Practices that are generally accepted among actuaries and that are not in conflict with these standards.

The applicability and the relative importance of this other guidance for particular work is a matter for judgment.

- .03 Accepted actuarial practice is sometimes called “generally accepted actuarial practice” (for example, in the Insurance Companies Act (Canada)) or “generally accepted actuarial principles”.

1160 Scope

- .01 These standards apply to work in Canada. [Effective February 1, 2018]
- .02 The application of any recommendations beyond their scope should take account of relevant circumstances. [Effective February 1, 2018]

Work in Canada vs. work in another country

- .03 The distinction between work in Canada and work in another country depends primarily on the ultimate purpose of the work. It does not depend on where the actuary lives or where the actuary happens to be when doing the work.

- .04 Work in compliance with the laws or customs of a country or a particular region within that country is work in that country. Examples include
- A valuation of the liabilities of a pension plan of a Canadian subsidiary of a U.S. multinational for the consolidated financial statements of the multinational is work in the U.S.
 - If the work relates to taxation under the U.S. *Internal Revenue Code*, the work is work in the U.S. Thus, a valuation of the policy liabilities of the U.S. branch of a Canadian insurer for the insurer's U.S. income tax return is work in the U.S.
 - If the work relates to litigation under U.S. law before a U.S. court, the work is work in the U.S. Thus, a report to the lawyer of a Canadian defendant insured by a Canadian insurer on a claim for damages litigated under U.S. law in a U.S. court is work in the U.S.
- .05 There may be cases when the distinction is not clear; for example, advice to a Canadian insurer on products to be sold outside Canada. In some of those cases, accepted actuarial practice may be the same in both countries, so the distinction does not matter. If the distinction matters, the actuary would, if practical, agree with the user and report on the appropriate practice and, failing agreement, would report the implications of the distinction.

Work outside Canada

- .06 The best guidance for work in another country is the accepted practice for actuarial work in that country. This encompasses the formal guidance that the actuarial profession in that country provides for work in that country. If that guidance does not exist or is limited, these standards may provide useful guidance. The general standards are more likely to provide useful guidance than the practice-specific standards: in either case, however, the actuary would take account of differences between the laws and customs of the other country and those of Canada.

1200 Permitted Deviations

1210 Conflict with law

.01 If accepted actuarial practice conflicts with the law, the actuary should comply with the law, but should report the conflict and, if practical, useful, and appropriate under the terms of the engagement, report the result of applying accepted actuarial practice. [Effective February 1, 2018]

.02 It is practical to report the result of applying accepted actuarial practice unless the work to do so is onerous or the needed data are unobtainable. If a quantified result is not practical, a verbal description of the result is better than no report.

.03 Description of the conflict and disclosure of its effect is useful in order to

- Disclose that the work deviates from accepted actuarial practice;
- Disclose that the work, insofar as the conflict is concerned, is in accordance with the requirements of the legislator or regulator, which vary by jurisdiction, rather than accepted actuarial practice, which is uniform across Canada; and
- Promote eventual adoption of accepted actuarial practice into law.

In determining the usefulness of reporting, the actuary would take into account the needs of the various users.

.04 Accepted actuarial practice does not conflict with the law where the law mandates a practice, or limits practice to a range, that is within the range of accepted actuarial practice.

1220 Conflict with terms of engagement

.01 If accepted actuarial practice conflicts with the terms of an appropriate engagement, the actuary may comply with the terms of that engagement, but should report the conflict and, if practical, useful, and appropriate under the terms of that engagement, report the result of applying accepted actuarial practice. [Effective February 1, 2018]

- .02 Usually, the actuary is responsible for all aspects of his or her work and performs it in accordance with accepted actuarial practice. The engagement to which the recommendation applies is usually one in which one or more aspects of work are omitted or are stipulated by the client or employer or the terms of a benefit plan. Examples include situations where
- The actuary uses, but does not take responsibility for, the software system, or the work, of the staff of the client or employer; and
 - The client or employer or the terms of a benefits plan stipulates an assumption or a method that is not in accordance with accepted actuarial practice.
- .03 Conflict between accepted actuarial practice and the law is not the same as conflict between accepted actuarial practice and the terms of an engagement. In the case of an engagement whose terms call for deviation from accepted actuarial practice, the actuary has discretion to accept or not to accept the engagement.
- .04 The practicality and usefulness of reporting a result in accordance with accepted actuarial practice are the same as for subsection 1210, Conflict with law.

1230 Unusual and unforeseen situations

- .01 Deviation from a particular recommendation or other guidance in these standards is accepted actuarial practice for an unusual or unforeseen situation for which the standards are inappropriate². [Effective February 1, 2018]
- .02 The actuary would report without reservation when deviating from a particular recommendation or other guidance in these standards in accordance with this subsection 1230, but it may sometimes be appropriate to describe and justify the deviation in the report.

1240 Materiality

- .01 Deviation from a particular recommendation or explanatory text in these standards is accepted actuarial practice if the effect of so doing is not material. [Effective February 1, 2018]

² Actuaries are encouraged to bring such situations to the attention of the Actuarial Standards Board, who may wish to consider how standards might be improved so that they do contemplate such situations.

.02 “Material” has its ordinary meaning, but is judged from the point of view of a user, having regard for the purpose of the work. Thus, an omission, understatement, or overstatement is material if the actuary expects it to affect either the user’s decision-making or the user’s reasonable expectations. When the user does not specify a standard of materiality, judgment falls to the actuary. That judgment may be difficult for one or more of these reasons:

- The standard of materiality depends on how the user uses the actuary’s work, which the actuary may be unable to foresee. If practical, the actuary would discuss the standard of materiality with the user. Alternatively, the actuary would report the purpose of the work as precisely as possible, so that the user is warned of the risk of using the work for a different purpose with a more rigorous standard of materiality.
- The standard of materiality may vary among users. The actuary would choose the most rigorous standard of materiality among the users.
- The standard of materiality may vary among uses. For example, the same accounting calculations may be used for a pension plan’s financial statements and the financial statements of its participating employer. The actuary would choose the more rigorous standard of materiality between those two uses.
- The standard of materiality depends on the user’s reasonable expectations, consistent with the purpose of the work. For example, advice on winding-up a pension plan may affect each participant’s share of its assets, so there is a conflict between equity and practicality. The same is true for advice on a policy dividend scale.

- .03 The standard of materiality also depends on the work and the entity that is the subject of that work. For example,
- A given dollar standard of materiality is more rigorous for a large than for a small entity;
 - The standard of materiality for valuation of an insurer's policy liabilities is usually more rigorous for those in its financial statements than for those in a forecast in financial condition testing;
 - The standard of materiality for data is more rigorous for calculating an individual benefit (such as in a pension plan wind-up) than for a valuation of a group benefit plan (such as a going concern valuation of a pension plan); and
 - The standard of materiality for work involving a threshold, such as a regulatory capital adequacy requirement calculation of an insurer or a statutory minimum or maximum funding level for a pension plan would become more rigorous as the entity approaches that threshold.
- .04 The actuary would not report an immaterial deviation from a particular recommendation or other guidance in these standards except if doing so assists a user to decide whether the standard of materiality is appropriate for that user.
- .05 The recommendation applies to both calculation and reporting standards.

Calculation standards

- .06 The result of applying a recommendation may not differ materially from the result of a simpler practice requiring less time and expense. For example, the practice-specific recommendations for valuation of insurance contract liabilities for term life insurance have little effect on an issuer whose volume of term life insurance is trivial. To ignore them in that situation is accepted actuarial practice if it helps the actuary to concentrate time and resources on material items.
- .07 In considering materiality, it is not appropriate to net items that are reported separately. For example, if simple practices requiring less time and expense than those in the recommendations materially overstate the premium liabilities and materially understate its claim liabilities, but do not materially affect their sum, the understatement and overstatement are each material if the two items are reported separately. In considering materiality, it is, however, appropriate to net components within a separately reported item. To continue the example, it would be appropriate to net the overstatement of premium liabilities with the understatement of claim liabilities if only the sum of the two (i.e., the insurance contract liabilities) is reported.

- .08 The effect of using a simpler practice requiring less time and expense than those in the recommendations may be conservative or not conservative. Usually, the criterion of materiality is the same in both cases.

Reporting standards

- .09 The result of applying a recommendation may provide information that is not useful. For example, disclosure of a material change in the basis for valuing the liabilities with respect to a material class of a benefit plan's members is not useful if that class was trivial at the previous valuation. Also, description of immaterial provisions of a benefit plan is not useful. To ignore the recommendation is accepted actuarial practice in that situation.

1300 The Engagement

1310 Accepting and continuing an engagement

- .01 In accepting an engagement, the actuary should agree on its terms with the actuary's client or employer and be satisfied that it is an appropriate engagement. [Effective February 1, 2018]
- .02 In performing the engagement, if the actuary becomes aware of information that, if known beforehand, would have been an impediment to acceptance of the engagement, the actuary should
- Renegotiate the engagement to remove the impediment;
 - Discontinue the engagement; or
 - Provided that the engagement continues to be an appropriate engagement, report the impediment and its implications. [Effective February 1, 2018]
- .03 The actuary would consider consultation with the predecessor actuary, if any, to determine whether there is any reason not to accept the engagement.

Terms of the engagement

- .04 The likelihood that work is satisfactory to all users concerned is enhanced by a clear understanding between the actuary and the client or employer on the terms of the engagement. Detailed identification of the time and resources involved, especially if they are substantial, and of the information needed to be communicated to and by the actuary, especially if it is sensitive or confidential, will avoid misunderstanding.

Appropriateness of engagement

- .05 The following guidance is useful in judging if the engagement is an appropriate engagement:
- An engagement is prima facie appropriate if there are practice-specific standards that apply to it, especially if it does not call for a deviation from accepted actuarial practice.
 - An engagement's appropriateness is not likely affected if the actuary's client or employer selects particular assumptions as part of the terms of the engagement and the report describes the assumption and identifies the source, or chooses a value for certain assumptions from within a range selected by the actuary.
 - An engagement to report on alternative scenarios or "What if?" questions is appropriate, given appropriate disclosure.

- An engagement is less likely to be appropriate if it denies reasonable opportunity for an external user to question the actuary about his or her report.
- .06 An engagement may involve a duty of confidentiality that conflicts with a recommendation on disclosure in reporting. That engagement would be appropriate, however, and the duty of confidentiality would supersede (at least temporarily) the duty of disclosure, if
- Confidentiality is necessary for the legitimate business objective of the client or employer;
 - The extent of the information to be kept confidential is reasonable;
 - The length of time for which it is to be kept confidential is reasonable; and
 - The duty of confidentiality permits reasonable exceptions; for example, if the actuary is permitted to disclose the information to, and to discuss the engagement with, an auditor or a regulator.
- .07 For example, the engagement may be appropriate if the actuary temporarily withholds knowledge of
- A mistake that favours his or her client in the report of the actuary engaged by the other side in litigation;
 - The imminent closure of a participating employer's Canadian operations and the consequent job loss and winding-up of the plan in giving advice on its funding, but the actuary would consider the need for an early revaluation or wind-up valuation; or
 - An insurer's imminent acquisition by new shareholders who will alter its business plan in reporting in the insurer's financial statements, but the actuary would consider the implications of the new business plan in reporting to the insurer's directors on financial condition.
- .08 That engagement would not be appropriate, however, if the information is to be kept confidential in order to conceal improper business conduct, or to withhold information from users of the actuary's work who may reasonably expect the actuary to report it to them.
- .09 Any duty of confidentiality would give way to a duty of disclosure if disclosure is mandated by law, or if disclosure is required by a professional body to whom the actuary is subject.

- .10 Whether an engagement is appropriate depends on the actuary as well as on the engagement. For example, an actuary would not accept an engagement to perform work that the actuary is not qualified to do or where the actuary has an undisclosed conflict of interest.

Subsequent information

- .11 While performing the engagement, the actuary may become aware of information that, if known beforehand, would have been an impediment to acceptance of the engagement. For example,
- The actuary's understanding of the engagement differs from that of the client or employer;
 - The data are not sufficient or not reliable and cannot be remedied; or
 - Promised resources are not forthcoming and a substitute for them is not practical.
- .12 Renegotiation that removes the impediment would usually be the preferred alternative. Discontinuance would be the only alternative if the new information reveals the engagement not to be appropriate and renegotiation to make it so is impractical, which would be the case, for example, if an appointed actuary is denied access to needed information.
- .13 Failing renegotiation or discontinuance, the actuary would deal with the impediment by reporting it and its implications. Description of the implications would include both qualitative and quantitative aspects and their effect on the actuary's opinion.

1320 Financial interest of the actuary

- .01 The financial interest of the actuary should not influence the result of the actuary's work. [Effective February 1, 2018]

1330 Financial interest of the client or employer

- .01 The financial interest of the actuary's client or employer should not influence the result of the actuary's work except to the extent that the client or employer selects assumptions or methods for the work. [Effective February 1, 2018]
- .02 The actuary's client or employer may have a financial interest in the result of the actuary's work. For example, it may be in the client's or employer's interest to maximize or minimize the result. That is usually the case when the actuary's client is one side of opposing interests; for example, the plaintiff or defendant in litigation, the purchaser or vendor in a sale, and the employer or union in labour negotiations.
- .03 In such a case, the actuary's duty of professionalism supersedes the duty of service to the client or employer.

- .04 In giving advice to a participating employer regarding the funding of a benefit plan, the actuary may first calculate a range, at any point of which funding would be appropriate. That range is the crux of the work, so a participating employer's financial interest would not influence its calculation. It is, however, appropriate and usually desirable for the actuary to consult the participating employer in the selection of the recommended funding within the range. The participating employer's financial interest—for example, the participating employer's tolerance of fluctuation in the recommended rate of funding between one funding period and the next—would be taken into account in that consultation.
- .05 Note, however, that the recommendation does not preclude the actuary's use of assumptions or methods selected by the client or employer in an appropriate engagement, but the actuary would report such use.
- .06 Note also that the purpose of the work will influence the actuary's selection of assumptions and methods. The financial interest of the client or employer may shape the purpose of the work if the engagement is an appropriate engagement and the purpose is reported.

1340 General knowledge

- .01 The actuary should have adequate knowledge of the conditions in the practice area in which the actuary is working. [Effective February 1, 2018]
 - .02 Where the actuary's work in a practice area meets the definition of actuarial evidence work, the actuary should have adequate knowledge of the conditions in both the practice area in which the actuary is working and the actuarial evidence practice area. [Effective February 1, 2018]
- .03 The relevant conditions may include legislation, accounting standards and policies, taxation, the financial markets, family law, and court practices. The relevant legislation depends on the engagement, and may include legislation governing securities, pensions, insurance, workers' compensation, and employment standards.

1350 Knowledge of the circumstances affecting the work

- .01 The actuary should take into account the circumstances affecting the work that the actuary is undertaking. [Effective February 1, 2018]
- .02 The circumstances affecting the work include the purpose of the work, the terms of the appropriate engagement under which the work is being performed, and the application of the law to the work.

- .03 The relevant knowledge for a corporate entity or benefit plan is that of the operations of the entity itself and may include that of the industry in which the entity operates. Usually, the entity is the actuary's client or employer but may be a proposed acquisition or merger partner of the client or employer.
- .04 In the case of a benefit plan, the entity is the plan itself, but, depending on the engagement, knowledge of the business conditions of the participating employer(s) may also be relevant.
- .05 The relevant knowledge for calculation with respect to an individual is the demographics of the individual and the context of the calculation.
- .06 Additional conservatism in making a calculation is not a substitute for knowledge of the circumstances affecting the work.

1400 The Work

1410 Approximation

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| <p>.01 An approximation is appropriate if it reduces the cost of, reduces the time needed for, or improves the <u>actuary's</u> control over, <u>work</u> without affecting the result. [Effective February 1, 2018]</p> <p>.02 If the <u>actuary reports</u> an appropriate approximation, the <u>report</u> should avoid unintended reservation. [Effective February 1, 2018]</p> <p>.03 If the appropriateness of an approximation is doubtful, the <u>actuary</u> should <u>report</u> its use with reservation. [Effective February 1, 2018]</p> |
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- .04 Like materiality, to which it is related, approximation pervades virtually all work and affects the application of nearly all standards. The words “approximation” and “approximate” seldom appear in these standards, but are understood throughout them.
- .05 Approximation permits the actuary to strike a balance between the benefit of precision and the effort of arriving at it.
- Approximation in selection of a model**
- .06 Reality is complex. A simple model reduces not only the time and expense of work but also the risk of calculation and data error.
- .07 The appropriateness of a simplification depends on the circumstances affecting the work and the purpose of the work. For example, in selecting a model for advice on funding a pension plan, it may be appropriate to allow for indexing by modifying the assumption for a contingency of which the model takes account, such as the investment return assumption, to arrive at an appropriate composite assumption.

Approximation in the selection of assumptions

- .08 Simplification of an assumption may be an appropriate approximation. For example,
- Deaths occur continuously over a year; for simplicity, assume that they all occur at the middle of the year;
 - Members of a pension plan with early retirement reductions that approximate full actuarial reductions retire at various rates between, say, ages 55 and 65; for simplicity, assume that they all retire at, say, age 62; and
 - If the members of a pension plan who die before retirement are entitled to a benefit that is roughly the same as the present value of the retirement benefit, for simplicity, assume that death rates before retirement are equal to zero.
- .09 To make no assumption about a contingency is usually tantamount to assuming a zero rate for that contingency, which is rarely appropriate in itself, but may be appropriate when combined with an adjustment to a related assumption. For example, in some circumstances, the calculation of the liabilities in a benefit plan using an explicit wage and price inflation assumption may be approximated by calculating the liabilities without an explicit wage and price inflation assumption and using a lower liability discount rate assumption representative of the real rate of return.

Approximation by sampling

- .10 A well-chosen sample avoids the extra work of an examination of the entire universe.

Approximations respecting data

- .11 Data may be defective. For example, a benefit plan's records may lack the date of birth of certain members. In some cases there is an appropriate approximation, for example, sampling, or extrapolation from similar situations for which data are available.

Approximation vs. assumption

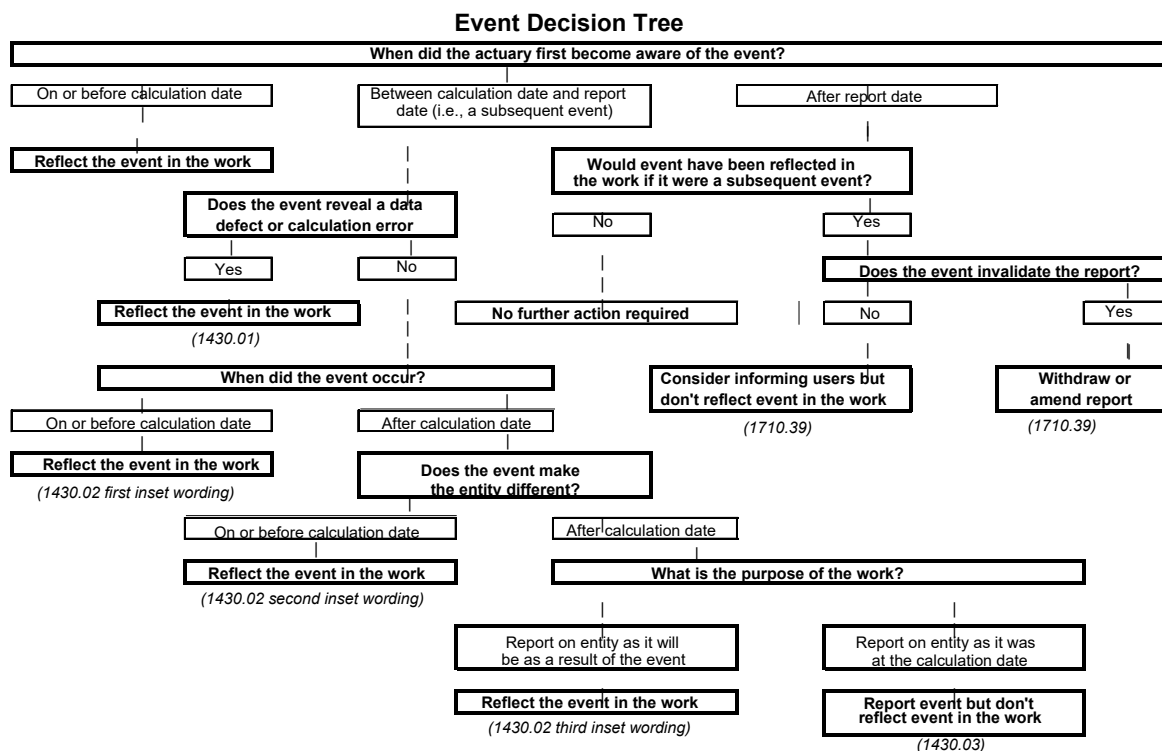
- .12 A criterion of the appropriateness of an approximation is its effect on the result. If the actuary approximates but is unable to assess the resulting error, the approximation becomes, in effect, an assumption. For example, data are missing and it is not practical to get them. The actuary would consider whether their lack is so important that a report with reservation is necessary, but in any case is obliged to make an assumption about them in order to do the work.

Reporting approximations

- .13 To report appropriate approximations in a longer report may provide information useful to users, but such reporting would avoid unintended reservation, as the use of approximations is a usual part of work. The pervasiveness of approximations in work makes their complete reporting impractical.
- .14 If the actuary reports an implicit assumption used as an approximation, he or she would also report the corresponding explicit assumption or assumptions. Similarly, if an actuary reports approximations for two offsetting assumptions that result in the same net effect as the underlying explicit assumptions, the actuary would also report the explicit assumptions.
- .15 The actuary would not usually use an approximation whose appropriateness is doubtful. That may be unavoidable, however, if data are insufficient or unreliable or if needed resources are lacking. If the engagement is an appropriate engagement, the actuary would report with reservation the use of the approximation, so that a user is aware of a limitation to the actuary's work.

1420 Event

- .01 The following decision tree may assist an actuary in deciding how to reflect an event in the work, if the actuary determines that the event makes the entity different.



1430 Subsequent events

- .01 The actuary should correct any data defect or calculation error that is revealed by a subsequent event. [Effective February 1, 2018]
- .02 For work with respect to an entity, the actuary should take a subsequent event into account (other than in a pro forma calculation) if the subsequent event
- Provides information about the entity as it was at the calculation date;
 - Retroactively makes the entity different at the calculation date; or
 - Makes the entity different after the calculation date and a purpose of the work is to report on the entity as it will be as a result of the event. [Effective February 1, 2018]
- .03 The actuary should not take the subsequent event into account if it makes the entity different after the calculation date and a purpose of the work is to report on the entity as it was at the calculation date. Nevertheless, the actuary should report that subsequent event. [Effective February 1, 2018]

Classification

- .04 A subsequent event is relevant to the recommendation if it reveals an error, provides information about the entity, or is a decision that makes the entity different.
- .05 The actuary would correct an error revealed by a subsequent event. The actuary would classify each subsequent event other than those that reveal errors and, depending on the classification, the actuary would either
- Take that event into account; or
 - Report that event, but not take it into account.

Entity

.06 Examples of entities are

- The pension plan, in the case of an actuary doing a valuation of a pension plan;
- The block of annuity business, in the case of an actuary calculating the insurance contract liabilities for an issuer's annuity business;
- A combination of the pension plan and the member's specific data, in the case of the determination of a member's individual entitlement under a pension plan; and
- The insurance company, in the case of an actuary valuing the insurance contract liabilities of an insurance company.

Event provides information about entity as it was or retroactively makes entity different

.07 Examples of subsequent events that provide information about an entity as it was at the calculation date are

- Publication of an experience study that provides information for selection of assumptions;
- Reporting of a claim that was incurred on or before the calculation date; and
- Adoption of a pension plan amendment prior to the calculation date of which the actuary becomes aware after the calculation date.

.08 Examples of events that retroactively make the entity different at the calculation date are definitive or virtually definitive decisions, made after the calculation date but effective on or before the calculation date, to

- Wind-up a pension plan, partially or fully;
- Sell a portion of a participating employer's business and consequently to spin off the corresponding members from the participating employer's pension plan;
- Amend the benefits of a pension plan;
- Transfer a portion of an insurer's policies to another insurer; or
- Invoke a judicial decision that nullifies or significantly modifies the law affecting insurance claims.

.09 If an event provides information about the entity as it was at the calculation date or provides information that retroactively makes the entity different at the calculation date, the effect of the subsequent event on the work is the same as if the actuary first became aware of the information on or before the calculation date and the actuary would not report the event as a subsequent event. That is, the actuary would report the event only to the extent that the event would have been reported had the actuary first become aware of the information before the calculation date.

Event makes entity different after

- .10 If the subsequent event makes the entity different after the calculation date, the purpose of the work determines whether or not the actuary takes the event into account.
- .11 If the subsequent event makes the entity different after the calculation date and the purpose of the work is to report on the entity as it will be as a result of the event, the actuary would take that event into account and would describe it in reporting.
- .12 If the subsequent event makes the entity different after the calculation date and the purpose of the work is to report on the entity as it was at that date, the actuary would not take that event into account but would report the event since it would affect the entity's future operations and the actuary's subsequent calculations.

Classification not clear

- .13 The classification of a subsequent event may be unclear, at least a priori, although the circumstances affecting the work and the actuary's engagement may make it clear. The following are examples of such events:
- A precipitous fall in the stock market. For financial reporting, one can argue that the stock market crash provides additional information about the entity as it was at the calculation date, because the crash is an indicator of the outlook for common share investments at that date; alternatively, one can argue that the crash makes the entity different only after the calculation date since it creates a new situation. The new situation would be reflected in the financial statements for the subsequent financial reporting period.
 - A salary freeze for employees who are members of a pension plan. If the salary freeze is a correction of excessive salaries, it provides additional information about the entity as it was at the calculation date, because the freeze is an indicator of the outlook for salaries at the calculation date. If the salary freeze deals with a recent problem, it indicates a change in conditions that makes the entity different after the calculation date. In either case, the actuary would consider the effect of the freeze on the employees' pension benefits. It may be that the freeze will have a lasting effect. Alternatively, it may be that the freeze will be compensated for by higher salaries later on, so that the salary inflation assumption based on historical trends continues to be valid.
 - Default on a bond. If the default was the culmination of a gradual deterioration in its issuer's financial circumstances, most of which had occurred before the calculation date but that was not apparent until revealed by the default, the default provides additional information about the entity as it was at the calculation date. If the default was precipitated by a catastrophe, it provides information about a change in conditions that makes the entity different after the calculation date.
 - Insolvency of an insurer's reinsurer. This is similar to default on a bond. If the insolvency was the culmination of a gradual deterioration in the reinsurer's financial circumstances, most of which had occurred before the calculation date but that was not apparent until revealed by the insolvency, the insolvency provides information about the entity as it was at the calculation date. If the insolvency was precipitated by a catastrophe, it provides information about a change in conditions that makes the entity different after the calculation date.

Reporting

- .14 Sometimes, either because the actuary considers it appropriate or the terms of the work require it, the actuary may report as an alternative the opposite calculation; i.e., one that does not take the subsequent event into account when the main calculation does, or that takes the subsequent event into account when the main calculation does not. For example, in a province for which the calculation date for a pension valuation following marriage breakdown is the date of separation, a subsequent event may be the early retirement of the plan member at some time between the calculation date and the report date. The actuary would consider reporting values assuming that this subsequent event had been an established intention at the calculation date, instead of or in addition to retirement scenarios otherwise recommended in the practice-specific standards. In such cases, the actuary would make the same calculations regardless of the purpose of the work but the reporting thereof would depend on the purpose of the work.

1440 Data

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| <p>.01 The <u>actuary</u> should apply such procedures as are necessary for the <u>actuary</u> to arrive at a conclusion as to the sufficiency and reliability of the data. [Effective February 1, 2018]</p> |
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- .02 Data relevant to the work may include experience data, membership or policyholder data, census data, claims data, asset and investment data, economic data, operational data, benefit definitions, and policy or contract terms and conditions and other data relevant to the work.
- .03 Sources of data may include data obtained from inventory or sampling methods. Data may be obtained directly by the actuary or may be provided to the actuary by the client, by an accountant or auditor, by a government or statistical body, from a financial statement, or by others. Data may be specific to the client. Where data specific to the client are not available or not relevant, the actuary would consider using industry data, population data, or other published data with suitable adjustments where relevant and appropriate.

Sufficiency and reliability

- .04 Data are sufficient if they include the needed information for the work. For example, participants' dates of birth are needed to value the liabilities of a pension plan.
- .05 Data are reliable if they are sufficiently complete, consistent, and accurate for the purposes of the work.

- .06 The actuary would test the sufficiency and reliability of (i.e., validate) the data as may be appropriate for the work but is not normally required to perform a detailed audit and is not responsible for discovering falsified or misleading data. If the terms of an appropriate engagement prevent the actuary from performing a validation of the data, the actuary would so report, and report any apparent or evident shortcomings in the data.
- .07 Validation of the data may include reconciliation against financial statements and books of account or other external data, examination of internal and external consistency, comparison with prior periods, availability of independent confirmation from other sources, or detailed confirmation using sampling techniques.
- .08 If sufficient and reliable data cannot be obtained or the actuary is unable to ascertain the sufficiency or reliability of the data the actuary would, after first attempting to rectify the data, consider whether to report with reservation in respect of the data or to decline to perform the work.
- .09 Data may be rectified by obtaining corrected, more complete, alternative, additional, or supplementary data; by making assumptions with respect to incomplete data; or by making adjustments to the data.
- .10 If assumptions or adjustments applied to data by the actuary may cause material uncertainty or bias in the results of the work, the actuary would so report and would report any limitations on the use of the work product where appropriate.

Reliance on others

- .11 The actuary usually uses data prepared by another party such as the client, an independent administrator, an auditor, a government body, or an external association. When placing reliance on such data, the actuary would consider the qualifications, competence, integrity, and objectivity of the party providing the data.

1450 Models

- .01 When the work involves the use of a model, the actuary should
- choose a model appropriate to the purpose and requirements of the work; and
 - understand any limitations in the model that might make the results of the model inappropriate for the intended purpose or might produce a misleading result. [Effective January 1, 2018]
- .02 Like approximation, models pervade virtually all work and affect the application of most standards. The word "model!" seldom appears in the standards, but is understood throughout them.

Amount of effort required

- .03 The amount of effort in validation, documentation and risk mitigation would depend primarily on the influence that the model has on the decisions that it supports, and to a lesser extent on the complexity of the calculations and how they are performed. The actuary would determine how much effort is required for a particular model, taking into account the use of the work and the benefit that users would be expected to obtain from enhanced diligence.
- Some models are so simple or otherwise have such low model risk that the actuary is able to exercise appropriate diligence without formal documentation or reporting. Examples of such models are
 - models that are so simple that they could be performed effectively manually; and
 - models that are used solely to validate other models that are used in the actuary's work.
 - Some models are used repeatedly from the same model specification and the same model implementation but with different input data and/or assumptions. In that case, the diligence for choosing a model and for validating the model specification and model implementation is normally done only once. Documentation for each model run would normally be limited to noting the inputs and the version of the model used; and
 - Some models would require extra diligence because of greater financial significance, increased complexity, or greater uncertainty about the fit of the model to the more complex system it represents.

Appropriate Model

- .04 A model is appropriate and is used appropriately if
- the model enables the actuary to better understand a complex reality, at a reasonable cost, while maintaining the aspects of that reality that are important to the work;
 - the model specification indicates that the intended purpose can be achieved by the model;
 - the model implementation has been verified as an accurate representation of the model specification;
 - each model run uses input data and assumptions consistent with the model specification; and
 - each model run is interpreted as set out in the model specification.

A standard actuarial method used within a model in its proper context would be considered appropriate without further justification; for example, actuarial present value method for a pension valuation and the chain ladder method and Bornhuetter-Ferguson method for unpaid claims liabilities.

1460 Quality Assurance

.01 This subsection 1460 applies to quality assurance processes that are at the instigation of the actuary responsible for the work. Such processes include quality control in the actuary's firm or employer as well as review by persons external to the actuary's firm or employer.

.02 The actuary should implement appropriate quality assurance processes prior to the release of work to users. [Effective July 1, 2019]

.03 In deciding what quality assurance processes are appropriate and proportionate, whether different processes are suitable for different elements of the work, and when the processes would be carried out, the actuary would consider the relevant circumstances, including:

- The degree of difficulty of the various elements of the work, the extent to which professional judgment is required and the overall complexity of the work;
- The purpose of the work and the extent (if any) to which the users may reasonably be expected to challenge it;
- The significance of the work, including any financial, reputational or other consequences for the users;
- The reasonable expectations of the users;
- Whether the way in which the work is carried out makes it vulnerable to errors;
- The novelty of the work and the actuary's experience in performing similar engagements; and
- Whether there are legislative or regulatory requirements for the work to be peer reviewed.

.04 Quality assurance processes include calculation control procedures and model validation, as described in subsection 1470, calculation result examination as described in subsection 1480, self-checking of the work, repetition of the work and peer review. Appropriate quality assurance processes may differ for different elements of the work.

.05 Peer review is a process by which one or more components of an actuary's work are considered by at least one other individual for the purpose of providing assurance as to the quality of the work in question. Peer review can be an important component of the quality assurance process for an actuary's work.

.06 The actuary should select a peer reviewer with the appropriate experience and expertise to perform the peer review. If a person is qualified to have performed the work to be reviewed, then that is prima facie evidence that the person is also qualified to perform the peer review. [Effective July 1, 2019]

.07 The actuary would consider to what extent any peer review should be in the form of independent peer review, whereby one or more components of an actuary's work are considered by at least one other individual who is not otherwise involved in the work in question, who has the appropriate experience and expertise to perform the peer review, and is in a position to effectively challenge the work. The perceived objectivity of a reviewer is enhanced if the reviewer is independent of the actuary performing the work.

.08 Where one or more individuals is involved in the quality assurance processes, the actuary would clarify each person's role and responsibilities.

.09 For actuarial evidence work, peer review might be precluded due to the circumstances affecting the work. The absence of peer review under such circumstances would not indicate a weakness in the quality of assurance processes applied to the work. Where the actuary is expected or required to be independent in performing the work, the scope of any peer review would be defined so as not to impair such independence.

1470 Control

.01 Control procedures that detect errors and decrease the effect of errors should be performed for calculations. [Effective February 1, 2018]

.02 To mitigate model risk, the actuary should perform model validation and employ other strategies appropriate for the financial significance of the results and the complexity of the model. [Effective January 1, 2018]

.03 A calculation that is data-intensive, that is complex, that involves physically separate steps like manual and data processing steps or parallel data processing steps, or especially, a combination of them, is prone to error that appropriate control procedures may prevent or, failing prevention, detect. Appropriate control procedures also help to meet the need for consistency between the actuary's work and other related work; for example, a uniform cut-off date in the preparation of financial statements.

- .04 Examples of control procedures are procedures to ensure that
- All steps in the calculation are coordinated;
 - All steps in the calculation have been performed and checked;
 - The actuary's data processing does not corrupt the data supplied to the actuary;
 - Established procedures (for example, those for a prior period) are not changed inadvertently; and
 - Changes in established procedures are made in an orderly manner.
- .05 Examples of control tools are
- Random sampling;
 - Spot checks; and
 - Audit trails.
- .06 The actuary would test that the model implementation uses the data and assumptions as intended by the model specification. The actuary would also verify that the methods used by the model implementation function as intended by the model specification. The reasonableness of the model run may be tested by using alternative models. Various components of a complex model may be compared to results obtained by separate models.
- .07 The actuary would validate that the model specification is suitable for its intended purpose. For example, a stochastic model may be more suitable than a deterministic model for the valuation of minimum guarantees in some life insurance policies.
- .08 Strategies to mitigate model risk are also pertinent to models developed by third parties and those for which the actuary has limited access to intermediate results, but the range of strategies may be more limited than with other models.
- .09 In assessing a model's suitability, the actuary would understand the model's basic operations, important relationships, major sensitivities, limitations, strengths, and potential weaknesses.
- .10 When a model is to be used for stress tests or is stochastic, the actuary would give appropriate consideration to the statistical distributions used and the magnitude and behaviour of tail events in light of the nature of the work.

1480 Reasonableness of result

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| <p>.01 The <u>actuary</u> should examine the reasonableness of a calculation's result. [Effective February 1, 2018]</p> |
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- .02 As a result of defective data, defective computer software, an accumulation of individually biased assumptions, or the like, a calculation, especially a complex one like a valuation or financial forecast, may be prone to error that checking of the calculation's steps does not reveal but that an examination of its result may reveal. Such an examination is therefore useful and prudent.
- .03 The examination would consider simple questions like the following.
- How does the result compare to the corresponding result for a prior period or a similar case, or to a related but independently calculated amount? Comparison of a benchmark may be more meaningful than comparison of the result. Examples of a benchmark are the forecasted number of retirees divided by the forecasted number of active employees, the loss ratio implied by claim liabilities, and the change during the year of the result.
 - How does the result compare to the corresponding result of a rough approximation?
 - Does the result make common sense?
- .04 The answers to such questions may indicate a need for more work.

1490 Documentation

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| <p>.01 The <u>actuary</u> should use his or her best efforts to compile and secure the retention of appropriate documentation. [Effective February 1, 2018]</p> |
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- .02 Documentation consists of letters of engagement, working papers, meeting notes, memoranda, correspondence, reports, copies or excerpts of company or plan data and documents, and work plans. Appropriate documentation describes the course of the work and its conformity with accepted actuarial practice.
- .03 Both professional and legal needs may affect the length of time during which documentation is to be retained.
- .04 The actuary's documentation for a model, if required, would typically include
- the intended purpose of the model;
 - the appropriateness of the model specification for the intended purpose;
 - the limitations of the model specification relevant to the model's intended purpose;
 - the testing of the model implementation; and
 - the presence of appropriate mitigating strategies for model risk.

- .05 Model documentation would typically be sufficiently detailed to enable another actuary knowledgeable in the matters at hand to form an assessment of the judgments made and of the reasonableness of the model run.
- .06 When a model is based in whole or in part on a model developed by a third party, the actuary would document how the actuary assessed the model as being appropriate for the purpose.

.07 The actuary should document the quality assurance processes that were followed in performing the work. [Effective July 1, 2019]

1500 Another Person's Work

1510 Actuary's use of another person's work

.01 The actuary may use and take responsibility for another person's work if such actions are justified. If the actuary uses but does not take responsibility for another person's work, the actuary should so report. [Effective February 1, 2018]

- .02 Where the work involves the use of data provided by another person, subsection 1440 Data applies.
- .03 Use of the work of other persons is a usual, indeed often inevitable, part of work. The actuary uses and takes responsibility for the work of colleagues and assistants; that use is usually straightforward because the actuary is able to assess the appropriateness of their work.
- .04 If the actuary uses the work of a person other than colleagues and assistants, the actuary may or may not take responsibility for that person's work. Taking responsibility may require more work of the actuary and may expose the actuary to risk of legal liability, but may give the user greater confidence that the other person's work is appropriate.
- .05 The actuary would not take such responsibility if doing so would lead a reasonable person to believe that the actuary possessed and purported to exercise the skill and learning of a duly qualified professional in that other person's profession.
- .06 If the actuary does not take such responsibility, the actuary reports with reservation and the user would seek alternative assurance that the other person's work is appropriate, which may or may not be practical.

Use and take responsibility

- .07 The actuary may use and take responsibility for another person's work, given confidence that such actions are justified as a result of considerations such as the following:
- Early and periodic communication with the other person;
 - Confidence in the other person's qualifications, competence, integrity, and objectivity;
 - The other person's awareness of how the actuary intends to use the other person's work;

- Communication to the other person of any information known to the actuary that may affect the other person's work, and vice versa; and
 - Study of any report by the other person and discussion of it with the other person, especially of any reservation in the report.
- .08 The Canadian Institute of Actuaries encourages its members to use the work of an auditor in accordance with the Joint Policy Statement included in subsection 1520 of these standards of practice. The Joint Policy Statement also provides useful guidance if the actuary uses the work of a person other than an auditor.
- .09 Although an actuary may take responsibility for the work of another actuary in accordance with this section, the actuary who performed the work also continues to be responsible for that work.
- .10 In the case of use of another actuary's work, it may also be useful to
- Identify the differences between accepted actuarial practice in Canada and the practice that the other actuary followed if the other actuary worked outside of Canada; and
 - Review the other actuary's working papers.
- .11 The actuary need not report use of another person's work if the actuary takes responsibility for that work. To do so may imply a reservation.

Use but not take responsibility

- .12 If the actuary uses but does not take responsibility for another person's work, the actuary would nevertheless examine the other person's work for evident shortcomings and would either report the results of such examination or avoid use of the work. For clarity, even though the other person may use a model in his or her work, the actuary is not considered to have used that model.

1520 Auditor's use of an actuary's work

- .01 The actuary should cooperate with an auditor who wishes to use the actuary's work in accordance with the following Joint Policy Statement. [Effective February 1, 2018]

Joint Policy Statement

concerning communications between auditors and actuaries
involved in the preparation of financial statements

This Joint Policy Statement, effective October 1, 2007, has been approved by the Actuarial Standards Board (Canada) and by the Auditing and Assurance Standards Board (Canada).

Purpose and application

- 1 The purpose of the Joint Policy Statement is to discuss:
 - a) communications between actuaries involved in the preparation of financial statements, and auditors, regarding their respective responsibilities;
 - b) how those actuaries and auditors would interact in carrying out their respective responsibilities; and
 - c) how their respective responsibilities may be disclosed to readers of financial statements.
- 2 This Statement applies when an auditor is engaged to carry out an audit of financial statements in accordance with generally accepted auditing standards where the financial statements prepared by management include amounts determined by or with the assistance of an actuary. This Statement also applies when an actuary considers the work of an auditor in connection with conducting the actuarial valuation to determine amounts to be included in the financial statements prepared by management. This statement does not apply to communications with an auditor's actuary or an external review actuary.
- 3 The financial statements of a pension plan or post-employment benefits plan and of the sponsor of such plans, and the financial statements of an insurance enterprise, are the best examples of when this Statement applies.

Definitions

- 4 For the purposes of this Statement:
- a) “actuary involved in the preparation of financial statements” means an actuary, either an employee of the company or an independent consultant, who determines and reports on amounts to be included in the financial statements prepared by management.
 - b) “applicable professional standards” means:
 - i) when the responding professional is an actuary, the Standards of Practice and the Rules of Professional Conduct of the Canadian Institute of Actuaries; and
 - ii) when the responding professional is the auditor, the Canadian Auditing Standards in the CICA Handbook-Assurance and the relevant independence and other ethical requirements set out in the rules of professional conduct/code of ethics applicable to the practice of public accounting issued by various professional accounting bodies.
 - c) “auditor” means an auditor who has been appointed to perform an audit and report on financial statements or to perform specified procedures on data;
 - d) “auditor’s actuary” means an appropriately qualified actuary who assists the auditor in assessing risk and performing further audit procedures to respond to assessed risk;
 - e) “data” includes particulars of:
 - i) invested assets of a pension plan or post-employment benefits plan or an insurance enterprise,
 - ii) membership of a pension plan or post-employment benefits plan,
 - iii) policies of and claims against an insurance enterprise, and
 - iv) reinsurance of an insurance enterprise;
 - f) “enquiring professional” means the actuary or the auditor, as the case may be, who is considering the work of the other;
 - g) “external review actuary” means an actuary who reviews the work of another actuary at the request of a regulator and provides an opinion to the regulator as to whether the work meets applicable professional standards and accepted actuarial practice;

- h) “insurance enterprise” includes the following enterprises, including companies, branches, fraternal benefit societies and other forms of organizations:
 - i) life insurance enterprises;
 - ii) property and casualty insurance enterprises;
 - iii) reinsurance enterprises; and
 - iv) workers’ compensation enterprises.
- i) “management” refers to any person(s) having authority and responsibility for planning, directing and controlling the activities of an enterprise;
- j) “responding professional” means the actuary or the auditor, as the case may be, whose work is being considered by the other.

Responsibilities with respect to financial statements

- 5 The financial statements are the responsibility of management. The representations contained in the financial statements may include amounts determined by an actuary. In determining those amounts, the actuary is responsible for assessing the sufficiency and reliability of the data used in the valuation. The actuary may consider the work of an auditor with respect to data integrity and controls. In such cases, the actuary involved in the preparation of the financial statements acts as the enquiring professional and the auditor acts as the responding professional.
- 6 The auditor, on the other hand, has a responsibility to express an opinion on the fairness with which the financial statements present the financial position, results of operations and cash flows in accordance with the applicable financial reporting framework, which will normally be generally accepted accounting principles. When the financial statements include amounts determined by an actuary, the auditor considers the work of the actuary as part of the audit evidence supporting the actuarial valuation. In such cases, the auditor acts as the enquiring professional and the actuary involved in the preparation of the financial statements acts as the responding professional.

Considering the responding professional’s work

- 7 The enquiring professional may consider the work of the responding professional provided that the enquiring professional takes reasonable care to determine that there is a basis for such consideration. This is done by communicating with the responding professional to establish an understanding of the work to be carried out by each and by considering:
 - a) the responding professional’s appointment to do the work;
 - b) whether the responding professional has followed the standards of his or her profession in carrying out the work; and
 - c) the appropriateness of the responding professional’s findings and opinion.

Communication between the two professionals

- 8 Communication would be established between the auditor and the actuary involved in the preparation of the financial statements when planning their respective engagements, and further communication would take place as necessary throughout the engagement.
- 9 On a timely basis, each professional seeks from management the right to:
 - a) communicate with the other professional; and
 - b) when necessary disclose any relevant information to the other professional.
- 10 The enquiring professional would:
 - a) inform the responding professional of the intended consideration of his or her work in accordance with this Statement;
 - b) request confirmation from the responding professional that he or she has been engaged by the shareholders, policyholders, directors, or management to do the work that the enquiring professional intends to consider;
 - c) request confirmation from the responding professional that he or she is a professional in good standing;
 - d) request confirmation from the responding professional that he or she will carry out the work required in accordance with the applicable professional standards; and
 - e) make the responding professional aware of the enquiring professional's needs. This would include a discussion of:
 - i) the application of the concept of materiality to determine that the responding professional will be using a materiality level that is appropriate in relation to the enquiring professional's materiality level in accordance with applicable professional standards;
 - ii) subsequent events, to determine that the responding professional understands how they are to be treated and that he or she will consider the effect of matters that come to his or her attention up to the date of his or her report;
 - iii) the timing of the work to be carried out by the responding professional and the date of his or her report; and
 - iv) any questions relating to the responding professional's work.

- 11 The responding professional would provide a written response to the enquiring professional that would:
- a) confirm the expectation that he or she is available to perform the work that the enquiring professional intends to consider;
 - b) confirm that he or she has been engaged by the shareholders, policyholders, directors, or management to do the work that the enquiring professional intends to consider;
 - c) confirm that he or she is a professional in good standing;
 - d) confirm that he or she is qualified to perform the work that the enquiring professional intends to consider (including having the certifications or designations, if any, required for particular areas of practice);
 - e) confirm that this work will be carried out in accordance with the applicable professional standards;
 - f) confirm awareness of the enquiring professional's intended consideration of his or her work; and
 - g) discuss any problems expected in meeting the needs of the enquiring professional on a timely basis.

The responding professional's qualifications, competence, and integrity

- 12 In the case of an auditor, prima facie evidence of professional qualification is membership in good standing in a professional accounting body. In the case of an actuary, prima facie evidence of professional qualification is fellowship in good standing in the Canadian Institute of Actuaries.
- 13 When the responding professional is not well known to the enquiring professional, the enquiring professional may obtain assurance as to the responding professional's reputation for competence and integrity by consulting with others who are familiar with the responding professional's work.

The responding professional's findings

- 14 The responding professional's written response to the enquiring professional after completion of the work would:
- a) identify the purpose of the work;
 - b) identify the financial statements or data to which it relates;
 - c) identify the responding professional's relationship to the entity to which the financial statements or data pertain;
 - d) confirm awareness that the enquiring professional intends to consider the work in accordance with this Statement; and
 - e) when appropriate, include a copy of the report provided to the party who employed or engaged the responding professional that sets out the findings and, when applicable, opinions of the responding professional, including a representation that the work was performed in accordance with the applicable professional standards.
- 15 When the enquiring professional has a question about an aspect of the responding professional's work, the question would be raised with the responding professional who would provide a reasonable explanation about that aspect of his or her work. This does not, however, limit the right of the enquiring professional to any information or explanation that may be required in the performance of his or her duties in accordance with the applicable professional standards.

Disclosure of respective responsibilities to the readers of financial statements

- 16 When required by law or regulation, a description of the respective responsibilities of the auditor and of the actuary involved in the preparation of the financial statements would accompany the financial statements.

1530 Review or repeat of another actuary's work

.00 The standards in this subsection 1530 apply to a review engagement that is at the instigation of a user. They do not apply to quality control in the first actuary's firm or employer, even if the reviewer is external to the first actuary's firm or employer. The standards for a review engagement also apply, mutatis mutandis, to a repeat engagement.

.01 In this subsection 1530,

- “first actuary” means an actuary whose work is reviewed or repeated,
- “review engagement” means an engagement to review the first actuary's work,
- “reviewer” means the actuary engaged to review or repeat the first actuary's work, and
- “repeat engagement” means an engagement to repeat all or part of the first actuary's work.

.02 Repealed

.03 If the terms of the first actuary's engagement so permit, then the first actuary should cooperate with the reviewer. [Effective February 1, 2018]

.04 If the terms of the review engagement so permit, then the reviewer should, as soon as practical, discuss the review with the first actuary (unless the reviewer's agreement with the first actuary's work makes such discussion superfluous), and should attempt to resolve any difference between them. The reviewer should report the result of such discussion. [Effective February 1, 2018]

.05 If the reviewer reports disagreement with the first actuary's work but that work is within the range of accepted actuarial practice, then the reviewer should so report. [Effective February 1, 2018]

.06 If a limitation in time, information, data, or resources constrained the quality of the first actuary's work, then the reviewer should so report. [Effective February 1, 2018]

.07 If discussion between the two actuaries results in improvement to the first actuary's work or, in the case of periodic reporting, to the work expected for the subsequent report, then the reviewer should so report. [[Effective February 1, 2018]

.08 If the first actuary's work is not within the range of accepted actuarial practice, then the reviewer should so report. [Effective February 1, 2018]

.09 Repealed

Selection of reviewer

- .10 The reviewer may be selected by a user of the first actuary's work or by the first actuary. The latter would not be appropriate if it gives rise to a potential conflict of interest (e.g., where the interests of the user and the first actuary's client or employer are opposed), but may otherwise be appropriate if it serves to
- facilitate compliance with this subsection 1530; and
 - help assure selection of a qualified reviewer.
- .11 In selecting a reviewer, the first actuary would take into consideration the user's objective for the review and would consult with the user as appropriate.
- .12 If an actuary is qualified to perform the work of the first actuary, then that is prima facie evidence that the actuary is qualified to be the reviewer.
- .13 The perceived objectivity of the reviewer is enhanced if the reviewer is independent of the first actuary.

Timing of the review

- .14 The review may take place prior to the release of the first actuary's report ("pre-release review") or after such release ("post-release review"). A pre-release review provides the opportunity for the reviewer to suggest improvement to the work. A post-release review allows such improvement to be implemented only in future work and in some cases might require a withdrawal of the report and revision to the work.
- .15 Repealed

Difference between the two actuaries

- .16 If the reviewer identifies findings for a difference that is material, the reviewer would so report, along with an explanation of the reason for the difference.
- .17 If the reviewer identifies findings for a difference that is not material, the reviewer would avoid reporting such a difference if it would lead to an unnecessary dispute with the first actuary. If the reviewer has access to different data, information, or resources, or has different time constraints than the first actuary had at the time of initial preparation of the report, then the reviewer would so report.
- .18 If the reviewer believes that access to different data, information or resources would serve to reduce uncertainty in the interpretation of the work, then the reviewer would so report.
- .19 Repealed
- .20 Repealed

Appropriate review engagement

- .21 The reviewer would consider the appropriateness of a review engagement that precludes discussion with the first actuary, especially if the first actuary will not be apprised that the review is to take place. Nevertheless, such an engagement may be an appropriate engagement, where, for example
- the interests of the first actuary's client or employer and the reviewer's client or employer are opposed, especially so in the case of actuarial evidence work involving litigation or mediation.
 - the reviewer's client or employer is a judicial, legal or regulatory authority who is investigating the first actuary's conduct or the conduct of the first actuary's client or employer.
 - the review is merely preliminary to a further review in which timely open discussion between the two actuaries will be possible.
- .21.1 An engagement that limits or delays discussion between the two actuaries may be an appropriate engagement if the reviewer's client or employer wants to ensure that the two reports are independent of each other.
- .22 In the case of actuarial evidence work involving litigation or mediation, the reviewer may be asked to report, without discussion with the first actuary,
- results based on assumptions which differ from those in the first actuary's report, or
 - alternatives to the first actuary's reported results that are within the range of accepted actuarial practice.

Such an engagement would be an appropriate review engagement.

- .23 Repealed

Repeat engagement

- .24 A repeat engagement would be an appropriate engagement if its purpose is to identify or reduce uncertainty in the interpretation of the first actuary's work.
- .25 If the second actuary knows or suspects that the engagement is a repeat engagement, then he or she would take into account the possibility that the client or employer is "opinion shopping" when determining if it is an appropriate engagement. Such an engagement may not be an appropriate engagement.

1600 Assumptions and Methods

1610 Methods

- .01 The actuary should select a method that takes account of the circumstances affecting the work. [Effective February 1, 2018]
- .02 The basis for calculating actuarial estimates is comprised of a method and one or more assumptions. Methods represent the underlying manner in which actuarial calculations are undertaken. Methods differ from one area of actuarial practice to another and have differed over time.
- .03 In selecting an appropriate method, the actuary would consider whether any method is mandated by law, by practice-specific standards or by the terms of the engagement.

1620 Assumptions

- .01 The actuary should identify and select each assumption that is needed for the work, except for those that are prescribed, that are mandated by law or that are stipulated by the terms of the engagement. [Effective February 1, 2018]
- .02 The actuary should select an appropriate model or data assumption for a matter as the best estimate assumption relating to that matter, modified, if appropriate, to make provision for adverse deviations. In selecting an assumption, the actuary should take account of the circumstances affecting the work, past experience data, the relationship of past to expected future experience, anti-selection, and the relationship among matters. [Effective February 1, 2018]
- .03 The appropriate assumption for a matter, other than a model or data assumption, should be continuation of the status quo, unless there is none or unless there is a reasonable expectation that it will change, and the actuary so reports. [Effective February 1, 2018]
- .04 Throughout the standards, the word “calculation” appears, but not as a defined term. It can imply a mathematical operation as simple as adding two numbers or as complex as a scenario of financial condition testing. “Calculation” does not necessarily imply that a model is used. The word “calculation”, when used in the context of a model, emphasizes the result of a model run and to a lesser extent model specification and model implementation.
- .05 It may be useful, under the terms of the engagement, to report the result of two assumptions without opining on their relative appropriateness and to recommend that each user select that which meets his or her needs.

Model assumptions

- .06 The model assumptions are quantitative assumptions in a model about
- Contingent events;
 - Investment return and other economic matters, such as price and wage indices; and
 - Numerical parameters of the environment, such as the income tax rate.
- .07 There is a model assumption for each of the matters that the actuary's model takes into account. Those matters would be sufficiently comprehensive for the model reasonably to represent reality.
- .08 A model, whether simple or complex, requires model assumptions. The model depends on the purpose of the work and the sensitivity of the model run to the various matters about which assumptions could be made. The actuary would strike a balance between the complexity needed for reasonable representation of reality and the simplicity needed for a practical calculation. If the model specification does not take into account a matter, the result is an implicit assumption about that matter, usually an assumption of zero probability or of zero rate. The actuary may compensate for an inappropriate implicit assumption regarding a matter that the model specification does not take into account by altering the explicit assumption regarding a matter that the model does take into account.
- .09 For models with interrelated model assumptions, the actuary would consider the interaction between assumptions.

Data assumptions

- .10 Data assumptions are the assumptions, if any, needed to relieve insufficiency or unreliability in the data.
- .11 The available data may be not sufficient or not reliable. For example, files of pension plan members may lack the date of birth of the members' spouses. Based on sampling, or on comparison with comparable data, it may be appropriate to assume a relationship between spouse and member ages; for example, that a male spouse's date of birth is three years before the member's, and that a female spouse's date of birth is three years after the member's.

Assumptions other than model and data assumptions

- .12 The assumptions other than model and data assumptions are the assumptions about the legal, economic, demographic, and social environment upon which the model and data assumptions depend.

- .13 Such other assumptions are usually qualitative, dealing with the environment; for example,
- Legislation, like the Income Tax Act (Canada);
 - Student education;
 - The medical care system;
 - Government social security systems; and
 - International treaties.
- .14 Those assumptions are needed to the extent that the model assumptions and, in some cases, the data assumptions depend upon them. Such assumptions are numerous and it is not practical to identify all of them.
- .15 Continuation of the status quo is usually the appropriate assumption for other than model and data assumptions; for example, an assumption that the fund of a registered pension plan continues not to be taxed or that the capital markets remain more or less as they are. Users may infer that assumption except where the actuary reports otherwise. The actuary would report an assumption
- That is different from continuation of the status quo; and
 - Regarding a matter for which there is no status quo, for example, a student's assumed occupation after completion of education.

Acceptable range

- .16 There is a reasonable range of assumptions that may be selected by an actuary for particular work and that might produce materially different results. Sometimes, it is desirable that actuaries produce results within a relatively narrow range, in which case the practice-specific standards may prescribe certain methods and/or assumptions to achieve that purpose.

Circumstances affecting the work

- .17 Knowledge of the circumstances affecting the work may require consultation with the persons responsible for the functions that affect experience. For example, if the calculation is to value the assets or liabilities of a benefits plan, the actuary would consult the persons responsible for investments, administration, and plan provisions. If the calculation is to value the policy liabilities of an insurer, the actuary would consult the officers responsible for investments, underwriting, claims, marketing, product design, policy dividends, and policy servicing.
- .18 An assumption about a matter would take account of the circumstances affecting the work if those circumstances affect that matter. The circumstances affecting the work are relevant for experience in most matters other than economic matters.

Past experience data

- .19 The available and pertinent past experience data are helpful in the selection of assumptions.
- .20 Other things being the same, pertinent past experience data are data
- Relating to the case itself rather than to similar cases;
 - Relating to the recent past rather than to the distant past;
 - That are homogeneous rather than heterogeneous; and
 - That are statistically credible.

These criteria may conflict with each other.

Expected future experience vs. past experience

- .21 To extrapolate pertinent past experience and its trend to the near future is often, but not necessarily, appropriate.
- .22 The appropriateness of the extrapolation depends on the matter assumed. For example, pertinent past mortality experience is a better indicator of the outlook than is pertinent past investment return experience.
- .23 An extrapolation would take account of a change that affects the outlook. For example,
- Adoption of a subsidized early retirement option in a pension plan may affect retirement rates;
 - A change in an issuer's case estimate practices may affect its claims development;
 - An issuer's discontinuance of a line of business may affect its expense rates allocable to the remaining lines; and
 - A change in judicial practice may affect the settlement of claims.

Anti-selection

- .24 Each assumption would normally take account of potential anti-selection.
- .25 One party in a relationship may have the right (or the administration of the relationship may give the privilege) to exercise certain options. That party may be, for example, a policyholder, a benefits plan's member, a borrower, a lender, or a shareholder.

- .26 Examples are the right or privilege of a
- Pension plan member to select his or her retirement date when the pensions at various retirement ages are not actuarially equivalent;
 - Policyholder to renew term life insurance at its expiry for a stipulated premium;
 - Mortgagor to prepay principal, or an issuer to call a bond or redeem a preferred share; and
 - Shareholder to retract a share.
- .27 When considering a single relationship, it is reasonable to expect that party to exercise those options to the detriment of the other party in the relationship if it is to the first party's advantage to do so. However, where a number of such relationships are concerned, such as a portfolio of policyholders or members of a benefit plan, it may not be reasonable to assume that every one of these would exercise such an option in that manner.
- .28 The extent of anti-selection depends on
- The size of the advantage from each exercise of the option (for example, anti-selection is dampened if the advantage to each policyholder is small even when the aggregate potential detriment to an issuer is large);
 - The concomitance of exercise of the option (for example, election of a favourable early retirement pension may force the plan member into unwanted unemployment, or a policyholder (who is also the life insured) in ill health may be unable to afford to continue an insurance policy with a low premium);
 - The policyholder's or plan member's difficulty in making the required judgment (for example, everyone knows his or her age, but a person may be unable to gauge the effect of ill health on longevity); and
 - The sophistication of the policyholder, plan member, borrower, lender, or shareholder.

Independently reasonable and appropriate in the aggregate

- .29 The assumptions that the actuary selects or for which the actuary takes responsibility, other than alternative assumptions selected for the purpose of sensitivity testing, would be independently reasonable and appropriate in the aggregate.

- .30 The actuary would select independently reasonable assumptions. The following is an example:
- For a typical defined benefit pension plan valuation, the actuary would adopt an explicit investment assumption, as well as an explicit expense assumption rather than using implicit assumptions incorporated within a net discount rate. However, for a small defined benefit pension plan, the actuary may choose to use approximations for the investment expenses.
- .31 The actuary would avoid the use of independently reasonable assumptions that are inconsistent or biased in the same direction, either of which might result in the assumptions not being reasonable in the aggregate. If an assumption is prescribed, is mandated by law or is stipulated by the terms of the engagement, it would not be appropriate to compensate for this prescription or stipulation by modifying other assumptions. The remaining assumptions would be reasonable in the aggregate and to the extent possible be independently reasonable.
- .32 The use of independently reasonable assumptions implies that each assumption is explicitly defined. However, there would be no requirement to use explicit assumptions in the model specification, as long as the result of using that model does not produce a material error. For example, for pension valuations, use of a discount rate net of expenses may produce a value very close to the value obtained by using explicit assumptions. In this case, the actuary would disclose both the gross investment rate assumption and the expense assumption.

Stipulated or mandated assumptions

- .33 Use of an assumption stipulated by the terms of the engagement is use of the work of another person.
- .34 If the assumption is mandated by law and an amendment to the law is virtually definitive, it may be useful to report a result that reflects the amendment.

Discount rate

- .35 The use of a discount rate is inherent in the actuarial present value method. The discount rate may be constant or it may vary over time. In selecting the best estimate assumption for the discount rate, the actuary, consistent with the circumstances affecting the work, may either
- Take into account the expected investment returns of the assets that support the liabilities; or
 - Reflect interest rates on relevant fixed income reference securities.
- .36 In selecting the best estimate assumption for the discount rate, the actuary, consistent with the circumstances affecting the work, may assume that the yields on fixed income investments at future dates, either
- Remain at levels applicable at the calculation date; or
 - Revert in the long term to expected levels.

1630 Provision for adverse deviations

- .01 The actuary should include a provision for adverse deviations in calculations only to the extent required by the terms of the actuary's engagement or as mandated by law or as prescribed by practice-specific standards. [Effective February 1, 2018]

1640 Comparison of current and prior assumptions

- .01 Unless the actuary reports the inconsistency, the assumptions for a calculation for a periodic report should be consistent with those of the prior calculation. [Effective February 1, 2018]

- .02 The definition of consistency for the purpose of this recommendation varies among practice areas. For example,
- For advice on funding a pension plan, the assumption at a calculation date is consistent with the corresponding assumption at the prior calculation date if the two are numerically the same; and
 - For valuation of insurance contract liabilities for financial reporting, an assumption at a calculation date is consistent with the corresponding assumption at the prior calculation date if the two assumptions
 - Each reflect the conditions and outlook at their respective calculation dates consistent with the circumstances affecting the work in the case of a best estimate assumption;

- Each reflect the risks at their respective calculation dates consistent with the circumstances affecting the work in the case of a margin for adverse deviations; and
 - Are located at the same point within the range of accepted actuarial practice.
- .03 If the assumptions are not so consistent, the actuary would report the inconsistency. If practical, useful and appropriate under the terms of the engagement, the report would quantify the effect of the inconsistency.

1700 Reporting

1710 Reporting: external user report

- .01 In an external user report, the actuary should
- Identify the client or employer;
 - Describe the work, its purpose, and its users;
 - Say that use of the report may not be suitable for another purpose;
 - Say whether or not the work is in accordance with accepted actuarial practice in Canada and, if not, disclose the deviation from that practice;
 - If useful, disclose any unusual application of accepted actuarial practice;
 - If the report is supported by the use of a model, disclose limitations in the model relevant to the intended purpose;
 - Disclose any aspect of the work for which the actuary does not take responsibility;
 - Describe each assumption used for the work that is material to the results of the work, including the extent of any margin for adverse deviations included with respect to each such assumption;
 - Provide the rationale for each such assumption that is material to the results of the work;
 - For matters requiring an assumption other than a model or data assumption, disclose any assumption that is different from assumption of continuance of the status quo and, if practical, useful, and appropriate under the terms of the engagement, disclose the effect of alternative assumptions;
 - Describe the methods used for the work;
 - In the case of a periodic report, disclose any inconsistency between the assumptions and methods of the current and prior reports and the rationale for such inconsistency;
 - Describe any subsequent event that is not taken into account in the work;
 - Disclose any reservation;
 - Express an opinion on the assumptions and methods used for the work;
 - Express an opinion on the results of the work;
 - Identify himself or herself and sign the report; and
 - Date the report. [Effective February 1, 2018]

- .02 Any description or disclosure may be in material referred to in the report and either accompany the report or plausibly be available to users. [Effective February 1, 2018]
- .03 Subsequently, the actuary should respond to a user's request for explanation except if that is contrary to the terms of the engagement. [Effective February 1, 2018]
- .04 Subsequently, the actuary should withdraw or amend the report if information comes to hand after the report date that invalidates the report. [Effective February 1, 2018]
- .05 A duty of confidentiality in an appropriate engagement supersedes any of the foregoing portions of this recommendation with which it conflicts. [Effective February 1, 2018]

Description and disclosure in general

- .06 The range of appropriate reports is relatively narrow for external user reports as compared to that for internal user reports. An external user report would be relatively formal and detailed when the actuary does not communicate directly with users or when the interests of an external user and of the actuary's client or employer are not the same.
- .07 Appropriate description and disclosure in a report strike a balance between too little and too much. Too little disclosure deprives the user of needed information. Too much disclosure may exaggerate the importance of minor matters, imply a diminution of the actuary's responsibility for the work, or make the report hard to read.
- .08 The appropriate criterion for description and disclosure is the question, "What qualitative and quantitative information best serves the user's understanding and decision-making?" The question, "What information does the user want?", is an insufficient criterion because the circumstances affecting the work may make the actuary aware of information needs of which the user is unaware.
- .09 The actuary would consider and address the sensitivity of the results of the work to variations in key assumptions where practical, useful, and consistent with the terms of the engagement.
- .10 Disclosure need not necessarily be in the report itself except if its importance so warrants or if it cannot be referenced in material available to users. Disclosure in a short report may place undue emphasis on the information disclosed.

- .11 An unintended reservation misleads the user if it implies either that there was a deviation from accepted actuarial practice or that the actuary does not take full responsibility for the work. The following are examples.
- Approximation is a usual part of work. Even a moderately complex calculation may involve many approximations. Disclosure of an appropriate approximation may mislead the user by implying that the actuary's work falls short of accepted actuarial practice.
 - Use of another person's work is also a usual part of work. If the actuary does not take responsibility for the used work, disclosure is appropriate. Disclosure if the actuary does take responsibility for the used work may mislead the user.
 - Deviation from a particular recommendation or other guidance in the standards when the result of doing so is not material is also a usual part of work and its disclosure is undesirable.

The work, its purpose, and its users

- .12 Description of the work usually includes the calculation date and the numerical result. If the work is mandated by law, citation of the law is useful.
- .13 The amount of detail depends mainly on the needs of users. A separate report may be desirable for a particular user (usually a regulator) whose desire for detail significantly exceeds that of other users.
- .14 Description of the purpose of the work and its users permits another person to assess its appropriateness to his or her needs and may thereby avoid unintended use of the work.
- .15 The users comprise the addressee(s) of the report, and any others explicitly identified in the report. Where a report has more than one user, the actuary would have regard to the information of value to each user in determining appropriate disclosure.

Accepted actuarial practice

- .16 If the work is in accordance with accepted actuarial practice, a simple statement to that effect is a powerful statement, and reassuring even to a user with a limited understanding of what constitutes accepted actuarial practice. If the work is not in accordance with accepted actuarial practice, a statement that it is, except for specified deviations, is a concise description.
- .17 Any deviation from accepted actuarial practice would result from either conflict with law or conflict with the terms of an appropriate engagement.
- .18 For work in Canada, the actuary would refer to "accepted actuarial practice for work in Canada", or use other language of equivalent meaning and clarity.

- .19 For work outside of Canada, the actuary may choose to refer to
- “Accepted actuarial practice for work in [country]”, if the guidance of a foreign jurisdiction has been applied to the work;
 - “Internationally accepted actuarial practice”, if the guidance of the International Actuarial Association has been applied to the work; or
 - “Accepted actuarial practice for work in Canada”, if Canadian guidance has been applied to the work because of the absence of applicable foreign guidance.

Unusual application of accepted actuarial practice

- .20 The actuary would not usually report a deviation from a particular recommendation or other guidance in these standards as a result of an unusual or unforeseen situation.
- .21 If, as is common, accepted actuarial practice for an aspect of the work encompasses a range, the actuary usually reports the work as being in accordance with accepted actuarial practice without drawing particular attention to his or her selection within the range. Disclosure of the selection, and of the reason for selecting it, is appropriate, however, if it is
- Mandated by law or specified by the terms of the actuary’s engagement;
 - Excluded from the accepted range by an exposure draft or by approved, but not yet effective, new standards;
 - Inconsistent with the corresponding assumption of a prior periodic report;
 - Dependent on a special permissive feature in the law for its acceptability; or
 - Unusual or controversial.

Limitation to actuary’s responsibility

- .22 Any diminution of the actuary’s responsibility for the work as a result of an engagement whose terms call for a deviation from accepted actuarial practice would be disclosed.

Disclosure of assumptions

- .23 Where an assumption or method is mandated by law, the actuary would, if relevant, disclose that use of the report, based on the mandated assumption or method, may not be appropriate for purposes other than that for which the report was prepared.

Subsequent event not taken into account in the work

- .24 An example of a subsequent event not taken into account in the work is a non-retroactive increase in the benefits of a pension plan for which the actuary is advising on funding. The actuary would describe the increase, report that it was not taken into account in the current advice on funding but that it will be taken into account in future advice. If useful, the actuary would quantify its effect, for example, by reporting the pro forma effect on the recommended funding if the benefit increase were effective immediately before the calculation date.

Reservations

- .25 A report with reservation may be unavoidable in certain circumstances, such as the following:
- The actuary was obliged to use the work of another person and has doubts about the appropriateness of so doing.
 - The actuary was unable to arrive at a conclusion as to the sufficiency and reliability of the data.
 - There was an undue limitation to the scope of the actuary's work. For example, the time, information, or resources contemplated by the terms of the engagement did not materialize.
 - There is an unresolved conflict of interest.
- .26 The actuary would report any remedy, underway or expected, to the problem causing the reservation.
- .27 A serious reservation may call for consulting with another actuary or obtaining legal advice.
- .28 Barring explicit disclosure to the contrary in the report, the user is entitled to assume that
- The work is in accordance with accepted actuarial practice and no reservation is required;
 - The data are sufficient and reliable; and
 - If a periodic report, the method is the same as that in the prior report and the assumptions are consistent with those in the prior report.

Use of models

- .29 An external user report would rarely refer directly to a model. Disclosures related to a model are typically found in supporting documents. The report would contain a reference to a model if, for example, the actuary is required to do so by the engagement, the model has limitations relevant to the purpose of the engagement, or the actuary is unable to assess model risk.
- .30 Explanation of the limitations of a model and the implications of those limitations would include descriptions of
- any relevant exclusions from the model, and
 - simplifying assumptions made.
- .31 If the actuary uses a model outside the domain of actuarial practice and is not able to verify the appropriateness of using such a model, the actuary would so report.

Opinion

- .32 In giving an opinion on any matter in the report, the actuary would begin with “In my opinion...” which is a signal that the actuary is giving a formal, professional opinion.
- .33 With respect to any assumption or method specified by the terms of the engagement, the actuary would
- If the actuary considers such assumption or method to fall within the range of accepted actuarial practice, opine that the assumption or method is appropriate;
 - If the actuary considers such assumption or method to not fall within the range of accepted actuarial practice, report that the assumption or method is not in accordance with accepted actuarial practice and report that the assumption or method was specified by the terms of the engagement, as applicable;
 - If the actuary is unable to easily determine whether the assumption or method falls within the range of accepted actuarial practice, report that the assumption or method may not be in accordance with accepted actuarial practice and report that the assumption or method was specified by the terms of the engagement, as applicable.
- .34 It may be convenient to group the opinion statements in the external user report in a section with a heading such as Statement of Opinion that would be signed by the actuary.

Identification

- .35 For work in Canada, the actuary would usually identify himself or herself simply as “Fellow, Canadian Institute of Actuaries” (or “FCIA” if users recognize the abbreviation), especially when Fellowship in the CIA is required or expected for the work.

Report date

- .36 In reporting an opinion, the actuary would consider all available information up to the report date, including subsequent events if the report date is after the calculation date.
- .37 The report date would usually be the date at which the actuary has substantially completed the work. The remaining effort may include peer review, typing and photocopying the report, and compilation of documentation.
- .38 The date the actuary signs and delivers the report would be as soon thereafter as practical. If there is an unavoidably long delay, however, the actuary would consider any additional subsequent events that would result from a current report date.
- .39 The actuary would issue the report within a reasonable time period with regard to the actuary's terms of engagement and the needs of the users of the report.

Withdrawal or amendment of a report

- .40 After the report date, the actuary has no obligation to seek additional information that, if known at the report date, would have been reflected in the work, but, if additional information comes to hand, the actuary would consider if it affects the report. Additional information affects the report if it
- Reveals a data defect or a calculation error;
 - Provides additional information about the entity that is the subject of the report as that entity was at the calculation date;
 - Retroactively makes that entity different at the calculation date; or
 - Makes that entity different after the calculation date and a purpose of the work was to report on the entity as it would be as a result of the information.
- .41 Additional information may consist of both external information and internal discovery of an error in the work. Its classification is similar to the classification of subsequent events. That is, if the additional information results in the actuary determining that an event has occurred that would have to be taken into account in the data, assumptions, or methods for the work, it would affect the report. It does not affect the report if it makes the entity, which is the subject of the report, different after the calculation date and a purpose of the work is to report on the entity as it was at the calculation date; for example, if the additional information changes the outlook for the entity that would lead the actuary to select different assumptions at the next calculation date for a periodic report.

- .42 If the additional information results in the actuary determining that an event has occurred that affects the report, the actuary would determine whether the event invalidates the report. If the actuary determines that the event does not invalidate the report, the actuary would consider whether to inform some or all of the users of the report about the event. If the actuary determines that the event invalidates the report, the actuary would withdraw or amend the report. If the actuary withdraws or amends a report, he or she would seek agreement with the client or employer on the notification to be given to users and on the preparation of an amended or replacement report in cases where there is no legal requirement to do so. Failing such agreement, the actuary would consider seeking legal advice on the discharge of his or her responsibilities, taking consideration of the fact that, to the extent practical and useful, all users should so be informed.
- .43 The following examples are intended to assist actuaries in determining whether an event of which the actuary becomes aware after the report date may be worthy of disclosure to the users of the report or may require the report to be withdrawn or amended:
- If an event affects a report, but that report has been superseded by another report, typically no action would be taken with respect to the prior report;
 - If an event materially affects the financial position, financial condition, or funded status of a pension plan, but does not materially affect the funding of the plan, it may be sufficient to disclose the event to the users of the report rather than withdraw or amend the report;
 - If an event results in a situation where an assumption used in the work is obviously erroneous, but the assumption was reasonable at the report date, the actuary would typically not withdraw or amend the report, but would reflect the event in a subsequent report; and
 - If an actuary has prepared a report that provides advice on the funding of a pension plan and, subsequent to the report date discovers an error in the report, and the funding recommendations contained in the report would change materially if the error were corrected, the actuary may determine that it is appropriate to withdraw or amend the report.

1720 Reporting: internal user report

- .01 In the case of an internal user report, the actuary may appropriately abbreviate the recommendation for external user reports. [Effective February 1, 2018]

- .02 The range of appropriate reports is wider for internal user reports than for external user reports. At one end of the range, a formal internal user report may differ little from an external user report. At the other end of the range, an informal, abbreviated, even oral, report may suffice for a representative of the actuary's employer or client with whom the actuary communicates frequently and who is well-versed in the subject of the report. To abbreviate the standards for an internal user report is efficient for both the actuary and the user provided that complete and clear communication is not thereby compromised.

1730 Reporting: oral report

- .01 Oral reporting, especially to an internal user, is both useful and inevitable in some situations. The disadvantage of oral reporting is that the actuary and user may have differing recollections of what was reported. It is therefore good practice to confirm an oral report in writing, especially when there is an external user, or to record it in documentation.
- .02 Except for signature and report date, the standards are the same for both oral and written reports.

1740 Summary report

- | |
|---|
| <p>.01 Where required by practice-specific standards, the <u>actuary</u> should prepare a <u>summary report</u>.
[Effective February 1, 2018]</p> |
|---|

- .02 The practice-specific standards specify the language to be used in the summary report.
- .03 The purpose of the summary report is to simplify the actuary's communication with users and may be incorporated in a report prepared by the actuary's employer or client; for example, the financial statements of an insurer, a pension plan or a public personal injury compensation plan. Such a report does not constitute an external user report.

2000—Insurance

Table of Contents

2100	Insurance Contract Valuation: All Insurance	2004
2110	Scope.....	2004
2200	Insurance Contract Valuation: Canadian Considerations.....	2005
2210	General.....	2005
2220	Definitions.....	2005
2230	Reporting.....	2007
2300	Insurance Contract Valuation: International Actuarial Standards of Practice	2017
2310	General.....	2017
2320	Appropriate Practices	2018
2330	Communication.....	2029
2400	The Appointed Actuary.....	2030
2410	Definitions.....	2030
2420	Scope.....	2030
2430	Accepting and continuing an engagement	2030
2440	Report on matters requiring rectification	2032
2450	Report to the directors	2033
2460	Communication with the auditor	2037
2470	Certification of capital filings as required by the regulator.....	2037
2500	Financial Condition Testing.....	2040
2510	Scope.....	2040
2520	Analysis	2040
2530	Reporting.....	2046
2540	Opinion by the actuary	2046
2600	Ratemaking: Property and Casualty Insurance.....	2049
2610	Scope.....	2049
2620	Method	2050
2630	Reporting.....	2053
2700	Policyholder Dividend Determination.....	2054
2710	Scope.....	2054
2720	Report on policyholder dividends.....	2054

2800	Public Personal Injury Compensation Plans	2055
2810	Scope.....	2055
2820	Valuation of Insurance Contracts and Other Obligations for Financial Reporting	2056
2830	Valuation of Benefits Liabilities for Funding Purposes	2056
2831	Circumstances Affecting the Work	2056
2832	Economic Assumptions	2058
2833	Margins for Adverse Deviations.....	2059
2840	Gain and Loss Analysis	2060
2850	Sensitivity Analysis	2061
2860	Reporting.....	2061

2100 Insurance Contract Valuation: All Insurance

2110 Scope

- .01 Part 1000 applies to work within the scope of Part 2000.
- .02 Repealed
- .03 Sections 2200 and 2300 apply to the valuation of insurance contracts and other obligations in accordance with IFRS 17, even where the reporting entity is not an insurer.
- Section 2200 reflects Canadian-specific considerations. It includes specific exclusions from Part 1000, a glossary of terms applicable to IFRS 17, and valuation and reporting requirements.
 - Section 2300 reflects International Standard of Actuarial Practice 4 (ISAP 4), developed by the International Actuarial Association. It provides guidance to actuaries when performing actuarial services in connection with IFRS 17.
- .04 Where the valuation of insurance contracts and other obligations is not in accordance with IFRS 17, Sections 2200 and 2300 do not apply to the valuation and the valuation would be in accordance with any applicable accounting standards if the valuation is to be used for financial reporting, or the terms of the actuary's engagement or as mandated by law or as prescribed by practice-specific standards.
- .05 Section 2400 applies to actuaries performing the role of appointed actuary as defined in subsection 2420.
- .06 Section 2500 applies to the appointed actuary of an insurer when preparing a report on an insurer's financial condition as defined in subsection 2510.
- .07 Section 2600 applies to property and casualty ratemaking as defined in subsection 2610.
- .08 Section 2700 applies to policyholder dividend determination as defined in subsection 2710.
- .09 Section 2800 applies to public personal injury compensation plans for both the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 and the valuation of benefit liabilities for funding purposes.

2200 Insurance Contract Valuation: Canadian Considerations

2210 General

- .01 [IFRS 17 Insurance Contracts](#) (“[IFRS 17](#)”) establishes principles for the recognition, measurement, presentation and disclosure of [insurance contracts](#). The actuary should be familiar with [IFRS 17](#) and apply the requirements in the valuation of [insurance contracts](#) and other obligations where such valuation is to be in accordance with [IFRS 17](#). [Effective January 1, 2023]
- .02 The Standards of Practice provide guidance to actuaries when performing [actuarial services](#) in connection with [IFRS 17](#). They are intended to supplement and not replace or restate the requirements of [IFRS 17](#).
- .03 Notwithstanding the general applicability of Part 1000, paragraphs 1620.35 and 1620.36 on Discount Rate do not apply to the valuation of [insurance contracts](#) and other obligations where such valuation is to be in accordance with [IFRS 17](#).
- .04 The [IFRS 17 risk adjustment for non-financial risk](#) is not considered to be a provision for adverse deviations as defined in paragraph 1120.53.
- .05 When the [principal](#) or another party sets or prescribes an assumption or methodology used by the actuary in performing [actuarial services](#) in connection with [IFRS 17](#), it is to be treated as the actuary’s use of another person’s work as described in subsection 1510. The actuary would not ‘take responsibility’ for such work:
- If the assumption or methodology set or prescribed by the [principal](#) or another party conflicts with what would be appropriate for the purpose of the [actuarial services](#); or
 - The actuary is unable to judge the appropriateness of the assumption or methodology set or prescribed by the [principal](#) or another party without performing a substantial amount of additional work beyond the scope of the assignment, or the actuary is not qualified to judge the appropriateness.

2220 Definitions

- .01 Sections 2100, 2200, 2300, and 2800 use various terms whose specific meanings are defined in ISAP 4. These terms are highlighted in the text with a dashed underscore and in blue (e.g., [Accounting Policies](#)). For the purpose of these sections, these terms have the meaning given in this subsection and have their ordinary meaning otherwise.

- .02 Sections 2100, 2200, 2300, and 2800 also use key terms found in [IFRS 17](#), in which case they have the meaning as used in [IFRS 17](#). These terms are highlighted in the text with a double underscore and in green (e.g., [insurance contract](#)).
- .03 **Accounting Policies** – As defined by the International Accounting Standards Board® (the Board) in paragraph 5 of IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*, “the specific principles, bases, conventions, rules and practices applied by an [reporting] entity in preparing and presenting financial statements.”
- .04 **Actuarial Services** – Services based upon actuarial considerations provided to [intended users](#) that may include the rendering of advice, [recommendations](#), findings, or [opinions](#).
- .05 **Communication** – Any statement (including oral statements) issued or made by an [actuary](#) with respect to [actuarial services](#).
- .06 **Data** – Facts often collected from records, experience, or observations. Data are usually quantitative but may be qualitative. Examples of data include membership or [policyholder](#) details, claims details, asset and investment details, operating expenses, benefit definitions, and policy terms and conditions. Assumptions are not data, but data are commonly used in the development of actuarial assumptions.
- .07 **General Measurement Approach** – The basis for measuring [insurance contracts](#) set out in [IFRS 17](#), except where [IFRS 17](#) permits a simplification (in the case of the [premium allocation approach](#)) or is modified (in the case of the [variable fee approach](#)).
- .08 **IFRS 17** – International Financial Reporting Standard 17 – Insurance Contracts, including any interpretations from the International Financial Reporting Interpretations Committee thereon, as issued through 16 August 2019.
- .09 **International Financial Reporting Standards (IFRSs)** – As defined by the IASB in paragraph 7 of IAS 1 Presentation of Financial Statements, as amended in June 2011, by Presentation of Items of Other Comprehensive Income (Amendments to IAS 1): “Standards and Interpretations issued by the International Accounting Standards Board (IASB). They comprise:
 - a. International Financial Reporting Standards;
 - b. International Accounting Standards;
 - c. [International Financial Reporting Interpretations Committee] IFRIC® Interpretations; and
 - d. [The former Standing Interpretations Committee] SIC Interpretations.”
- .10 **Intended User** – Any legal or natural person (usually including the [principal](#)) whom the [actuary](#) intends to use the output of the [actuarial services](#) at the time the [actuary](#) performs those services.
- .11 **Law** – Applicable acts, statutes, regulations, or any other binding authority (such as accounting standards and any regulatory guidance that is effectively binding).

- .12 **Measurement Date** – The date as of which the value of an asset or liability is presented, whether or not the actual calculations have been made as of a different date and rolled forward or back to the [measurement date](#). This has the same meaning as [calculation date](#).
- .13 **Opinions** – An opinion expressed by an [actuary](#) and intended by that [actuary](#) to be relied upon by the [intended users](#).
- .14 **Principal** – The party who engages the provider of [actuarial services](#). The [principal](#) will usually be the client or the employer of the [actuary](#).
- .15 **Variable Fee Approach** – The measurement approach that is a modification of the [general measurement approach](#) for the valuation of [insurance contracts with direct participation features](#) as set out in [IFRS 17](#).

2230 Reporting

- .01 The [actuary's report](#), which is a [summary report](#) as described in subsection 1740, should
- conform to relevant Canadian federal and provincial legislation that require the [actuary](#) to value the [policy liabilities](#), not only the [insurance contract liabilities](#);
 - describe the valuation and presentation of [policy liabilities](#) for the [insurer's](#) financial statements prepared in accordance with International Financial Reporting Standards (IFRS);
 - include the [actuary's](#) opinion on the appropriateness of those [policy liabilities](#) and on the fairness of their presentation; and
 - describe the [actuary's](#) role in the preparation of the [insurer's](#) financial statements if that role is not described in those statements or their accompanying management discussion and analysis. [Effective January 1, 2023]

.02 If the actuary can report without reservation, then the actuary's report should conform to the standard reporting language, consisting of

- A scope paragraph, which describes the actuary's work; and
- An opinion paragraph, which gives the actuary's favourable opinion on the valuation and its presentation;

otherwise the actuary should modify the standard reporting language to report with reservation. [Effective January 1, 2023]

Presentation of policy liabilities in financial statements

.03 The valuation of policy liabilities for use in IFRS financial statements requires valuation of items other than the total amount of policy liabilities. All items derived from the valuation of policy liabilities that are reported in the statement of financial position, statement of financial performance, statement of changes in equity, statement of cash flows, and the accompanying notes (disclosures) are part of the presentation of policy liabilities in the IFRS financial statements.

.04 Examples of such items derived from the valuation of policy liabilities are:

- The change in the liability for remaining coverage in the reporting period that is presented as insurance revenue in the statement of financial performance;
- The calculation and projection of coverage units used to allocate the release of the contractual service margin over current and future reporting periods;
- Identification of the components of the total carrying amount (present value of future cash flows, risk adjustment for non-financial risk, and contractual service margin) for each of:
 - portfolios of insurance contracts issued that are assets;
 - portfolios of insurance contracts issued that are liabilities;
 - portfolios of reinsurance contracts held that are assets; and
 - portfolios of reinsurance contracts held that are liabilities.
- Reconciliation of change in the contractual service margin or loss component.

Description of the actuary's role

- .05 An insurer that reports financial statements under IFRS is responsible for the information reported. This means it is responsible for, amongst other things, identification, combination, aggregation, separation, recognition and derecognition of contracts, the choice of measurement approach and assumptions, the measurement calculations and the disclosures in the IFRS financial statements.
- .06 However, where required by legislation, the actuary is responsible for performing a valuation of policy liabilities and reporting to policyholders and shareholders on that valuation and its presentation in the financial statements. Accordingly, the actuary's summary report would include a description of the role of the actuary in the preparation of the insurer's financial statements if the financial statements or their accompanying management discussion and analysis do not provide that description.
- .07 Here is an illustrative description.

“The Appointed Actuary is

appointed by the [Board of Directors] of [the Company];

responsible for ensuring that the valuation of policy liabilities is in accordance with accepted actuarial practice in Canada, applicable legislation, and associated regulations and directives; and

required to provide an opinion on the appropriateness of the policy liabilities reported in the financial statements and the fairness of their presentation.”

The wording of the illustrative description conforms to relevant Canadian federal and provincial legislation that require the actuary to value the policy liabilities, not only the insurance contract liabilities.

- .08 It may also be useful for the financial statements or their accompanying management discussion and analysis to include a description of the formal responsibilities of the actuary beyond the role in the preparation of the financial statements, including for example the annual financial condition testing and report to the directors of the insurer.

Standard reporting language

- .09 Here is the standard reporting language in the usual situation where the financial statements or their accompanying management discussion and analysis include a description of the role of the actuary in the preparation of the financial statements. Otherwise, that description would be inserted between the two paragraphs in this report.

Appointed Actuary's Report

To the policyholders [and shareholders] of [the ABC Insurance Company]:

I have valued the policy liabilities of [the Company] for its [consolidated] financial statements prepared in accordance with International Financial Reporting Standards for the year ended [31 December xxxx].

In my opinion, the amount of policy liabilities is appropriate for this purpose. The valuation conforms to accepted actuarial practice in Canada and the [consolidated] financial statements fairly present the results of the valuation.

[Montréal, Québec]
[Report date]

[Mary F. Roe]
Fellow, Canadian Institute of Actuaries

- .10 The language in square brackets is variable and other language may be adjusted to conform to interim financial statements and to the terminology and presentation in the financial statements.
- .11 An auditor's report usually accompanies the financial statements. Uniformity of common features in the two reports will avoid confusion to readers of the financial statements. Those common features include
- **Addressees:** Usually, the actuary addresses the report to the policyholders of a mutual insurer and to both the participating policyholders and shareholders of a stock insurer.
 - **Years referenced:** Usually, the actuary's report refers only to the current year, even though financial statements usually present results for both the current and prior years.
 - **Report date:** If the two reports have the same date, then they would take account of the same subsequent events.

Communication with the auditor

.12 Communication with the auditor is desirable at various stages of the actuary's work. Examples of situations where communication with the auditor is desirable are:

- Use of the work of the other professional by both actuary and auditor;
- The drafting of common features in the auditor's report and actuary's report;
- The drafting of a report with reservation;
- The presentation of the insurance contract liabilities and other policy liabilities, including the presentation of other items in the financial statements that are valued by the actuary; and
- The treatment of subsequent events.

Disclosure of unusual situations

- .13 The items that the actuary values for the financial statements may be misleading if the financial statements do not present them fairly. The actuary's report signals to the reader of the financial statements that there is, or is not, fair presentation.
- .14 In an unusual situation, fair presentation may require explanation of an item that the actuary values for the financial statements. Usually, the notes to the financial statements would provide that explanation, including, where appropriate, disclosure of the situation's effect on the financial statements. In the absence of such explanation in the notes, the actuary would provide it by a reservation in reporting that would include the explanation.

- .15 The question, “Will explanation enhance the user’s understanding of the insurer’s financial statements?” may help the actuary to identify such a situation. Examples of unusual situations where explanation may help the user’s understanding are:
- Capital appropriated or repatriated on the actuary’s advice;
 - Off-balance-sheet obligations (e.g., contingent policy liabilities in connection with market conduct);
 - Restatement of items for preceding financial reporting periods;
 - Inconsistency among financial reporting periods;
 - The impracticality of restating any items that are reported in current period financial statements and that were reported inconsistently in preceding period financial statements;
 - An unusual relationship between the items in current period financial statements and the expected corresponding items in future period financial statements;
 - A change in a methodology used in the valuation that does not have an effect in the current financial reporting period but that is expected to have an effect in future financial reporting periods;
 - A difference between the insurer’s present practices (e.g., policy for setting dividend scales) and those which the actuary assumed in valuing the policy liabilities; and
 - A subsequent event.

Consistency across financial reporting periods

- .16 Financial statements usually present results for one or more preceding financial reporting periods in comparison to those for the current period. Meaningful comparability requires the financial statement items for the various periods to be consistent, which can be achieved by the restatement of preceding period items that were previously reported on a basis which was inconsistent with that for the current period. A less desirable alternative to restatement is disclosure of the inconsistency.
- .17 A change in a methodology used in the valuation might create an inconsistency. A change in the assumptions for valuation reflecting a change in the expected outlook does not constitute an inconsistency although, if its effect is material, then fair presentation would require its disclosure.
- .18 A change in assumptions that results from the application of new standards might create an inconsistency.

Reservations in reporting

- .19 The examples that follow are illustrative of situations where a reservation in reporting is required. Where “reference” appears in square brackets in suggested wording, a paragraph in the actuary’s report would provide the additional explanation necessary for fair presentation.

New appointment

- .20 A newly appointed actuary who uses but is unable to take responsibility for the predecessor actuary’s work would modify the standard reporting language as follows:

I have valued the policy liabilities of [the Company] for its [consolidated] financial statements prepared in accordance with International Financial Reporting Standards for the year ended [31 December xxxx].

In performing this valuation I used the valuation of the policy liabilities at [31 December xxxx-1] which was performed by another actuary who expressed a favourable opinion without reservation as to their appropriateness and fair presentation.

In my opinion, subject to the use of another actuary’s work as noted above, the amount of policy liabilities is appropriate for the stated purpose. The valuation conforms to accepted actuarial practice in Canada and the [consolidated] financial statements fairly present the results of the valuation.

- .21 If the actuary doubts the appropriateness of the predecessor actuary’s work as a result of a review of it, then the actuary would consider a more serious reservation.

Impracticality of restatement

- .22 The actuary would, if necessary and practical, restate the preceding year valuation to be consistent with the current year valuation. If it is not practical to restate the preceding year valuation, the actuary would modify the [opinion](#) paragraph in the standard reporting language.

- .23 An example of an inconsistency that might require restatement is a change in the methodology chosen to measure the [coverage units](#) used to allocate and recognize the [contractual service margin](#) in profit or loss, in which case the opinion paragraph of the [report](#) might appear as follows:

In my opinion, the valuation conforms to accepted actuarial practice in Canada and the amount of policy liabilities is appropriate for the stated purpose. As explained in [reference], [the methodology for XX] for the current year is inconsistent with that used in previous years. Except for that lack of consistency, in my opinion the [consolidated] financial statements fairly present the results of the valuation.

The reference would identify where to find additional information that explains the change in methodology and the impracticality of applying the new methodology retroactively and discloses the effect of the change on the financial statements.

Takeover of insurer with insufficient records

- .24 If the [insurer](#) took over another [insurer](#) with records that did not provide sufficient and reliable [data](#) for the valuation, then the [actuary](#) would modify the standard reporting language as follows:

I have valued the policy liabilities of [the Company] for its [consolidated] financial statements prepared in accordance with International Financial Reporting Standards for the year ended [31 December xxxx]. The valuation conforms to accepted actuarial practice in Canada, except as described in the following paragraph.

During the year, [the Company] took possession of the assets, liabilities, and policies of [WWW Insurer], whose policy records are, in my opinion, unreliable. [The Company] is implementing but has not completed the necessary improvements. My valuation with respect to the policies taken over from [WWW Insurer] therefore involves an unusual degree of uncertainty. The associated policy liabilities comprise [N]% of [the Company's] total policy liabilities at [31 December xxxx].

In my opinion, except for the reservation in the previous paragraph, the amount of policy liabilities is appropriate for the stated purpose and the [consolidated] financial statements fairly present the results of the valuation.

Liabilities different than those calculated by the actuary

.25 If the financial statements of an insurer report policy liabilities that are materially different from those calculated and reported by the actuary then the actuary would need to disclose the difference in the amounts and identify where to find an explanation for the difference. If possible, such explanation would include the important reasons for the difference.

.26 The actuary could report as follows:

I have valued the policy liabilities of [the Company] for its [consolidated] financial statements prepared in accordance with International Financial Reporting Standards for the year ended [31 December xxxx]. My valuation conforms to accepted actuarial practice in Canada.

In my valuation, the amount of the policy liabilities is \$[X]. The corresponding amount in the [consolidated] financial statements is \$[Y]. The sources of this difference are described in [reference].

In my opinion, the amount of policy liabilities in the [consolidated] financial statements is not appropriate and as explained in [reference] the [consolidated] financial statements do not fairly present the results of my valuation.

Change in assumption or methodology affecting disclosure items

.27 If an item valued by the actuary is materially affected by a change in assumption or methodology that is not disclosed in the financial statements, the actuary would modify the opinion paragraph in the standard reporting language to disclose this situation.

.28 An example of such a change might be a change in the methodology for measuring the risk adjustment for non-financial risk that materially affects financial statement disclosures related to insurance contracts initially recognized in the year.

.29 In this case the opinion paragraph of the report could be changed as follows:

In my opinion, the valuation conforms to accepted actuarial practice in Canada and the amount of policy liabilities is appropriate for the stated purpose. As explained in [reference], [the methodology for XX] was changed from that used for the previous year. Except for the absence of the disclosure of this change and its impact, in my opinion the [consolidated] financial statements fairly present the results of the valuation.

The additional information referenced in the report of the actuary would explain the change in methodology and disclose the effect of the change on financial statements.

Examples not requiring reservation in reporting

- .30 When the actuary uses an assumption or methodology set by another party in performing the valuation of policy liabilities and the actuary is able to take responsibility for the work, the actuary would not modify the opinion paragraph in the standard reporting language.

Following are illustrative examples of such situations:

In setting discount rates, the Chief Investment Officer (CIO) of the insurer selects different reference portfolios for two groups of insurance contracts with the same liquidity characteristics creating inconsistency which the actuary considers to be unnecessary. Both reference portfolios are reasonably representative of the liquidity characteristics as required by IFRS 17. The actuary has confidence in the CIO's qualifications, competence, integrity, and objectivity.

The insurer's risk appetite framework clearly indicates that longevity risk is desirable (i.e., the insurer prices it cheaply). The actuary believes that the insurer should require more compensation than it does for taking on longevity risk, but the risk adjustment for non-financial risk reflects the insurer's requirements as required by IFRS 17.

The Chief Financial Officer (CFO) of the insurer classifies some expenses "directly attributable" as defined under IFRS 17 that the actuary would consider not "directly attributable", which results in a material impact on some components of the valuation. The CFO understands the actuary's view and the impact on the financial statements of the difference in view. The actuary has confidence in the CFO's qualifications, competence, integrity, and objectivity, and acknowledges that the CFO's view is reasonable.

2300 Insurance Contract Valuation: International Actuarial Standards of Practice

2310 General

Purpose

.01 When performing [actuarial services](#) in connection with [IFRS 17](#), actuaries should apply the requirements of [IFRS 17](#) and this Section 2300. [Effective January 1, 2023]

- .02 The purpose of this section is to increase [intended users'](#) confidence that
- [Actuarial services](#) are carried out professionally and with due care;
 - The results are relevant to their needs, are presented clearly and understandably, and are complete; and
 - The assumptions and methodology (including, but not limited to, [models](#) and modelling techniques) used are disclosed appropriately.

Relationship to IFRSs

- .03 Section 2300 refers to the content of [IFRS 17](#) and other IFRSs, including any interpretations from the International Financial Reporting Interpretations Committee (IFRIC) or its predecessor, the Standing Interpretations Committee, as issued through 16 August 2019. The guidance in this Section 2300 complements the guidance in [IFRS 17](#), which is not repeated in this Section 2300.

2320 Appropriate Practices

Relevant knowledge requirements

- .01 The actuary would have or obtain sufficient knowledge and understanding of information necessary to perform the assignment, such as:
- [IFRS 17](#), applicable sections of other relevant IFRSs (e.g., IFRS 13 when measuring Fair Value), the entity's [accounting policies](#) and the relevant processes that are applied in the preparation of IFRS financial statements;
 - The business environment in which the entity operates, including the financial market(s) from which it obtains [data](#);
 - The entity's appetite for risks that have an impact on the measurement under [IFRS 17](#);
 - The entity's products and operations;
 - The methodologies and assumptions used by the entity in other relevant contexts and the rationale for any differences;
 - How [laws](#) affect the application of [IFRS 17](#); and
 - The relevant auditing standards.

Materiality

- .02 The actuary would understand the distinction between materiality with respect to the [actuarial services](#), the preparation of IFRS financial statements and the auditing of those financial statements.
- When appropriate for the work, the actuary would seek guidance from the [principal](#) or the entity regarding materiality.
 - In applying subsection 1240, with respect to the preparation of IFRS financial statements, the actuary's threshold of materiality with respect to the [actuarial services](#) would not be greater than the entity's threshold of materiality.
 - In all following paragraphs of Section 2300, any use of 'material' or 'materiality' is with respect to the [actuarial services](#) carried out in accordance with this section.

Proportionality

- .03 The degree of refinement in specific assumptions or methods recommended by the actuary would be proportionate to their possible impact on the results of the [actuarial services](#).

Identification, combination, aggregation, separation, recognition, derecognition, and modification

.04 The actuary would treat the processes of:

- Identification of [insurance contracts](#);
- Combination of [insurance contracts](#);
- Determination of the level of aggregation (refer to 2320.17);
- Separation of components from an [insurance contract](#) for treatment under a different standard;
- Separation of components of an [insurance contract](#) for different treatment under [IFRS 17](#) (if and to the extent permitted);
- Recognition of [groups of insurance contracts](#) and derecognition of [insurance contracts](#); and
- Treatment of [insurance contract](#) modifications

as work subject to paragraph 2210.05.

The actuary would disclose in the actuary's report changes in the above processes, including the rationale for and impact of the changes.

Measurement approach

.05 The actuary would treat the processes of selecting the appropriate measurement approach to be applied to each [group of insurance contracts](#), whether it is the [general measurement approach](#), the premium allocation approach ([PAA](#)), or the [variable fee approach](#), as work subject to paragraph 2210.05.

The actuary would disclose in the actuary's report changes in the above processes, including the rationale for and impact of the changes.

The General Measurement Approach

.06 **General approach for selection of assumptions** – In applying Part 1000, when advising the [principal](#) or the entity on actuarial assumptions, the [actuary](#) would consider matters such as:

- Combining similar risks based on the nature of the insurance obligation, without being constrained by the actual grouping of [insurance contracts](#) that is used for measurement purposes;
- Whether assumptions developed in other contexts, for example pricing assumptions, may be inappropriate for [IFRS 17](#) purposes;
- Links as necessary to ensure consistency between assumptions, (e.g., assumptions related to option exercise patterns would be linked to the economic [scenarios](#));
- The potential asymmetrical distribution of the current estimates (e.g., assumptions to deal with extreme events like tail events or options and guarantees that are triggered by market conditions);
- The credibility of [data](#) when combining information from various sources or time periods; and
- Long term [trends](#) and seasonal variations, and other changes in the environment (e.g., applicable [law](#), economic, demographic, technological and social).

.07 **Process for updating assumptions** – If the [actuary](#) considers it appropriate to change the process, including the methodology, used to update a recommended assumption, the [actuary](#) would discuss the change with the [principal](#), including whether it would constitute a change in [accounting policy](#) or just a change in an accounting estimate as defined in the International Accounting Standard 8 (IAS 8) *Accounting Policies, Changes in Accounting Estimates and Errors*.

The [actuary](#) would disclose in the [actuary's report](#) changes in such processes, including the rationale for and impact of the changes.

Specific considerations for insurance risks

- .08 **Insurance risks** – When advising the [principal](#) or the entity on assumptions to measure [insurance risks](#), the [actuary](#) would consider relevant factors including the following:
- Characteristics of the [insurance contract](#) including the risks being insured;
 - Characteristics of the [policyholder](#) and the way the contract was sold;
 - Past experience of incurred claims including patterns of delays in reporting and payment and the relevance to expected future experience; and
 - Practices of the entity such as underwriting procedures and claims management.
- .09 **Policyholder Options** – When advising the [principal](#) or the entity on assumptions for the exercise of options by [policyholders](#), the [actuary](#) would consider factors such as the following:
- Past experience of how [policyholders](#) have exercised options;
 - Likely behaviour of [policyholders](#), taking into account factors such as anti-selection, the effects of non-financial considerations, and the relative advantages to the [policyholder](#) of exercising any options;
 - Characteristics of how the [insurance contracts](#) are sold and serviced;
 - Significant scheduled changes in premiums, charges, benefits or terms and conditions; and
 - Any short-term spikes in cancellation rates created by the exercise of certain options.
- .10 **Entity Discretion** – When advising the [principal](#) or the entity on assumptions which consider the exercise of discretion by the entity, the [actuary](#) would take into account expectations, or limitations that may arise from sources, such as
- The entity’s marketing and promotional materials;
 - The entity’s past practices;
 - The entity’s current policy;
 - Market practices; and
 - [Laws](#) and rulings of relevant authorities.

- .11 **Reinsurance Contracts Held** – When advising the [principal](#) or the entity on the measurement of [reinsurance contracts](#) held, the [actuary](#) would
- When estimating amounts recoverable under multiple reinsurance arrangements, consider the order in which the [reinsurance contracts](#) apply;
 - When estimating non-recoverable amounts, consider the [financial condition](#) of the reinsurer, the existence of collateral and the extent to which default by one reinsurer may affect the amounts recoverable from other reinsurers; and in the estimates of future cash flows to be received from [reinsurance contracts](#), allow for the uncertainty caused by the potential of non-performance by reinsurers;
 - When estimating [fulfilment cash flows](#), consider the extent to which each reinsurance counterparty exercises its control over recapture, cancellation or commutation to its advantage; and
 - Consider the impact of reinstatement of [reinsurance contracts](#) following claims.
- .12 **Reinsurance Contracts Issued** – When advising the [principal](#) or the entity on the measurement of [reinsurance contracts](#) issued, the [actuary](#) would consider circumstances such as:
- The expected behaviour with respect to the available options of the [policyholders](#), the issuer of the underlying [insurance contracts](#) and all intermediate reinsurers;
 - The underwriting and management practices, including the underwriting of facultative placements, and the claim management processes impacting the [reinsurance contracts](#) issued;
 - Reinstatements of [reinsurance contracts](#) following claims; and
 - Default by the issuer of the underlying [insurance contracts](#) and all intermediate reinsurers.
- .13 **Currency exchange** – When advising the [principal](#) or the entity on the estimation of [fulfilment cash flows](#) in multiple currencies, the [actuary](#) would reflect current market expectations of future currency exchange rates.

- .14 **Discount rates** – When advising the [principal](#) or the entity on the derivation of
- Discount rates for periods beyond those for which observable [data](#) from an active market is available, the [actuary](#) would consider how current rates are expected to evolve over time using the best information available in the circumstances, including such market prices as are observable;
 - Discount rates for cash flows of [insurance contracts](#) that vary with returns of the entity's invested assets, the [actuary](#) would consider the entity's investment policy, as applied in practice, taking into account the entity's [communications](#) to various stakeholders and, where applicable, anticipated [policyholder](#) behaviour;
 - Illiquidity and credit or default adjustments for determining the discount rates, the [actuary](#) would consider
 - Approaches that are robust and that would be able to be applied reliably over time and under a variety of market conditions, to reflect the illiquidity of the cash flows underlying the relevant liabilities; and
 - The possible methods for calculating such adjustments to observed market rates. Methods include market-based techniques, structural model techniques and expected/unexpected credit loss techniques.
- .15 **Contracts with cash flows that vary with returns on underlying items** – When advising the [principal](#) or the entity on contracts whose cash flows vary with returns on [underlying items](#), the [actuary](#) would
- Select discount rates used to calculate the present value of the cash flows to measure the [fulfilment cash flows](#) that are consistent with the investment returns anticipated in the estimates of the future cash flows. Returns on assets would be estimated using prospective expectations consistent with current market expectations of future economic conditions; and
 - For cash flows which are subject to a floor or a cap, consider the associated impact, if any, on the estimates of future cash flows, the [risk adjustment for non-financial risk](#) and the discount rates in the projection.

- .16 **Maintenance expenses** – When advising the [principal](#) or the entity on the estimation of cash flows for maintenance expenses, such as policy administration and claim handling costs, and attributable overheads, the actuary would consider factors such as:
- The entity’s cost-accounting and expense allocation policies;
 - Expenses expected to arise from fulfilling insurance obligations existing on the [measurement date](#). This estimate would consider factors such as the entity’s past experience and current business plans, and the impact of future inflation; and
 - Terms of any outsourcing arrangements.
- .17 **Insurance acquisition cash flows** – The actuary would be satisfied that the allocation of [insurance acquisition cash flows](#) to each [portfolio of insurance contracts](#) is made on a consistent basis.

- .18 **Risk adjustment for non-financial risk** – When advising the [principal](#) or the entity on the [risk adjustment for non-financial risk](#), the [actuary](#) would
- Understand the [non-financial risk](#) inherent in the [insurance contracts](#);
 - In assessing what the entity requires as compensation for bearing the [non-financial risk](#):
 - Reflect the diversification benefit that the entity recognizes at the relevant level of consolidation; and
 - Consider sources of relevant information such as the entity’s capital management, risk management and pricing policies;
 - Select a methodology that, at the chosen level of aggregation
 - Uses assumptions that are consistent with those used in the determination of the corresponding estimates of future cash flows;
 - Reflects the risk differences between the [portfolios of insurance contracts](#); and
 - Allows for the diversification that the entity recognizes.
 - Make appropriate allowance for mechanisms that result in risk being passed to the [policyholder](#) (e.g., contracts with participation or adjustment features);
 - Consider whether the difference between the total of the calculated gross [risk adjustments for non-financial risk](#) and the total of the ceded [risk adjustment for non-financial risk](#) fairly reflects the compensation that the entity requires for bearing the uncertainty of its net exposure; and
 - When advising on the confidence level disclosure required by [IFRS 17](#), where the [risk adjustment for non-financial risk](#) has not been determined using a specified confidence level approach, consider
 - The ability to diversify [non-financial risk](#) over the entity’s consolidated business; and
 - The inherent uncertainty in the translation to a confidence level and the need to describe such uncertainty in the [actuary’s report](#).

.19 **Aggregation and Contractual Service Margin (CSM)** – The actuary would treat the processes of

- Identification of portfolios of insurance contracts;
- Allocation of individual insurance contracts into portfolios of insurance contracts, and division of each portfolio of insurance contracts into groups of insurance contracts;
- Treatment of the loss component on onerous contracts;
- Determination of the coverage units; and
- Roll forward of the contractual service margin

as work subject to paragraph 2210.05.

The actuary would disclose in the actuary's report changes in the above process, including the rationale for, and impact of the changes.

The Premium Allocation Approach (PAA)

.20 When advising the [principal](#) or the entity in relation to the use of the [PAA](#) for a [group of insurance contracts](#), the [actuary](#) would

- At initial recognition, if the [coverage period](#) is longer than one year, consider:
 - Differences between the expected patterns of insurance revenue under the [general measurement approach](#) and under the [PAA](#);
 - Differences between the expected timing of cash flows under the [general measurement approach](#) and the insurance revenue under the [PAA](#), resulting in different adjustments for the time value of money; and
 - Whether future assumption changes under the [general measurement approach](#) would render the simplification invalid when assessing whether material differences between the respective carrying amounts of the [liabilities for remaining coverage](#) under the [PAA](#) and the [general measurement approach](#) are reasonably expected to arise;
- Assess whether [insurance contracts](#) in the group have a significant financing component, advise the [principal](#) or the entity accordingly, and measure the liability accordingly;
- Be aware of whether the entity has chosen, in accordance with [IFRS 17](#), to recognize [insurance acquisition cash flows](#) as expenses when it incurs those costs and determine the liability in accordance with the entity's choice;
- Be aware of whether the entity has chosen to reflect the time value of money and the effect of [financial risk](#), when not required to do so, and determine the liability in accordance with the entity's choice; and
- Consider whether facts and circumstances indicate that the [group of insurance contracts](#) is or has become onerous and advise the [principal](#) or the entity accordingly.

The Variable Fee Approach

.21 In using the [variable fee approach](#), the [actuary](#) would apply the guidance for the [general measurement approach](#) except for 2320.09 (Reinsurance Contracts Held) and 2320.10 (Reinsurance Contracts Issued), as the [variable fee approach](#) does not apply to reinsurance.

Financial statement presentation and disclosure

- .22 Where the information provided by the actuary will be used in financial statement presentation and disclosure,
- The actuary would provide the related information needed to comply with the relevant presentation and disclosure requirements of [IFRS 17](#) and the entity's [accounting policies](#); and
 - If the actuary becomes aware that such information is used in the presentations and/or disclosures incorrectly or inappropriately, the actuary would discuss and report these issues to the [principal](#).
- .23 In providing advice on the disclosures of reconciliations where the order of calculation alters the information disclosed, the actuary would apply a consistent order of calculation across all reconciliations and from period to period, or disclose any change, including the rationale for and impact of the change, in the actuary's report.

Transition

- .24 When advising the [principal](#) or entity on whether the full retrospective application of [IFRS 17](#) at transition is impracticable, the actuary would take into consideration factors such as:
- The availability and integrity of the past [data](#) that are required to determine the [fulfilment cash flows](#);
 - The availability and integrity of information on past products;
 - The availability, without the benefit of hindsight, of sufficient [data](#) to determine the initial assumptions and subsequent changes that the entity would have adopted over the lifetime of the [insurance contracts](#);
 - The method that would have been used to adjust past known interest rates to achieve the rates that reflect the characteristics of the [insurance contracts](#); and
 - The difficulty, without the benefit of hindsight in evaluating the past [risk adjustment for non-financial risk](#) and entity's use of discretion.

2330 Communication

Disclosures

- .01 In addition to complying with Section 1700, in any report other than the summary report described in subsection 2230, the actuary would disclose in the actuary's report
- Information regarding a change in assumptions or method, whether arising from a consistent or changed process;
 - Changes in processes, together with the rationale for and impact of the changes, related to
 - The identification, combination, aggregation, separation, recognition, derecognition and modification (2320.02);
 - The selection of the measurement approach (2320.03);
 - The process for updating assumptions (2320.05);
 - Aggregation and contractual service margin (2320.17); and
 - The order of calculation on reconciliation provided for financial statement presentation and disclosure (2320.21); and
 - When the risk adjustment for non-financial risks has not been determined using a confidence level approach, the uncertainty inherent in the translation to a confidence level (2320.16).

2400 The Appointed Actuary

2410 Definitions

- .01 In sections 2400 and 2500, “senior management” means
- In the case of a Canadian insurer, the chief executive officer, the chief financial officer, and the chief risk officer; and
 - In the case of a foreign insurer, both the chief agent for Canada and the person designated by the insurer as having responsibility for its Canadian operation.
- .02 In this section 2400, “directors” means an insurer’s board of directors and, in the case of a foreign insurer, includes the person whom they designate as responsible for the insurer’s Canadian branch.

2420 Scope

- .01 Part 1000 applies to work within the scope of this section 2400.
- .02 This section 2400 applies to an appointed actuary who, pursuant to
- The federal Insurance Companies Act, is the actuary of a company or society;
 - The federal Insurance Companies Act, is the actuary of the Canadian branch of a foreign company; or
 - A provincial Act, has the access to information, protection against civil liability, and duties in an insurer, that are substantially the same as those of the appointed actuary in the federal Act.
- .03 This section 2400 also applies to an actuary who has the access to information and protection against civil liability equivalent to that which the federal Insurance Companies Act grants to an appointed actuary, even if this actuary is not an appointed actuary.

2430 Accepting and continuing an engagement

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| <p>.01 Section 1300 applies rigorously to the engagement. [Effective February 1, 2018]</p> |
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Qualifications, experience, and knowledge

- .02 The necessary qualifications, experience, and knowledge for the engagement go beyond technical understanding and include the awareness that comes with maturity, communication with other actuaries, discussions at Institute meetings, and familiarity with conditions both internal and external to the insurer, and include communications skills.

- .03 An actuary accepting an engagement for the first time may wish to arrange professional, formal, and timely access to another actuary with experience as an appointed actuary.
- .04 It is important that the insurer's directors understand and accept the actuary's role and its requirements for time, resources, and access to information. The actuary may wish written confirmation of the understanding and acceptance unless the role is part of the insurer's corporate culture.

Information needed

- .05 The information necessary for the work consists of the records, accounts, documents, and oral briefings which provide an understanding of the insurer's operations, its obligations, and the resources available to meet those obligations. That information includes, but is not limited to
- Files of in-force policies and outstanding claims, including their reinsurance;
 - Policy provisions and other communications with policy owners;
 - Past experience data;
 - Past financial data;
 - Communications with auditors and regulators;
 - Pricing practice;
 - Underwriting practice;
 - Accounting practice;
 - Claims settlement practice (including case estimate practice) and cost;
 - Asset-liability management practice;
 - Capital management practice;
 - Enterprise risk management policy; and
 - Own risk and solvency assessment (ORSA) report.

- .06 The process to identify and assure timely receipt of that information includes
- An understanding of the insurer's decision-making;
 - Continual communication with members of management who can supply information; and
 - Continual communication with the auditor in accordance with the CIA/CICA *Joint Policy Statement*.

2440 Report on matters requiring rectification

- .01 The appointed actuary should identify and monitor matters that may threaten the insurer's financial condition. The appointed actuary should investigate and then report, as required by law, any such matter that requires rectification to the senior management and, in the case of a Canadian insurer, send a copy of the report to the directors. Depending on the jurisdiction of the insurer, the law may also require that the report be provided to the insurer's regulator. [Effective April 15, 2017]
- .02 The report may include recommendations for rectification and should specify a deadline for rectification that the actuary may later extend if appropriate. If there is no suitable rectification by that deadline or its extension, then the appointed actuary should report the matter to the insurer's regulator. [Effective April 15, 2017]
- .03 The sensitivity of financial condition to adverse conditions and events varies among insurers. Financial condition and hence, the magnitude of the conditions and events that may threaten it, also varies among insurers.
- .04 The frequency and intensity of the monitoring depend on the threatening conditions and events and on the circumstances of the insurer. A quarterly review would usually be a minimum.
- .05 There would be no such report to senior management of an adverse condition that does not threaten the insurer's financial condition. Informal notification and consultation would usually precede, and may obviate, that report to senior management.
- .06 That report would describe the threatening condition or event and the assumptions and methods in the actuary's investigation of it. It is desirable that the report includes recommendations for its rectification.
- .07 The deadline would allow time, that is reasonable in the circumstances, to arrange rectification.
- .08 The report to the regulator would describe the actuary's investigation, the report to senior management, and senior management's response to that report. The actuary would advise the directors of the report to the regulator.

2450 Report to the directors

- .01 The appointed actuary for a Canadian insurer should report at least yearly to the directors, or to their audit committee if the directors so delegate,
- On the insurer's financial position and financial condition; and
 - If required by law;
 - If the insurer has one or more participating accounts;
 - On the method of allocation of income and expenses to each such participating account;
 - On the management of the participating account(s), the dividend policy and dividend scales for the participating policy owners; and
 - If the insurer has adjustable policies in force, on the criteria established or amended by the directors for changes made by the company to the premium or charge for insurance, amount of insurance or surrender value in respect of its adjustable policies. [Effective April 15, 2017]
- .02 The appointed actuary for a foreign insurer should report at least yearly to its chief agent for Canada on its financial position and financial condition. [Effective April 15, 2017]

Allocation of income

- .02 The report on allocation of income and expenses among accounts would consider the fairness and equity of such allocation to participating policy owners.

Management of the participating account(s)

- .03 The report on the management of the participating account(s) would consider the fairness to participating policy owners of the policy established by the directors respecting the management of the participating account(s).

Dividend policy and dividend scale

- .04 The report on the dividend policy would consider the fairness of the policy to the participating policy owners. The report on the dividend scale would consider the conformity of the dividend scale to the dividend policy and its fairness to the participating policy owners.

Adjustments of adjustable policies

- .05 The report on adjustable policies would consider the fairness of the criteria for changes to adjustable policies established or amended by the directors, the fairness to adjustable policy owners of the adjustments made, and their conformity to those criteria.

Fairness opinions

.06 Where the applicable law requires that the appointed actuary opine on the fairness of the policies, criteria, or methods established by the insurer with respect to any of

- Management of the participating accounts;
- Dividend policy;
- Dividends declared;
- Policy established respecting the criteria for making adjustments to adjustable policies and the adjustments made under this policy;
- Allocation of investment income to the participating accounts; and
- Allocation of expenses to the participating accounts;

the wording of an unqualified opinion would be as follows:

Management of participating accounts opinion

I have reviewed the policy established by the Board of Directors with respect to the management of the participating accounts of [the Company], [including amendments made during the most recent 12 months]. I conducted my review in accordance with accepted actuarial practice in Canada and pursuant to the guidance of the Superintendent of Financial Institutions.

In my opinion, the policy is fair to the participating policyholders.

Mary F. Roe

Fellow, Canadian Institute of Actuaries

[Place of issue of opinion]

[Date of opinion]

Dividend policy opinion

I have reviewed the policy established by the Board of Directors for determining the dividends [and bonuses or other benefits] of [the Company], [including amendments made during the most recent 12 months]. I conducted my review in accordance with accepted actuarial practice in Canada and pursuant to the guidance of the Superintendent of Financial Institutions.

In my opinion, the policy is fair to the participating policyholders.

Mary F. Roe
Fellow, Canadian Institute of Actuaries
[Place of issue of opinion]
[Date of opinion]

Dividend declaration opinion

I have reviewed the proposed dividends [and bonuses or other benefits], determined by the Board of Directors of [the company] with respect to policy years [ending between XX and YY], and have considered whether they have been determined in accordance with the policy established by the Board. I conducted my review in accordance with accepted actuarial practice in Canada and pursuant to the guidance of the Superintendent of Financial Institutions.

In my opinion, the proposed dividends [and bonuses or other benefits] are in accordance with the policy established by the Board and are fair to the participating policyholders.

Mary F. Roe
Fellow, Canadian Institute of Actuaries
[Place of issue of opinion]
[Date of opinion]

Adjustable policy changes opinion

I have reviewed the criteria established by the Board of Directors of [the company] with respect to any changes to be made to the premium or charge for insurance, amount of insurance or surrender value in respect of its adjustable policies [including amendments made during the most recent 12 months] and the changes made pursuant to those criteria. I conducted my review in accordance with accepted actuarial practice in Canada and pursuant to the guidance of the Superintendent of Financial Institutions.

In my opinion, the criteria are fair to the adjustable policyholders, and the changes made to the adjustable policies during the most recent 12 months are in accordance with those criteria and are fair to the adjustable policyholders.

Mary F. Roe
Fellow, Canadian Institute of Actuaries
[Place of issue of opinion]
[Date of opinion]

Allocation of investment income to participating account(s) opinion

I have reviewed the method established by the Board of Directors for determining the portion of the investment income or losses of [the company] for the financial year ending [XX], including capital gains and losses, that is allocable to the participating account [each participating account] maintained by the company. I conducted my review in accordance with accepted actuarial practice in Canada and pursuant to the guidance of the Superintendent of Financial Institutions.

In my opinion, the method is fair and equitable to the participating policyholders.

Mary F. Roe
Fellow, Canadian Institute of Actuaries
[Place of issue of opinion]
[Date of opinion]

Allocation of expenses to participating account(s) opinion

I have reviewed the method established by the Board of Directors for determining the portion of the expenses, including taxes, of [the company] for the financial year ending [XX] that is allocable to the participating account [each participating account] maintained by the company. I conducted my review in accordance with accepted actuarial practice in Canada and pursuant to the guidance of the Superintendent of Financial Institutions.

In my opinion, the method is fair and equitable to the participating policyholders.

Mary F. Roe
Fellow, Canadian Institute of Actuaries
[Place of issue of opinion]

[Date of opinion]

- .07 If the appointed actuary is unable to issue an unqualified opinion, the wording of the opinion would be adjusted to reflect the necessary qualification.

2460 Communication with the auditor

- .01 Communication with the insurer's auditor would be desirable when the actuary makes a report to the insurer's senior management on a matter requiring rectification or makes an unfavourable report on the insurer's financial condition.

2470 Certification of capital filings as required by the regulator

- .01 This subsection 2470 applies to the appointed actuary of a life insurer when giving an opinion on the appropriateness of regulatory capital calculations pursuant to law or on the appropriateness of internal models used to determine required capital for segregated fund guarantees pursuant to requirements of the regulator.

- .02 Such certifications should contain an opinion signed by the appointed actuary. [Effective April 15, 2017]

Appropriateness of regulatory capital calculations

- .03 The appointed actuary should prepare a report to support the opinion on the appropriateness of regulatory capital calculations that outlines the areas where the calculation required discretion or significant technical calculations, and the methods and judgments that were applied. The report should be completed before the provision of a signed opinion pursuant to subsection 2470. [Effective February 22, 2018]

- .04 The opinion would be provided annually in support of the fiscal year-end regulatory capital filing on form(s) as directed by the regulator.
- .05 In providing such an opinion, the actuary would not be opining on whether the underlying factors or specified methods to be followed are appropriate but rather on the appropriateness of any interpretation and discretionary technical calculations and methods with respect to such guidelines.
- .06 Here is the standard opinion language [insert appropriate wording where indicated by square brackets].

“I have reviewed the calculation of the Life Insurance Capital Adequacy Test ratios of [company name] as at [date]. In my opinion, the calculations of the components of the base solvency buffer, available capital, surplus allowance, and eligible deposits have been determined in accordance with the regulatory guidelines, and the components of the calculations requiring discretion were determined using method and judgement appropriate to the circumstances of the company.”

[Note: For application to branches “Life Insurance Capital Adequacy Test ratios” is replaced by “Life Insurance Margin Adequacy Test (LIMAT)” and “Base Solvency Buffer” is replaced by “Required Margin” and “Available Capital” is replaced by “Available Margin”.]

[Note: For filings for provincially regulated companies, the ratio definition, and definitions of base solvency buffer, required capital, available capital, surplus allowance, and eligible deposits, would be amended to reflect the appropriate definitions in the provincial requirements.]

Appropriateness of internal models used to determine required capital for segregated fund guarantees

- .07 The appointed actuary should prepare a report to support the opinion on the appropriateness of internal models used to determine required capital for segregated fund guarantees that outlines how the models comply with the related requirements of the regulator. The report should be completed before the provision of a signed opinion pursuant to subsection 2470. [Effective April 15, 2017]

- .08 The opinion would be provided annually in support of the fiscal year-end regulatory capital filing on form(s) as directed by the regulator. The opinion would also be provided to the regulator upon a new application to the regulator for permission to use such a model for required capital purposes and upon request of the regulator when making a modification to an existing model approved by the regulator.
- .09 In providing such an opinion, the actuary would not be opining on whether the underlying factors or specified methods to be followed are appropriate, but rather on the compliance with the requirements of the regulator.
- .10 Here is the standard opinion language [insert appropriate wording where indicated by square brackets].

“I have reviewed the internal model of [company name] for determining required capital for segregated fund guarantee risks as at [date] in the context of the requirements of [the regulator]. In my opinion, the [proposed] model is compliant in all material respects with the requirements of [the regulator] for an approved model used to determine required capital for segregated fund guarantee risks.”

2500 Financial Condition Testing

2510 Scope

- .01 Part 1000 applies to work within the scope of this section 2500.
- .02 This section 2500 applies to the appointed actuary of an insurer when reporting on the insurer's financial condition pursuant to law.

2520 Analysis

- .01 The appointed actuary should make an investigation at least once during each financial year of the insurer's recent and current financial position and financial condition, as revealed by financial condition testing for selected scenarios. [Effective January 1, 2020]
 - .02 The appointed actuary should make a report of each investigation in writing to the insurer's board of directors (or to the appropriate committee of the board such as audit committee, risk committee, etc., if they so delegate) or its chief agent for Canada. The report should identify possible actions, and reasons for those actions, for dealing with any threats to satisfactory financial condition that the investigation reveals. The actuary should also comment on the consistency of the results of the investigation and possible actions with the own risk and solvency assessment (ORSA). [Effective January 1, 2020]
 - .03 The appointed actuary should ensure that the investigation is current. The investigation should take into consideration recent events and recent financial operating results of the insurer. [Effective April 15, 2017]
- .04 The timing and frequency of the appointed actuary's investigations would be sufficient to support timely corrective actions by management and the board of directors or chief agent for Canada.

Recent and current financial position

- .05 The investigation would review operations of recent years and the financial position at the end of each of those years.

Financial condition testing

- .06 Financial condition testing examines the effect of selected adverse scenarios on the insurer's forecasted capital adequacy. The actuary can supplement the financial condition testing with the use of other means, such as the ORSA and the business plan.

- .07 The purpose of financial condition testing is to identify plausible threats to satisfactory financial condition, actions that would lessen the likelihood of those threats, and actions that would mitigate a threat if it materialized.
- .08 Financial condition testing is defensive, i.e., it addresses threats to financial condition rather than the exploitation of opportunity.

Satisfactory financial condition

- .09 The insurer's financial condition would be satisfactory if throughout the forecast period,
- Under the solvency scenarios, the statement value of the insurer's assets is greater than the statement value of its liabilities;
 - Under going concern scenarios, the insurer meets the regulatory minimum capital ratio(s); and
 - Under the base scenario, the insurer meets its internal target capital ratio(s) as determined by the ORSA.

Data, methods, and assumptions

- .10 The actuary would start the forecast period using the data as of the most recent available fiscal year-end statement of financial position date.
- .11 The assumptions and methods would reflect up-to-date studies and analysis available to the actuary.
- .12 The policy liabilities would be revalued at the end of the first financial year of the forecast period if a change in assumption or method that is expected to be made by the insurer would result in a material change to the financial position of the insurer.
- .13 The actuary would consider recent events and recent operating results of the insurer up to the date of the report.
- .14 If an adverse event occurs between the date of the report and the date of its presentation to the insurer's board of directors (or its chief agent for Canada), then the actuary would, at a minimum in the presentation to the insurer's board of directors (or its chief agent for Canada), address the event and its potential implications on the results of the investigation. If appropriate, the actuary would redo the investigation.

Forecast period

- .15 The forecast period for a scenario would be sufficiently long to be aligned with the risk emergence and the recognition of impacts through the accounting and solvency results, and to capture the effect of management actions.

Scenarios

- .16 The scenarios would consist of a base scenario and adverse scenarios. Each scenario takes into account not only in-force policies but also the policies assumed to be sold or acquired during the forecast period, and both insurance and non-insurance operations (e.g., asset management, banking, or trust company subsidiaries).

Base scenario

- .17 The base scenario would be a realistic set of assumptions used to forecast the insurer's financial position over the forecast period. Normally, the base scenario would be consistent with the insurer's business plan. The actuary would accept the business plan's assumptions for use in the base scenario unless these assumptions are so inconsistent or unrealistic that the resulting report would be misleading. The actuary would report any material inconsistency between the base scenario and the business plan.

Adverse scenarios

- .18 An adverse scenario is developed by stress testing the assumptions used in forecasting the business plan, including the determination of insurance contract liabilities, with regard to risk factors that may trigger potential threats to the insurer's financial condition. The number and types of adverse scenarios may vary among insurers and over time for a particular insurer.

Solvency scenario

- .18.1 A solvency scenario is a plausible adverse scenario if it is credible and has a non-trivial probability of occurring. The actuary may use percentile rankings of outcomes to determine whether a solvency scenario is both plausible and adverse.
- .19 The actuary would consider material, plausible risks or events to the insurer. Reverse stress testing can help assess whether certain risk factors need to be tested, on the grounds that certain risk factors could never deteriorate to the point where they would be a threat to the insurer's financial condition. The actuary can thereby determine whether a material, plausible risk or event exists for the insurer over the forecast period.

Going concern scenario

- .19.1 A going concern scenario is an adverse scenario that is more likely to occur and/or less severe than a solvency scenario, and could include risks not considered in solvency scenarios.

Risk categories

.20 The actuary would assess various risk categories and identify those that are relevant to the insurer's circumstances when considering threats to capital adequacy under adverse scenarios.

.21 Repealed

Integrated scenarios

.22 The actuary would construct integrated scenarios by combining two or more risk factors whose combination gives rise to an adverse scenario.

.23 In developing integrated scenarios, the actuary would consider how risk factors interact. For example, the impact of combining adverse scenarios for two or more risk factors, where each is associated with a relatively high probability, may give rise to an integrated adverse scenario to which the insurer's financial condition is sensitive. In such cases, an integrated scenario would be constructed by combining stress tests related to two or more risk factors. An integrated scenario would be designed so as to itself constitute an adverse scenario.

.24 Repealed

Ripple effects

.25 In assuring consistency within each scenario, the actuary would consider ripple effects, including policy owner action, management's routine action, and regulatory action. Although most of the other assumptions used in the base scenario may remain appropriate under the adverse scenario, some may require adjustment to reflect the interdependence of assumptions in the adverse scenario.

.26 Selection of the assumptions for management's routine action would, where appropriate, take into account

- Effectiveness of the insurer's management information systems and adjustment mechanisms;
- Insurer's historical record of promptness and willingness, to respond to adversity;
- Policy owner action; and
- External environment assumed in the scenario.

.27 The actuary would report management's routine action, so that users may consider its practicality and adequacy. The actuary may also report the results assuming that the insurer does not respond to the adversity.

.28 Ripple effects also include regulatory action, which would vary depending on the regulatory capital ratio requirement breached by the adverse scenario. The actuary would consider action that could be taken by the Canadian regulator(s) as well as action taken by regulators in foreign jurisdictions. Such regulatory action and associated management action would consider the local assessment of solvency regardless of the insurer's worldwide solvency position as measured by Canadian regulatory standards. The actuary could also review the regulatory actions included in the ORSA's scenario testing, including internal target-setting exercise, and consider their applicability to the financial condition testing's adverse scenarios.

Corrective management actions

.29 For each of the adverse scenarios that would result in a threat to satisfactory financial condition, the actuary would identify possible corrective management actions that would lessen the likelihood of that threat, or that would mitigate that threat, if it materialized.

.29.1 Consideration would also be given to the effectiveness of possible corrective management actions in a volatile or stressed environment.

Management actions

.29.2 Management actions may include but are not limited to

- Repricing of insurance products;
- Policyholder dividend scale updates;
- Adjustments to non-guaranteed product elements;
- Suspending dividend payments, capital reductions, and transfers to the parent or home office, where applicable;
- Raising additional capital or adopting an approved plan to raise additional capital if and when needed within a reasonable time frame, or, in the case of a branch, requesting transfer of adequate funds from the parent company;
- Strengthening risk management practices;
- Mitigating the risk causing the capital shortfall; and
- An increased level of monitoring and reporting with respect to the insurer's capital position.

.30 Whether a management action is considered a ripple effect, a corrective management action, or a combination of both, would depend on the scenario analyzed and circumstances of the insurer.

Scope of the investigation and report

- .31 The report would contain the key assumptions of the base scenario and the adverse scenarios posing risks to the satisfactory financial condition of the insurer.
- .32 The report would disclose each of the risks considered in undertaking the financial condition testing analysis. It is expected that the actuary would scenario test and report at least once during each financial year on the base scenario, and adverse scenarios posing significant risk for the insurer.
- .33 The report would also contain the adverse scenarios examined that cause the insurer to fall below its internal target capital ratio(s) as determined by the ORSA. The report would make it clear whether under these scenarios the regulators may impose restrictions on the operations of the insurer, including its ability to write new business.
- .34 If the investigation identifies any plausible threat to satisfactory financial condition, then the actuary would identify possible corrective management action that would lessen the likelihood of that threat, or that would mitigate that threat, if it materialized. For each such adverse scenario reported upon, the actuary would report the results both with and without the effect of corrective management action. The actuary would ensure that the disclosure of the corrective management action is sufficiently clear so that users may consider its practicality and adequacy.
- .35 The report would present the financial position of the insurer at each fiscal year-end throughout the forecast period.

Revaluation of the policy liabilities

- .36 Ideally, for the base and each adverse scenario, the insurance contract liabilities and, if applicable, other policy liabilities or reinsurance assets, would be revalued throughout the forecast period.

Frequency and/or timing

- .37 The frequency and/or timing of the report would depend on the urgency of the matters being reported and on the desirability of aligning financial condition testing into the insurer's financial planning cycle and the ORSA process.
- .38 The frequency and/or timing of the actuary's investigation would be adjusted where an adverse change in the insurer's circumstances since the last investigation may be so significant that to delay reporting to the time of the next scheduled investigation would be imprudent. For example, failure to meet the internal target capital ratio(s), or adoption of a radically different business plan, may necessitate the preparation of an immediate report.

2530 Reporting

- .01 In the case of a Canadian insurer, the appointed actuary should report to the board of directors or to an appropriate committee of the board (audit committee, risk committee, etc.) if they so delegate. In the case of a Canadian branch of a foreign insurer, the appointed actuary should report to the chief agent for Canada and may also report to the responsible senior executive in the parent head office. [Effective February 22, 2018]
- .02 In order to give the insurer's senior management an opportunity to react to the results of the investigation, the actuary would discuss the report with the insurer's senior management in advance of its submission to the board of directors or chief agent for Canada.
- .03 The report would be in writing, but an additional oral report that permits questions and discussions is desirable. An interpretative report would be more useful than a statistical report. The actuary would also consider other reporting such as the ORSA report to ensure, where appropriate, the consistency of messages and/or delivery of consolidated ORSA and financial condition testing results.
- .04 The report would be submitted within 12 months following each fiscal year-end.

2540 Opinion by the actuary

- .01 The report should contain an opinion signed by the appointed actuary. [Effective April 15, 2017]
- .02 In this opinion, “future financial condition” has the same meaning as “financial condition.” The actuary may use the words “future financial condition” in order to comply with legislation or regulation in some jurisdictions.

- .03 The wording of the opinion follows: [insert appropriate wording where indicated by square brackets]

“I have completed my investigation of the [future] financial condition of [insurer name] as at [date] in accordance with accepted actuarial practice in Canada.

I have analyzed its forecasted financial positions over an appropriate forecast period under a series of scenarios. As part of my investigation, I have used [the ORSA and its determination of] or [insurer name] internal target capital ratio(s).

[My report includes the identification of corrective management actions that could be taken to mitigate the effect of adverse scenarios threatening [[insurer name] [solvency]] or/and [its ability to operate on a going concern basis]].

In my opinion, the [future] financial condition of the insurer [is satisfactory] or [is satisfactory subject to...] or [is not satisfactory for the following reason(s)...].”

[Montréal, Québec]
[Report date]

[Mary F. Roe]
Fellow, Canadian Institute of Actuaries

- .04 A satisfactory opinion would disclose the action(s) it is subject to for any of the following situations:
- The base scenario projected regulatory capital ratios are maintained or brought back above internal target capital ratios as a result of an existing plan consistent with regulatory expectations.
 - For the base scenario:
 - Regulatory capital ratios are projected to decrease below internal target capital ratio(s) at a period beyond the regulator's monitoring horizon;
 - The insurer has a plan to bring the ratios back above internal targets within a time frame consistent with regulatory expectations; and
 - The appointed actuary is satisfied that such plan is realistic.
 - For going concern scenarios, the appointed actuary is satisfied that corrective management actions can restore the insurer's regulatory capital ratio(s) to above regulatory minimum capital ratio(s) in a manner consistent with regulator's expectations.
 - For solvency scenarios, the appointed actuary is satisfied that corrective management actions under the control of the insurer can restore the insurer's assets to be sufficient to meet its obligations.
- .05 Situations where a satisfactory financial condition is met because of management's routine actions, would not require the opinion to state those actions

2600 Ratemaking: Property and Casualty Insurance

2610 Scope

- .01 Part 1000 applies to work within the scope of this section 2600.
- .02 This section 2600 applies to the derivation of indicated rates for an insurance contract of property and casualty insurance written by an insurer, a reciprocal insurance exchange, or an underwriting syndicate.
- .03 This section 2600 does not apply to the derivation of indicated rates for public personal injury compensation plans covered by the Practice-Specific Standards for Public Personal Injury Compensation Plans.
- .04 This section 2600 applies to the derivation of indicated rates for any entity, such as a residual market mechanism or an advisory organization, which derives indicated rates for an insurance contract to be written by an insurer, regardless of whether or not that entity is itself an insurer.
- .05 This section 2600 applies to the derivation of indicated rates, but not to the recommendation or selection of rates to be charged. The recommended or selected rates may reflect considerations beyond those set forth in this section 2600.
- .06 This section 2600 also applies to the derivation of indicated rates for insurance risks accepted by a property and casualty quasi-insurer, similar to insurance risks accepted under an insurance contract. In this section 2600, “property and casualty quasi-insurer” means an entity that assumes insurance risks that a property and casualty insurer may assume, without having the legal form of an insurer. Examples of property and casualty quasi-insurers include
- Federal or provincial crown corporations or agencies acting in a capacity similar to a property and casualty insurer;
 - Providers of extended warranties; and
 - Self-funding mechanisms, such as those created by members of a professional association, or entities that retain some or all of their property and casualty insurance risk.

2620 Method

- .01 The best estimate present value of cash flows relating to the revenue at the indicated rate should equal the best estimate present value of cash flows relating to the corresponding claim costs and expense costs, plus the present value of a provision for profit, over a specified period of time. [Effective April 15, 2017]

- .02 The actuary should select appropriate methods, techniques, and assumptions recognizing that such elements depend on the circumstances affecting the work and that a variety of actuarial methods may be appropriate to derive an indicated rate. [Effective February 1, 2018]

Data

- .03 The actuary would consider the availability and relevance of subject experience and related experience.

Credibility

- .04 The actuary would consider the blending of information from subject experience with information from one or more sets of related experience to improve the predictive value of estimates.

Changes in circumstances

- .05 The actuary would consider that the subject experience, related experience, and future cash flows may be affected by changes in circumstances that may affect expected claim costs, expense costs, and provision for profit.

.06 Relevant circumstances subject to change may include items that are largely under the control of the entity providing insurance, such as

- Underwriting practice;
- Distribution system;
- Claims handling and case estimate setting practice;
- Reinsurance arrangements;
- Data processing and accounting systems;
- Distribution or type of business written;
- Provisions of the insurance contract(s), when not legislated;
- Premium rates; and
- Rating variables;

as well as items that are largely not under the control of the entity providing insurance, such as

- Legislated coverage or benefits; and
- The economic, social, and legal environments.

Development

.07 The actuary would consider that subject experience and related experience may be subject to development over time.

Trend

.08 The actuary would consider that subject experience and related experience may be subject to trend over time.

Unusual events

.09 The actuary would consider that subject experience and related experience may or may not have been subject to catastrophes, large losses, or other unusual events.

Provision for expense costs

.10 The actuary would determine the provision for expense costs that is appropriate for the period during which the rates are expected to be in effect.

- .11 In selecting a provision for expense costs, the actuary would consider
- The various categories of expense costs that are incurred including, as may be applicable, residual market assessments, statutory assessments, policyholder dividends, and reinsurance costs;
 - That expense costs may not be directly proportional to premium; and
 - That one-time expense costs may need to be amortized.
- .12 The provision for expense costs, or other assumptions that are pertinent to its derivation, may be specified to the actuary under the terms of an appropriate engagement.

Provision for profit

- .13 An indicated rate would include a provision for profit.
- .14 The provision for profit, or other assumptions that are pertinent to its derivation, may be specified to the actuary under the terms of an appropriate engagement.

Time value of money

- .15 The investment return rate for calculating the present value of cash flows would reflect the expected investment income to be earned on assets that might be acquired with the net cash flows resulting from the revenue at the indicated rate.
- .16 Among various possible sets of such assets the actuary would consider
- Risk-free assets of appropriate duration;
 - Fixed-income assets of appropriate duration; and
 - Assets which are expected to be acquired.
- .17 The actuary would consider the fact that the provision for profit is not independent of the selected investment return rate and its associated uncertainty.

2630 Reporting

- .01 If an external user report is required and the actuary can report without reservation, the actuary's report should include the standard reporting language consisting of the following scope paragraph,

I have derived the indicated rate(s) in accordance with accepted actuarial practice in Canada, on behalf of [entity commissioning the work], for the following insurance category(ies): [name of insurance category(ies)], to be effective Month XX, 20XX for new business and Month XX, 20XX for renewal business. [Effective February 1, 2018]

- .02 If an external user report is required and the actuary cannot report without reservation, the actuary should modify the standard reporting language accordingly. [Effective February 1, 2018]

- .03 An additional opinion paragraph may be included to conform to the requirements of an external user.

2700 Policyholder Dividend Determination

2710 Scope

- .01 Part 1000 applies to work within the scope of this section 2700.
- .02 Section 2700 applies to advice provided on policyholder dividend determination on individual life, annuity, and health policies.

2720 Report on policyholder dividends

- .01 There should be a written report which documents the advice on policyholder dividend determination, and which describes the framework of facts, assumptions, and procedures upon which the advice was based. [Effective April 15, 2017]
- .02 The report should include
 - A description of the process used to determine dividends;
 - The manner in which policy and experience characteristics are reflected in that process; and
 - The methodology used to calculate dividends, including specific factors used to reflect policy and experience characteristics. [Effective April 15, 2017]
- .03 The report should state whether or not the contribution principle has been followed, and, if it has not been followed, the report should describe any deviations and their rationale. [Effective April 15, 2017]

2800 Public Personal Injury Compensation Plans

2810 Scope

- .01 The standards in this section apply to public personal injury compensation plans for both the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 and the valuation of benefits liabilities for funding purposes.
- .02 Subsection 2820 applies to the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17.
- .03 Subsection 2830 applies to the work and advice an actuary provides with respect to the valuation of benefits liabilities for funding purposes.
- .04 The standards in subsection 2840 provide requirements for a gain and loss analysis resulting from the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 or the valuation of benefits liabilities for funding purposes.
- .05 The standards in subsection 2850 provide requirements for the sensitivity analysis to be conducted for the valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 or the valuation of benefits liabilities for funding purposes.
- .06 The standards in subsection 2860 replace those in subsection 2230 and provide requirements for reporting on valuation of insurance contracts and other obligations for financial reporting in accordance with IFRS 17 or the valuation of benefits liabilities for funding purposes, including the actuary's opinion, reporting on the gain and loss analysis required under subsection 2840 and reporting of the work related to sensitivity testing required under subsection 2850 resulting from valuations.
- .07 The standards in this section may provide useful guidance for other work of an actuary for a public personal injury compensation plan, such as work on the development of assessment rates or premiums, the costing of insurance contract or policy changes, or work on experience-rating programs.

2820 Valuation of Insurance Contracts and Other Obligations for Financial Reporting

- .01 The actuary should follow the requirements under Sections 2100, 2200, and 2300 based on the accounting policies adopted by the public personal injury compensation plan for financial reporting under IFRS 17. [Effective January 1, 2023]
- .02 Notwithstanding paragraph 2820.01 above, the actuary should follow the reporting requirements under subsection 2860 in lieu of those prescribed in subsection 2230. [Effective January 1, 2023]

2830 Valuation of Benefits Liabilities for Funding Purposes

- .01 This subsection 2830 applies to the work and advice an actuary provides under the terms of an appropriate engagement for purposes of the funding of a public personal injury compensation plan.
- .02 Sections 2100, 2200 other than subsection 2230, and section 2300 apply to the work under this subsection with the exceptions and variations as noted below.

2831 Circumstances Affecting the Work

- .01 The actuary's work on the valuation of the benefits liabilities or other items for the purpose of providing input into its funding arrangements should take into account the circumstances affecting the work. [Effective January 1, 2023]
- .02 For the purposes of subsection 2830, the circumstances affecting the work would include:
- Terms of the relevant statute and regulations;
 - Relevant policies and practices of the public personal injury compensation plan; and
 - Terms of an appropriate engagement under which the work is being performed.
- .03 The terms of an appropriate engagement would define the role of the actuary and the purpose of the work. The work of the actuary may be limited to the valuation of the benefits liabilities, or the work may also include advice on the funding of the public personal injury compensation plan, its financial position, and any other actuarial item required under the terms of an appropriate engagement.

- .04 The terms of an appropriate engagement may specify applicable policies of the public personal injury compensation plan relevant to the work of the actuary. These policies may include a funding policy, operational policies and practices, and an investment policy.
- .05 Significant terms of an appropriate engagement may stipulate one or more of:
- Use of a specified asset value or method of asset valuation;
 - The treatment of self-insured employers;
 - The conditions considered in the liability for potential future occupational disease claims; and
 - Depending on the circumstances affecting the work, treatment of definitive amendments and other pending changes.
- .06 Objectives of funding specified by the terms of an appropriate engagement may include, but are not limited to, a specific funding target, the security of benefits, a principle of equity among various groups of employers or various groups of individuals or among generations, or a funding approach for occupational disease claims.
- .07 The purpose of the work may influence one or more of:
- The assumptions chosen for the valuation, including the discount rate;
 - The methods used in the valuation; and
 - The provision for adverse deviations included in the valuation, if any.
- .08 The actuary would consider the plan's funding and investment policies.
- .09 For the purposes of subsection 2830:
- New injury costs refers to the actuarial present value of benefits payable by the plan in respect of all new injuries incurred in a period, whether reported or not, including a provision for the incurred exposure to long latency occupational diseases during the same period, where appropriate.
 - Required revenue is an estimate of the amount necessary to fund the plan including new injury costs, plan administrative expenses, and any revenue adjustment required by the plan's funding policy to respond to its financial position.

- .10 A funding valuation may be completed to determine any or all of the following:
- The plan's financial position under the funding valuation basis;
 - An estimate of new injury costs for periods following the calculation date;
 - An estimate of required revenue for periods following the calculation date; and
 - The sufficiency of proposed premium or assessment rates.

2832 Economic Assumptions

- .01 The economic assumptions chosen for the valuation should be consistent with the plan's funding and investment policies. [Effective January 1, 2023]
- .02 The economic assumptions that are needed would depend on the nature of the benefits that are being valued, and may vary by year. Generally, the needed economic assumptions would include a discount rate and various inflation rate assumptions such as general inflation, wage inflation, and health care inflation.
- .03 The economic assumptions chosen for the valuation would be internally consistent. In particular, the chosen assumptions would generally be appropriate for a similar time horizon. For example, a long-term investment rate of return assumption would generally not be combined with an inflation assumption based on short-term expectations. Similarly, the valuation would generally not mix assumptions based on current market prices (e.g., market-implied inflation expectation) with those not based on current prices.
- .04 When determining a best estimate assumption for the expected rate of investment return, the actuary would take into account the expected investment return on the assets of the public personal injury compensation plan at the calculation date and the expected investment policy after that date.
- .05 In establishing the assumption for the expected rate of investment return, the actuary would assume that there would be no additional returns achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy except to the extent that the actuary has reason to believe, based on relevant supporting data, that such additional returns will be consistently and reliably earned over the long term.
- .06 The expected investment expenses would depend on the investment policy of the plan, the types of investments held and projected to be held in the future, and the nature of investment operations.

- .07 The actuary may adopt an assumption for the expected rate of investment return that varies depending on the part of the public personal injury compensation plan being valued and the assets backing the liabilities in that part.
- .08 The economic assumptions need not be a flat rate but may vary from period to period.

2833 Margins for Adverse Deviations

- .01 The actuary should only include margins for adverse deviations when the circumstances affecting the work require such margins. A non-zero margin should be sufficient, without being excessive, and should have the effect of increasing the benefits liabilities or reducing the reported value of the offsetting assets, the computation of which falls within the scope of the work of the actuary. In addition, the provision resulting from the application of all margins for adverse deviations should be appropriate in the aggregate. [Effective January 1, 2023]
- .02 If the actuary is required by legislation, regulation, or the funding policy of the plan to use a margin for adverse deviations that is outside the range that the actuary considers appropriate, the actuary should use such an imposed assumption, subject to the disclosure requirements under subsection 2860. [Effective January 1, 2023]
- .03 The actuary's decision with respect to margin for adverse deviations may reflect considerations such as
- Funding policy of the public personal injury compensation plan;
 - Relative importance placed on the balancing of competing interests compared to the achievement of full funding;
 - Underlying adaptability of the plan to changes in financial position;
 - Legislative requirements regarding margins;
 - Intergenerational equity among employers and other groups;
 - Level of uncertainty inherent in the assumptions;
 - Level of reliability or credibility of the data or historical information upon which the assumptions are based;
 - Asset/liability mismatch risk;
 - Propensity for ad hoc changes to be made to plan conditions; and
 - Legislative or other restrictions on the ability to mitigate past losses.

- .04 Examples of situations where the circumstances affecting the work might require a best estimate calculation include
- Legislation governing the plan may require a best estimate calculation; or
 - The plan's funding policy may recognize the monopoly nature of the plan and place a high priority on equity among generations, employers, and other groups.

2840 Gain and Loss Analysis

- .01 For each of the valuation for financial reporting purposes under subsection 2820 and valuation for funding purposes under subsection 2830, the actuary should conduct a gain and loss analysis, including a comparison of actual and expected experience for the period between the prior calculation date and the current calculation date. [Effective January 1, 2023]
- .02 The actuary should also conduct a reconciliation of the surplus or deficit position of the plan, provided that such reconciliation is in accordance with the terms of an appropriate engagement. [Effective January 1, 2023]
- .03 The actuary's analysis would include all material gains and losses. At a minimum, the actuary's gain and loss analysis would consider the impact of any significant changes to the assumptions or methods used, any significant changes to the benefits or policies of the plan, legislative changes, investment returns on the plan's assets different from the assumed basis (if reconciling the surplus or deficit position of the plan), and any other areas where the difference between actual and expected experience is significant.
- .04 The actuary would report a change in assumption if the current assumption differs nominally from the corresponding prior assumption, unless the change in the nominal amount results from the application of the same calculation method. For example, if certain rates used in the valuation are based on historical claims experience and calculated using the same averaging formula, the difference in assumed rates between the calculation date and the prior calculation date would not normally be considered as a change in assumptions. Nevertheless, the actuary may choose to disclose the effect of the updated rate assumption on the valuation results.

2850 Sensitivity Analysis

- .01 For each of the valuation for financial reporting purposes under subsection 2820 and valuation for funding purposes under subsection 2830, the actuary should perform sensitivity testing of adverse scenarios, to illustrate and aid the understanding of the effect of adverse changes to assumptions. [Effective January 1, 2023]
- .02 The adverse scenarios that the actuary tests should include at least:
- A decrease of 100 basis points in the gross discount rate used for the valuation; and
 - An increase of 100 basis points in the assumed general rate of inflation while maintaining the gross discount rate at the value used in the underlying valuation. [Effective January 1, 2023]
- .03 The actuary should consider other scenarios that, in the actuary's judgment, represent plausible material risks to which the plan may be exposed, and provide sensitivity testing of those scenarios where appropriate given the circumstances affecting the work. [Effective January 1, 2023]
- .04 When selecting the assumptions and scenarios for sensitivity testing, the actuary would consider the circumstances affecting the work, and would select those assumptions that have a material impact on the benefits liabilities. The actuary may consider testing integrated sensitivity scenarios; for example, the effect of a deep and prolonged recession.
- .05 The actuary may also perform sensitivity testing of favourable scenarios.

2860 Reporting

- .01 For each of the valuation for financial reporting purposes under subsection 2820 and valuation for funding purposes under subsection 2830, the actuary should prepare a report in accordance with the circumstances affecting the work. [Effective January 1, 2023]
- .02 If the actuary can report without reservation, then the actuary's report should conform to the standard reporting language. Otherwise, the actuary should modify the standard reporting language to report with reservation. [Effective January 1, 2023]

.03 An external user report on the work pursuant to subsection 2820 should:

- When the insurance contract liabilities and other obligations disclosed in the financial statements are different than the benefits liabilities calculated under subsection 2830 for funding purposes, the actuary should so state, explain the reason for the difference and provide the effect on the funding level reported in the financial statements;
- Where included in the measurement of insurance contract liabilities, the actuary should disclose the present value of future premium adjustments comprised in the assessment of the fulfillment cash flows for financial reporting purposes, including the underlying methodology and assumptions; and
- Describe the actuary's role in the preparation of the public personal injury compensation plan's financial statements if that role is not described in those statements or their accompanying management discussion and analysis. [Effective January 1, 2023]

.04 An external user report on work pursuant to subsection 2830 should:

- When the benefits liabilities calculated for funding purposes are different than the insurance contract liabilities and other obligations calculated under subsection 2820 for financial reporting purposes, the actuary should so state, explain the reason for the difference and provide the effect on the funding level reported for funding purposes;
- Report the aggregate provision for adverse deviations included in the benefits liabilities or state that there is no provision for adverse deviations where that is the case; and
- Disclose any imposed margins that the actuary has used in accordance with paragraph 2833.02 that, in the opinion of the actuary, are outside of the appropriate range and also disclose the reason and the financial impact. [Effective January 1, 2023]

- .05 The actuary's report on work pursuant to section 2800 should also
- Describe any significant terms of the appropriate engagement that are material to the actuary's work, including the purpose of the work;
 - State the calculation date and the prior calculation date;
 - Identify, and where applicable, conform to, the legislation or other authority under which the work is completed;
 - Describe the sources of data, benefit provisions, and policies used in the work, and any limitations thereon;
 - Summarize the data used for the valuation, the data tests conducted to assess the accuracy and completeness of the data used in the work, issues regarding insufficient or unreliable data, and any assumptions and methods used in respect of insufficient or unreliable data;
 - Describe the plan's benefits, significant policies, and relevant administration practices, including the identification of any amendments made since the prior calculation date, and the effect of such amendment on the benefits liabilities;
 - Disclose the measurement approach used;
 - Describe the assumptions and methods used to calculate the benefits liabilities;
 - Summarize the insurance contracts and other obligations or benefits liabilities, as may be applicable;
 - Describe the treatment of insurance contracts and other obligations or benefit liabilities for self-insured employers, as may be applicable;
 - Describe the treatment of the liabilities for occupational disease claims;
 - Describe and quantify the gains and losses between the prior calculation date and the current calculation date, and provide an analysis and explanation of the significant gain and loss items;
 - If required by the terms of an appropriate engagement, provide an opinion on the sufficiency of proposed premium or assessment rates; and
 - If the the terms of an appropriate engagement do not include a request to report the results of the sensitivity testing that was completed, be accompanied by a separate report for the management of the public personal injury compensation plan that does include such sensitivity testing results. [Effective January 1, 2023]

.06 Where the terms of an appropriate engagement require the actuary to provide information on the plan's financial position for funding purposes or cost of new injuries for rate setting purposes, the actuary should:

- Describe the sources of information on the plan's assets;
- Describe the plan's assets, including their market value, the assumptions and methods used to value the assets, and a summary of the assets by major category;
- Report the financial position for funding at the calculation date;
- Describe the determination of new injury costs or required revenue (all components separately) for periods following the calculation date; and
- Report the estimate of new injury costs or required revenue (total and all components separately) for a specified period following the calculation date and disclose the amount that constitutes the portion of new accident costs attributable to the incurred exposure to long latency occupational diseases during the same period, where applicable. [Effective January 1, 2023]

.07 An external user report would be sufficiently detailed to enable another actuary to examine the reasonableness of the valuation.

.08 The descriptions and estimates required in an external user report may be satisfied by reference to another report provided the actuary is satisfied that the work presented in that report is appropriate. For instance, the liability estimate for potential future occupational disease claims or future administrative expenses may be based on a previous study of the plan's experience that is updated periodically. The details underlying these estimates could be incorporated by referencing the last study on which they are based rather than incorporating that material directly into the valuation report. Similarly, a report prepared for one purpose (e.g., funding) may reference material in a report prepared for another purpose (e.g., financial reporting) where appropriate.

.09 An internal user report may appropriately abbreviate the reporting requirements for an external user report. The degree of abbreviation would take into consideration the circumstances affecting the work and the intended audience.

.10 The actuary's advice on funding may describe a range for required revenue including disclosure of any premium rate adjustment resulting from the application of the funding policy or expected new injury costs. Funding requirements may be expressed in dollars or as a percentage of assessable payroll.

Disclosure of Unusual Situations

- .11 The items that the actuary values for the financial statements may be misleading if the financial statements do not present them fairly. The actuary's report signals to the reader of the financial statements that there is, or is not, fair presentation.
- .12 In an unusual situation, fair presentation may require explanation of an item that the actuary values for the financial statements. Usually, the notes to the financial statements would provide that explanation, including, where appropriate, disclosure of the situation's effect on the financial statements. In the absence of such explanation, the actuary would provide it by a reservation in reporting.
- .13 The question, "Will an explanation enhance the user's understanding of the public personal injury compensation plans financial position or performance?" may help the actuary to identify such a situation. Unusual situations may include:
- Any significant changes to the relevant statute, strategic direction, or management policy, or any significant appeal decision that would likely change management policy or practice, since the prior calculation date and the consequent effect on the benefits liabilities;
 - Any pending definitive or virtually definitive amendment, policy change, or change to administration practice, confirm whether or not such amendment or change has been reflected in the insurance contracts and other obligations or benefits liabilities;
 - Subsequent events of which the actuary is aware, whether or not the events are taken into account in the work, or, if there are no significant events of which the actuary is aware, include a statement to that effect;
 - A major change in coverage status from self-insured to premium paying or vice versa and the actual or expected impact on the financial position and financial performance; and
 - The circumstances affecting the work may result in a deviation from accepted actuarial practice in Canada. For example, the applicable legislation or the terms of the engagement may require that the actuary use a margin for adverse deviations that is outside the range that the actuary considers appropriate, or require that the actuary exclude the benefits liabilities in respect of certain claims, such as occupational disease claims. In such case, the actuary would disclose such deviation in the report.

Consistency across financial reporting periods

- .14 Financial statements usually present results for one or more preceding financial reporting periods in comparison to those for the current period. Meaningful comparability requires the financial statement items for the various periods to be consistent, which can be achieved by the restatement of preceding period items that were previously reported on a basis which was inconsistent with that for the current period. A less desirable alternative to restatement is disclosure of the inconsistency.
- .15 A change in the method of valuation creates an inconsistency. A change in the assumptions for valuation reflecting a change in the expected outlook does not constitute an inconsistency although, if its effect is material, then fair presentation would require its disclosure.
- .16 A change in assumptions that results from the application of new standards may create an inconsistency.

Communication with the auditor

- .17 Communication with the auditor is desirable at various stages of the actuary's work. These include
- Use of work in accordance with the Joint Policy Statement;
 - The drafting of common features in the auditor's report and actuary's report;
 - The drafting of a report with reservations;
 - The presentation of the insurance contracts liabilities and other obligations; and
 - The treatment of subsequent events.

Standard reporting language

.18 The standard reporting language is as follows:

Actuary's Report

An external user report for work pursuant to Subsections 2820 and 2830 should provide the following six statements of [opinion](#), all in the same section of the respective report:

- A statement regarding [data](#), which would usually be, “In my opinion, the data on which the valuation is based are sufficient and reliable for the purpose of the valuation.”;
- A statement regarding assumptions, which would usually be, “In my opinion, the assumptions are appropriate for the purpose of the valuation.”;
- A statement regarding methods, which would usually be, “In my opinion, the methods employed in the valuation are appropriate for the purpose of the valuation.”;
- A statement regarding conformation, which should be, “This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada.”; and
- For valuations under subsection 2820, include a statement regarding appropriateness, which would usually be, “In my opinion, the [amount of insurance contracts liabilities] make appropriate provision for all personal injury compensation obligations given the plan’s accounting.”; or
- For valuations under subsection 2830, include a statement regarding appropriateness, which would usually be, “In my opinion the [amount of benefits liabilities and estimated funding requirements] make appropriate provision for all personal injury compensation obligations given the plan’s funding policy.”. [Effective January 1, 2023]

.19 The language in square brackets is variable and other language may be adjusted to conform to interim financial statements and to the terminology and presentation in the financial statements.

.20 An auditor's report usually accompanies the financial statements. Uniformity of common features in the two reports will avoid confusion to readers of the financial statements. Those common features include

- Addressees: Usually, the actuary addresses the report to the Board of Directors.
- Years referenced: Usually, the actuary's report refers only to the current year, even though financial statements usually present results for both the current and prior years.
- Report date: If the two reports have the same date, then they would take account of the same subsequent events.

Reservations in reporting

.21 The examples that follow are illustrative and not exhaustive.

New appointment

.22 A new actuary who is unable to use the predecessor actuary's work, but who has no reason to doubt its appropriateness, would modify the standard reporting language as follows:

I have valued the insurance contracts liabilities of [the PPICP] for its financial statements at [31 December xxxx] and, except as noted in the following paragraph, their change in the statement of financial performance for the year then ended in accordance with accepted actuarial practice in Canada, including selection of appropriate assumptions and methods.

The insurance contracts liabilities at [31 December xxxx-1] were valued by another actuary who expressed a favourable opinion without reservation, as to their appropriateness.

In my opinion, the amount of insurance contracts liabilities, is appropriate and the financial statements fairly present the results of the valuation. For the reason stated in the previous paragraph, I am unable to say whether or not those results are consistent with those for the preceding year.

.23 If the actuary doubts the appropriateness of the predecessor actuary's work as a result of a review of it, then the actuary would consider additional disclosure about the reasons underlying the reservation.

Impracticality of restatement

- .24 The actuary would, if necessary, restate the preceding year valuation to be consistent with the current year valuation. If it is not practical to restate the preceding year valuation, then the actuary would modify the opinion paragraph in the standard reporting language as follows:

In my opinion, the amount of insurance contract liabilities is appropriate. As explained in Note [XX], the method of valuation for the current year is inconsistent with that for the previous year. Except for that lack of consistency, in my opinion the financial statements fairly present the results of the valuation.

Note [XX] would usually explain the change in the basis of valuation, explain the impracticality of applying the new basis retroactively, and disclose the effect of the change on the opening financial position at the end of the preceding year.

3000 – Pension Plans

Table of Contents

3100	Scope	3003
3200	Advice on the funded status or funding of a pension plan	3004
3210	General	3004
3220	Types of valuations.....	3007
3230	Going concern valuation	3008
3240	Hypothetical wind-up valuation	3009
3250	Solvency valuation.....	3012
3255	Other valuations.....	3012
3260	Reporting: External user report	3013
3270	Disclosure for stochastic models used to comply with specific regulatory pension plan funding requirements.....	3022
3300	Full or partial wind-up valuation.....	3027
3310	General	3027
3320	Assumptions	3028
3330	Reporting: External user report	3029
3400	Financial reporting of pension costs.....	3036
3410	General	3036
3420	Reporting: External user report	3038
3500	Pension commuted values	3041
3510	Scope	3041
3520	Method.....	3042
3530	Demographic assumptions.....	3044
3540	Economic assumptions.....	3047
3550	Disclosure	3052
3560	Reduced life expectancy.....	3053
3570	Target pension arrangements	3055

3100 Scope

- .01 Part 1000 applies to work within the scope of this Part 3000.
- .02 The standards in Part 3000 apply as follows:
- Section 3200 applies to advice that an actuary provides regarding the funded status or funding of a pension plan, except where such advice is with respect to:
 - the wind-up, in full or in part, of a pension plan; or
 - the financial reporting of a pension plan's costs and obligations in the employer's or the pension plan's financial statements;
 - Section 3300 applies to advice that an actuary provides on the funded status or funding with respect to the wind-up, in full or in part, of a pension plan;
 - Section 3400 applies to advice that an actuary provides with respect to financial reporting of a pension plan's costs and obligations in the employer's or the pension plan's financial statements; and
 - Section 3500 applies to advice that an actuary provides regarding the computation of commuted values in the circumstances described in subsection 3510.

The wind-up of a pension plan involves the settlement of plan benefits and distribution of all plan assets. The cessation of benefit accruals or termination of a plan, not involving the settlement of plan benefits and distribution of plan assets, would not constitute a plan wind-up.

- .03 The standards in Sections 3200 through 3400 apply to advice with respect to a pension plan, including any arrangement that provides retirement income to its members, whether funded or not, whether registered or not, and whether in the private or public sector, including pension plans that are hybrids of a defined contribution pension plan and a defined benefit pension plan except for:
- a defined contribution pension plan or a defined contribution provision of a pension plan where the defined contribution and defined benefit provisions are independent i.e., where the benefit under the defined contribution provision is not dependent on the benefit under the defined benefit provision and the benefit under the defined benefit provision is not dependent on the benefit under the defined contribution provision, nor is surplus under the defined benefit provision permitted to be used to fund the benefit under the defined contribution provision;
 - a pension plan whose benefits are all guaranteed by a life insurer; and
 - social security programs such as the Canada Pension Plan, Quebec Pension Plan, and the pension provided by the federal Old Age Security Act.

3200 Advice on the funded status or funding of a pension plan

- .01 This Section 3200 applies to advice that an actuary provides regarding the funded status or funding of a pension plan, except where such advice is with respect to:
- the wind-up, in full or in part, of a pension plan; or
 - the financial reporting of a pension plan's costs and obligations in the employer's or the pension plan's financial statements.

3210 General

- .01 The actuary's advice on the funded status or funding of a pension plan should take account of the circumstances affecting the work. [Effective December 1, 2022]
- .02 The actuary should select an actuarial cost method that is consistent with the circumstances affecting the work. [Effective December 1, 2022]
- .03 The actuary should select an asset valuation method that is consistent with the circumstances affecting the work. [Effective December 1, 2022]
- .04 The actuary's advice on the funded status of a pension plan should take account of the pension plan's benefits at the calculation date, except that the actuary's advice may anticipate a pending amendment to the pension plan which is definitive or virtually definitive that changes the value of its benefits. [Effective December 1, 2022]
- .05 The actuary's advice on the funded status or funding of a pension plan should take account of expenses if they are expected to be paid from the pension plan's assets. [Effective December 1, 2022]
- .06 The actuary's advice on the funded status or funding of a pension plan may, consistent with the circumstances affecting the work, take into account the value and the terms of a letter of credit of which the pension plan is the beneficiary. [Effective December 1, 2022]
- .07 If the actuary is providing advice on funding:
- the actuary should determine the next calculation date, and
 - the actuary's advice on funding should cover at least the period between the calculation date and the next calculation date. [Effective December 1, 2022]

Circumstances affecting the work

- .08 For the purposes of Section 3200, the circumstances affecting the work would include:
- whether the actuary's advice relates to the funded status or the funding of the pension plan, or a combination thereof;
 - the terms of the appropriate engagement under which the work is being performed; and
 - the application of the law to the work.
- .09 In the case of a pension plan registered under the Income Tax Act (Canada), the actuary would be familiar with guidance with respect to the funding of pension plans that has been published by an applicable regulatory authority.
- .10 Advice on funding would include:
- a valuation to establish the amount of a letter of credit to secure the payment of pension plan benefits;
 - advice regarding an amount of assets to be earmarked, but not segregated, to a trust fund, to cover pension benefit commitments; and
 - advice on the funding implications of a plan amendment.
- .11 The terms of an appropriate engagement may specify applicable objectives of funding, which may include a formal or informal funding policy. For example, the terms of an appropriate engagement for a pension plan registered under the Income Tax Act (Canada):
- may be limited to preparation of an external user report on the basis of applicable law including the minimum contributions required by law;
 - may require the preparation of an external user report recommending contributions reflecting objectives of funding specified by the plan sponsor or plan administrator, as applicable, in addition to the requirements of law; and
 - where contributions are fixed, may require the preparation of an external user report reflecting objectives of funding specified by the plan administrator or other appropriate authority, as applicable in addition to the requirements of law.
- .12 The terms of an appropriate engagement may specify the use of a particular actuarial cost method and/or a particular asset valuation method, consistent with these standards.

- .13 Objectives of funding specified by the terms of an appropriate engagement may include considerations such as the security of benefits and related provisions for adverse deviations, the orderly and rational allocation of contributions among time periods, and/or inter-generational equity.
- .14 Depending on the circumstances affecting the work, the actuary's advice on funding may describe a range of contributions.

Actuarial cost methods

- .15 Actuarial cost methods include:
- cost allocation methods, which allocate the actuarial present value of projected benefits among time periods, including attained age actuarial cost methods, entry age actuarial cost methods, aggregate actuarial cost methods, and individual level premium actuarial cost methods;
 - benefit allocation methods, which allocate a portion of the actuarial present value of projected benefits to a time period as a function of the change in accrued or projected benefits during the period, including the accrued benefit actuarial cost method, the unit credit actuarial cost method and the projected unit credit actuarial cost method; and
 - forecast actuarial cost methods, which allocate a portion of the actuarial present value of projected benefits to the forecast period based on:
 - the actuarial present value, at the calculation date, of projected benefits at the end of the forecast period including, if appropriate, benefits for those who are expected to become members between the calculation date and the end of the forecast period;minus
 - the actuarial present value of projected benefits at the calculation date;plus
 - the actuarial present value, at the calculation date, of benefits expected to be paid during the forecast period.

- .16 When using a forecast actuarial cost method, the beginning and ending actuarial present value of projected benefits may be calculated from the perspective of either a hypothetical wind-up valuation or a going concern valuation.

Asset valuation methods

- .17 The use of an asset valuation method that produces an asset value different from market value may be appropriate depending on the circumstances affecting the work. For example, the use of a smoothed asset value may be appropriate to moderate the volatility of contribution rates for purposes of advice on funding.

- .18 The value of assets may be, subject to specific requirements for different types of valuation, any of:
- their market value;
 - their market value adjusted to moderate volatility in investment returns;
 - the present value of their cash flows after the calculation date; and
 - their value assuming a constant rate of return to maturity in the case of illiquid assets with fixed redemption values.

Deferred recognition of pending amendment

- .19 If, at the calculation date, a pending amendment to the pension plan is definitive or virtually definitive:
- If the effective date of the amendment is during the period for which the report gives advice on funding, then the advice on funding up to the effective date may disregard the amendment, unless otherwise required by law, but the advice on funding after the effective date would take the amendment into account.
 - If the effective date of the amendment is after the period for which the report gives advice on funding, then the advice on funding may disregard the amendment unless otherwise required by law.

- .20 The effective date of the amendment is the date at which the amended benefits take effect, as opposed to the date at which the amendment becomes either definitive or virtually definitive.

Next calculation date

- .21 The next calculation date is the latest date for which the actuary considers the advice on funding to be applicable. The actuary would take into consideration the law and the terms of an appropriate engagement in determining the next calculation date.

3220 Types of valuations

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| <p>.01 When giving advice on the <u>funded status</u> or <u>funding</u> of a pension plan, the <u>actuary</u> should undertake one or more types of valuations that are consistent with the circumstances affecting the <u>work</u>. [Effective December 1, 2022]</p> |
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Types of valuations

- .02 There are different types of valuations that an actuary may undertake when giving advice on the funded status or funding of a continuing pension plan, the most common of which are:
- a going concern valuation;
 - a hypothetical wind-up valuation; and
 - a solvency valuation.

3230 Going concern valuation

.01 For a going concern valuation the actuary should:

- assume that the plan continues indefinitely, however, where there is a pending amendment that is definitive or virtually definitive to wind-up or convert the defined benefit plan provisions, the actuary may take that amendment into account pursuant to subsection 3210;
- select either best estimate assumptions or best estimate assumptions modified to incorporate margins for adverse deviations to the extent, if any, required by law or by the terms of an appropriate engagement; and
- consider all benefits of which the actuary is aware, including contingent benefits, payable under the pension plan and should include provision for all such benefits expected to be paid while the plan is ongoing unless:
 - the law requires the valuation to exclude such benefits; or
 - the law permits the exclusion of such benefits and the terms of an appropriate engagement stipulate that the actuary exclude such benefits.

The actuary should disclose the rationale for excluding any such benefits including, if applicable, that the law either requires or permits such exclusion. [Effective December 1, 2022]

Assumptions

- .02 For pension plans that are funded, in selecting the best estimate assumption for the discount rate, considering the circumstances affecting the work, the actuary may either:
- take into account the expected investment return on the assets of the pension plan based on the target asset mix specified in the investment policy of the pension plan at the calculation date and may reflect expected changes in the target asset mix after that date; or
 - reflect the yields on fixed income investments, considering the expected future benefit payments of the pension plan.

- .03 In establishing the discount rate assumption, the actuary would assume that there will be no additional returns achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy except to the extent that the actuary has reason to believe, based on relevant supporting analysis, that such additional returns will be consistently and reliably earned over the long term.
- .04 If the plan is a “designated plan” as that term is defined in the Income Tax Regulations (Canada) and the purpose of the going concern valuation is to determine the maximum funding permitted by law, then the actuary would use assumptions stipulated by law for that purpose.

Contingent benefits

- .05 An example of a contingent benefit relevant to a going concern valuation is a provision granting the employer or plan administrator the right to waive early retirement reductions to members retiring from active employment. In making provision for such a contingent benefit, the actuary would consider past experience, current circumstances, and future expectations relating to the employer’s or plan administrator’s granting of such benefits.

Benefits stipulated by law

- .06 If the plan is a “designated plan,” as that term is defined in the Income Tax Regulations (Canada), and the purpose of the going concern valuation is to determine the maximum funding permitted by law, then the actuary would reflect the benefits stipulated by law for that purpose.

3240 Hypothetical wind-up valuation

- .01 A hypothetical wind-up valuation determines the funded status of a pension plan on the assumption that the plan is wound up at the calculation date. The standards for a full wind-up valuation in Section 3300 apply to a hypothetical wind-up valuation except for the external user report requirements therein and as superseded by the following recommendations. [Effective December 1, 2022]
- .02 For a hypothetical wind-up valuation, the actuary should determine benefit entitlements on the assumption that the pension plan has neither a surplus nor a deficit. [Effective December 1, 2022]
- .03 In determining the benefit entitlements, the actuary should postulate a scenario upon which the hypothetical wind-up valuation is based, taking account of the circumstances affecting the work. The postulated scenario should assume that no further contributions will be made to the pension plan (e.g., where the plan sponsor is bankrupt) and all future expenses must be paid from the pension plan, unless otherwise stipulated by the terms of an appropriate engagement. [Effective December 1, 2022]

- .04 The actuary should take account of contingent benefits that would be payable under the postulated scenario for the hypothetical wind-up. [Effective December 1, 2022]
- .05 For a hypothetical wind-up valuation, the actuary may assume that the wind-up date, the calculation date, and the settlement date are coincident. [Effective December 1, 2022]
- .06 For a hypothetical wind-up valuation, the actuary may assume that benefits would be settled by the purchase of annuities regardless of any limitation of capacity in the market for group annuity contracts. [Effective December 1, 2022]
- .07 For a hypothetical wind-up valuation, the value of assets should be the market value of assets. [Effective December 1, 2022]
- .08 For a hypothetical wind-up valuation, the actuary should select an explicit assumption for expenses expected to be payable from the pension plan's assets to wind up the pension plan. [Effective December 1, 2022]

Membership data

- .09 The precision of the membership data is less critical for a hypothetical wind-up valuation than for an actual wind-up valuation.
- .10 Since an actual wind-up is not occurring, pertinent membership data may not be available. The actuary would make appropriate assumptions regarding such missing membership data. For example, it may be appropriate to retroject current earnings based on aggregate historical pay increases in order to estimate final average earnings.

Postulation of scenarios

- .11 There are often multiple scenarios regarding the circumstances that may result in the wind-up of a pension plan. For a hypothetical wind-up valuation, subject to paragraph 3240.03, the actuary may postulate any reasonable, internally consistent scenario regarding the circumstances resulting in the wind-up of a pension plan, consistent with the circumstances affecting the work. For the postulated scenario, the actuary would reflect the treatment of any contingent benefits, including:
- those that are contingent upon the wind-up scenario, such as a plant closure benefit; or
 - those that are required by law, such as a provision for earlier commencement of deferred pension entitlements in the event of plan wind-up; and
 - those that are contingent upon a factor other than the wind-up scenario.

Examples of contingent benefits that are dependent upon factors other than the wind-up scenario or as required by law are:

- a provision granting the employer or plan administrator the discretion to waive early retirement reductions; and
- a provision providing enhanced benefits if funds are sufficient.

Subsequent events

- .12 The actuary may reflect subsequent events in the valuation provided that doing so either increases the actuarial present value of the projected benefits at the calculation date or reduces the value of the pension plan's assets at the calculation date.

Wind-up expenses

- .13 Since the actuary would assume that the pension plan has neither a surplus nor a deficit, wind-up expenses related to the resolution of surplus or deficit issues need not be considered.
- .14 In developing the assumption for expenses expected to be payable from the pension plan's assets to wind up the pension plan, the actuary would also make an assumption as to the solvency of the employer. The assumption with respect to the payment of expenses and the assumption with respect to the solvency of the employer would be consistent.

Settlement methods

- .15 A hypothetical wind-up valuation requires the actuary to select assumptions about the methods of settlement.
- .16 The actuary may assume a settlement method permitted by law or any relevant regulatory policy or guideline.

- .17 The actuary may assume settlement by means of a replicating investment portfolio if permitted by law or any regulatory policy or guideline, or where it is anticipated that annuities could not be purchased due to group annuity capacity limitations. The assumed replicating portfolio would provide for an appropriate level of security for the pension benefits covered.
- .18 The actuary may incorporate assumptions as to the exercise of regulatory discretion, a change in law, or a plan amendment which would be required to enable a practical settlement of benefits. When making such assumptions, the actuary would consider any relevant regulatory policy, guidance, or precedent.

For example, for a plan where pensions are indexed with the Consumer Price Index and where it is impractical to purchase annuities indexed with the Consumer Price Index, the actuary may assume that annuities would be purchased with indexing at a fixed percentage rate of comparable value to indexing in accordance with the plan provisions.

3250 Solvency valuation

- .01 A solvency valuation typically is a form of a hypothetical wind-up valuation required by law and the actuary should apply the standards for a hypothetical wind-up valuation unless:
- otherwise required by law; or
 - otherwise permitted by law and stipulated by the terms of an appropriate engagement. [Effective December 1, 2022]

- .02 Examples of exceptions permitted by law for the preparation of a solvency valuation under the law of certain jurisdictions include:
- use of a value of assets other than market value;
 - use of one or more assumptions that are not best estimate assumptions; or
 - exclusion of certain benefits from the valuation.

3255 Other valuations

- .01 For a valuation that is not a going concern valuation, a hypothetical wind-up valuation, or a solvency valuation, the actuary should select actuarial methods and actuarial assumptions that are consistent with the terms of an appropriate engagement. [Effective December 1, 2022]
- .02 To the extent that a valuation is not a going concern valuation, hypothetical wind-up valuation, or solvency valuation, but has characteristics similar to one or more of these types of valuations, the actuary would consider any relevant standards for these types of valuations in undertaking the work.

- .03 For example, a valuation for determining the required amount of a letter of credit for a supplemental plan is typically similar to a hypothetical wind-up valuation, but with the actuarial methods and actuarial assumptions stipulated by the terms of the engagement. In such circumstances, the actuary would consider the relevant standards for hypothetical wind-up valuations in undertaking the work.

3260 Reporting: External user report

- .01 An external user report on work pursuant to section 3200 should:
- include the calculation date, the report date, and the next calculation date;
 - describe the sources of membership data, plan provisions, and the pension plan's assets, and the dates at which they were compiled;
 - describe the membership data and any limitations thereof;
 - describe the tests applied to determine the sufficiency and reliability of the membership data and plan asset data for purposes of the work;
 - describe the assets, including their market value and a summary of the assets by major category;
 - describe the pension plan's provisions, including the identification of any pending definitive or virtually definitive amendment;
 - disclose subsequent events of which the actuary is aware, whether or not the events are taken into account in the work, or, if there are no subsequent events of which the actuary is aware, include a statement to that effect;
 - state the type of each valuation undertaken under the terms of the appropriate engagement; and
 - describe any significant terms of the appropriate engagement that are material to the actuary's advice. [Effective December 1, 2022]

.02 For each going concern valuation undertaken by the actuary, the external user report should:

- describe the rationale for any assumed additional returns, net of investment management expenses, from an active investment management strategy as compared to a passive investment management strategy, included in the discount rate assumption;
- describe the basis for inclusion and the amount considered in respect of a letter of credit of which the pension plan is the beneficiary;
- report the funded status at the calculation date and the service cost or the rule for calculating the service cost between the calculation date and the next calculation date;
- disclose any pending but definitive or virtually definitive amendment of which the actuary is aware, and whether or not such amendment has been included in determining the funded status and the service cost;
- describe any contingent benefits provided under the pension plan and the extent to which such contingent benefits are included or excluded in determining the funded status and the service cost;
- describe any benefits that are not contingent benefits and that have been excluded in determining the funded status and the service cost; and
- if there is no provision for adverse deviations, include a statement to that effect. [Effective December 1, 2022]

.03 If an external user report includes one or more going concern valuations, then the external user report should, for at least one such valuation included in the report, describe and quantify the gains and losses between the prior calculation date and the calculation date, unless the going concern valuation is based on an extrapolation of results disclosed in a previous external user report. [Effective December 1, 2022]

.04 For each hypothetical wind-up valuation and solvency valuation undertaken by the actuary, the external user report should:

- describe the basis for inclusion and the amount considered in respect of a letter of credit of which the pension plan is the beneficiary;
- report the funded status at the calculation date;
- include a description of the postulated scenario; and
- include a description of the extent to which contingent benefits provided under the pension plan are included or excluded in determining the funded status. [Effective December 1, 2022]

Hypothetical wind-up valuation of a target pension arrangement

- .05 For each hypothetical wind-up valuation of a target pension arrangement as defined in subsection 3570, the external user report should provide:
- the plan liabilities determined as the cost of providing the target benefits based on the group annuity marketplace at the hypothetical wind-up date:
 - the target benefits to be valued are the same as those in the going-concern valuation and this calculation should be done regardless of whether benefits could be reduced on plan wind-up. [Effective December 1, 2022]
- .06 For each valuation that is not a going concern valuation, a hypothetical wind-up valuation, or a solvency valuation, the external user report should:
- include a description of the extent to which contingent benefits provided under the pension plan are included or excluded including the rationale for such inclusion or exclusion. [Effective December 1, 2022]
- .07 If an external user report includes one or more going concern valuations, then the external user report should, for at least one such valuation included in the report, report the effects of using a discount rate 1.0% lower than that used for the valuation on:
- the actuarial present value, at the calculation date, of projected benefits allocated to periods up to the calculation date; and
 - the service cost or the rule for calculating the service cost between the calculation date and the next calculation date;
- unless
- the purpose of the valuation is the determination of the maximum funding permitted by law for a “designated plan”, as that term is defined in the Income Tax Regulations (Canada); or
 - the going concern valuation is for a pension plan which is not registered under a pension benefits standards act of a province or the federal government of Canada; or
 - the going concern valuation is based on an extrapolation of results disclosed in a previous external user report. [Effective December 1, 2022]

.08 If an external user report includes one or more hypothetical wind-up valuations or solvency valuations then, for any one such hypothetical wind-up valuation or solvency valuation, the external user report should:

- report the incremental cost between the calculation date and the next calculation date, in respect of the defined benefit portion of the plan;
- if the external user report does not include a going concern valuation, and the plan contains a defined contribution benefit provision of the plan that is not independent of the defined benefit provision of the plan, report the service cost or the rule for calculating the service cost between the calculation date and the next calculation date in respect of the defined contribution portion of the plan;
- report the effect on the hypothetical wind-up or solvency liabilities, at the calculation date, of using a discount rate 1.0% lower than that used for the valuation; and
- if the external user report does not include a going concern valuation, describe and quantify the gains and losses between the prior calculation date and the calculation date;

unless

- the pension plan is a “designated plan” which has, as of the calculation date, as members, only persons “connected” with the employer as those terms are defined in the Income Tax Regulations (Canada); or
- the hypothetical wind-up valuation or solvency valuation is for a pension plan which is not registered under a pension benefits standards act of a province or the federal government of Canada; or
- the hypothetical wind-up valuation or solvency valuation is based on an extrapolation of results disclosed in a previous external user report. [Effective December 1, 2022]

.09 Where contributions are fixed or restricted by the terms of the pension plan or other governing documents, and the actuarial certification of the funding of the plan in accordance with the law or any regulatory policy or guideline is directly dependent on the results of a stochastic funding model regarding the adequacy of the contributions to the plan to sustain one or more target levels of benefits from the plan, the report should disclose the stochastic funding model results which are relevant to the provision of the actuarial certification. [Effective December 1, 2022]

Plausible adverse scenarios

.10 A plausible adverse scenario would be a scenario of adverse but plausible assumptions, relative to the best estimate assumptions otherwise selected for the valuation, about matters to which the pension plan’s financial condition is sensitive. Plausible adverse scenarios vary among pension plans and may vary over time for a particular pension plan.

.11 If an external user report includes one or more going concern, hypothetical wind-up, or solvency valuations, then the actuary, in consultation with the plan administrator or plan sponsor as applicable, should consider threats to the pension plan's future financial condition for at least one of these valuations, under plausible adverse scenarios that include, where appropriate, the following risks:

- interest rate risk, the potential that interest rates will be lower than expected;
- deterioration of asset values;
- longevity risk, the potential that pension plan members will live longer than expected; or
- for pension plans where contributions are fixed or restricted by the terms of the plan or other governing documents, the potential that the contribution base will be lower than expected in the going concern valuation;

unless

- the pension plan is a "designated plan" which has, as of the calculation date, as members, only persons "connected" with the employer as those terms are defined in the Income Tax Regulations (Canada); or
- the valuation is for a pension plan which is not registered under a pension benefits standards act of a province or the federal government of Canada; or
- the valuation is based on an extrapolation of results disclosed in a previous external user report. [Effective December 1, 2022]

.12 In considering the plausible adverse scenarios, the actuary may:

- reflect the perspective of the plan administrator or plan sponsor, as applicable, as to which scenarios they perceive as being the greatest threats to the pension plan's future financial condition;
- make reasonable determinations of the asset classes which are classified as fixed income investments;
- restrict the impact of interest rate risk to the asset classes deemed to be fixed income investments and to the discount rate to the extent that the discount rate is affected by fixed income investments;
- assess the impact of the risks individually only, or also in combination;
- reflect the impact of any compensating adjustments, such as a potential reduction in any margin implicit in the discount rate in response to a lower interest rate scenario; or
- reference any related work, such as asset-liability modelling work, with which the actuary has been involved or which has otherwise been made available to the actuary.

.13 If an external user report includes one or more going concern, hypothetical wind-up, or solvency valuations, then the external user report should, for at least one such valuation included in the report, report the effects on:

- the funded status of the plan on a market value or smoothed value basis at the calculation date, separating the effects on assets and liabilities, where applicable; and
- if such valuation is a going concern valuation, the service cost or the rule for calculating the service cost between the calculation date and the next calculation date;

of the plausible adverse scenarios selected by the actuary for the risk assessments under paragraph 3260.11. [Effective December 1, 2022]

.14 An external user report that provides advice on funding should:

- describe the determination of contributions or a range of contributions between the calculation date and the next calculation date;
- if contributions are fixed by the terms of the plan or other governing documents, then either:
 - report that the contributions are adequate to fund the pension plan in accordance with the law; or
 - report that the contributions are not adequate to fund the pension plan in accordance with the law; and
 - describe the contributions required to fund the pension plan adequately in accordance with the law;
 - describe one or more possible ways in which benefits may be reduced such that the contributions would be adequate to fund the pension plan in accordance with the law; or
 - describe a combination of increases in contributions and reductions in benefits that would result in the funding being adequate to conform to the law. [Effective December 1, 2022]

- .15 An external user report should provide the following four statements of opinion, all in the same section of the report and in the following order:
- A statement regarding membership data, which should usually be, “In my opinion, the membership data on which the valuation is based are sufficient and reliable for the purpose of the valuation.”
 - A statement as to assumptions, which should usually be, “In my opinion, the assumptions are appropriate for the purpose(s) of the valuation(s).”
 - A statement as to methods, which should usually be, “In my opinion, the methods employed in the valuation are appropriate for the purpose(s) of the valuation(s).”
 - A statement as to conformity, which should be, “This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada.” [Effective December 1, 2022]
- .16 If, for any reason, the actuary is unable to provide the statements of opinion in paragraph 3260.15, the wording of the statements of opinion should be adjusted to reflect the necessary qualifications including a description of the areas of non-compliance. The actuary should not provide the four statements of opinion in paragraph 3260.15 if the work does not comply with the standards, even if the non-compliance is stipulated by the terms of the engagement. [Effective December 1, 2022]
- .17 An external user report should be sufficiently detailed to enable another actuary to assess the reasonableness of the valuation. [Effective December 1, 2022]

Membership data

- .18 Any assumptions and methods used in respect of insufficient or unreliable membership data would be described.
- .19 The actuary may describe limitations on the tests conducted in the review of the data which has been determined to be sufficient and reliable for purposes of the valuation(s). For example, the actuary may describe that the data tests will not capture all possible deficiencies in the data and reliance is also placed on the certification of the plan administrator as to the quality of the data.

Types of valuations

- .20 The external user report may provide information with respect to multiple valuations, but would, as a minimum, provide information with respect to:
- Any valuation mandated by law or specified by the terms of an appropriate engagement; and
 - If the plan is a registered pension plan, a hypothetical wind-up valuation under the scenario regarding the circumstances resulting in the wind-up, subject to paragraph 3240.03, unless:
 - the pension plan and the law do not define the benefits payable upon wind-up, or
 - the pension plan is a “designated plan” which has, as members on the calculation date, only persons “connected” with the employer as those terms are defined in the Income Tax Regulations (Canada).

Significant terms of appropriate engagement

- .21 Significant terms of the appropriate engagement may include matters like:
- the use of a specified actuarial cost method;
 - the use of a specified asset valuation method;
 - the exclusion of benefits for purposes of a valuation, as permitted by law;
 - the extent of margins for adverse deviations, if any, to be included in selecting assumptions;
 - a policy to fund only the minimum contributions required by law;
 - specified methodology for the determination of contribution requirements in excess of the requirements of law; and
 - confirmation of plan terms to be valued, including any pending amendment and whether it is definitive or virtually definitive.

Service cost

- .22 For a plan that is a hybrid of a defined contribution pension plan and a defined benefit pension plan, where the defined contribution provision of the plan is not independent of the defined benefit provision of the plan, the service cost for a going concern valuation would include the service cost in respect of both the defined contribution portion of the plan and the defined benefit portion of the plan.

Reporting gains and losses

- .23 The reported gains and losses for a going concern valuation would include the gain or loss due to a change in the actuarial cost method or a change in the method for valuing the assets and each significant change in assumptions and plan provisions determined at the calculation date. If an amendment to the pension plan prompts the actuary to change the assumptions, the actuary may report the combined effect of the amendment and the resultant change in assumptions.

Discount rate sensitivity

- .24 When following the recommendations to illustrate the effect of a change in discount rate on a valuation, the actuary would maintain all other assumptions and methods as used in the underlying valuation.

Incremental cost

- .25 The incremental cost for a hypothetical wind-up valuation or a solvency valuation represents the present value, at the calculation date, of the expected aggregate change in the hypothetical wind-up liability or solvency liability between the calculation date and the next calculation date, increased for expected benefit payments between the calculation date and the next calculation date.

Methods

- .26 For each valuation included in the external user report for which there was a prior valuation, the description of the actuarial cost method would include a description of any change to the actuarial cost method used in the prior valuation and the rationale for such change.
- .27 For each valuation included in the external user report for which there was a prior valuation, the description of the method to value the assets would include a description of any differences in change to the asset valuation method used in the prior valuation and the rationale for such change.

Assumptions

- .28 For each valuation included in the external user report for which there was a prior valuation, the description of assumptions would include a description of each change to the assumptions from the assumptions used in the prior valuation.
- .29 When describing the assumptions for methods of settlement for a hypothetical wind-up or solvency valuation, the actuary would describe any related limitations. For example:
- If the settlement method assumes that annuities would be purchased but it might not be possible to purchase annuities on actual wind-up of the plan due to capacity limitations; or
 - If the settlement method assumes the exercise of regulatory discretion, a change in law, or a plan amendment for which there is no specific authority.

Other types of valuations

- .30 Valuations that are not going concern valuations, hypothetical wind-up valuations, or solvency valuations are usually similar in nature to one of these three types of common valuations. In preparing the external user report for such a valuation, the actuary would consider the relevant reporting requirements for a type of valuation similar to the valuation undertaken and would include additional disclosures as appropriate.

Statements of opinion

- .31 Where different statements of opinion apply in respect of different purposes of the valuation, the above requirements may be modified but would be followed to the extent practicable.
- .32 While a separate statement regarding assumptions would generally be included in respect of each purpose of the valuation, the statements regarding assumptions may be combined where the statements do not differ among some or all of the valuation's purposes. The report would indicate clearly which statement regarding assumptions applies to each of the valuation's purposes.
- .33 While a separate statement regarding methods would generally be included in respect of each purpose of the valuation, the statements regarding methods may be combined where the statements do not differ among some or all of the valuation's purposes. The report would indicate clearly which statement regarding methods applies to each of the valuation's purposes.

3270 Disclosure for stochastic models used to comply with specific regulatory pension plan funding requirements

Purposes

- .01 For a statutory funding valuation that specifically requires the use of stochastic models to comply with pension plan funding requirements in accordance with the law or any regulatory policy or guideline, the disclosure of model inputs and outputs are meant to
- assist the users of the report or work product to understand the assumptions and methods used in the model and the distribution of outcomes from the model; and
 - enable another actuary to assess whether the assumptions and methods used in the model and the distribution of outcomes from the model are reasonable.

Model inputs

- .02 The actuary reporting on the results of a statutory funding valuation using stochastic models for the purposes of complying with specific regulatory pension plan funding requirements (e.g., under the New Brunswick Shared Risk Plans Regulation) should disclose the following model inputs:
- risk management goals, funding policy, deficit recovery plan and funding excess utilization plan or other such policies that require contingent calculations, reflected in the stochastic analysis;
 - number of scenarios and time period over which the scenarios are forecast;
 - methodology used in the stochastic modelling, including the approach to interest rate forecasting and development of the funding liability discount rate;
 - projected experience decrement assumptions and whether or not these are deterministic or stochastic. If the latter, the volatility for the decrements and a description of the model used to simulate scenarios;
 - future valuations' decrement assumptions, if applicable;
 - assumptions for the new entrants into the plan, including population growth assumption and new entrant profiles;
 - methodology for wage increases, if relevant, including increases in the year's maximum pensionable earnings and the defined benefit limit prescribed under the *Income Tax Act (Canada)*;
 - frequency of valuations over the projection period;
 - anticipated expenses charged to the pension fund, broken down separately into:
 - administration expenses (including actuarial, audit, legal, etc.); and
 - investment management fees, to the extent they are not already reflected in the return assumptions;
 - confirmation of how the discount rate used in valuing the liabilities is affected by the economic scenario. For example, if the discount rate is linked to long-term corporate bond yields, confirmation that the discount rate is adjusted to be consistent with the forecasted scenario, and a description of how that adjustment is made;

- rationale for any variance in and any relationships among the equity returns, inflation, bond yields, or other economic variables;
- description of any methodology to vary the standard deviations of and correlations among economic variables;
- for the federal bond yield curve, the initial yield at one-year, 10-year, and 30-year terms;
- the initial credit spreads for provincial and investment-grade corporate bonds at the one-year, 10-year, and 30-year terms, if applicable; and
- the rationale for any trend in bond yields (including any assumption of normalization of the yield curve). [Effective December 1, 2022]

.03 For each of the model inputs listed above, the actuary would indicate material changes and reasons for changes relative to the previous valuation.

Model Outputs

- .04 To assist users of the report to understand the model outputs and assess their reasonableness, the following summary of forecasted economic variables should be disclosed as a minimum:
- For inflation and all asset class returns (and wage increases if they incorporate a stochastic component different than inflation):
 - mean of the annualized compounded value over the entire period;
 - average annual standard deviation; and
 - average correlation matrix among these variables over the entire period.
 - For the federal bond yield curve, the mean yield at the end of the projection period at the one-year, 10-year, and 30-year terms;
 - The mean credit spread for provincial and investment-grade corporate bonds at the end of the projection period at the one-year, 10-year, and 30-year terms, if applicable;
 - For at least every other year over the first 10 years and at least every five years thereafter, the following distribution information for the total portfolio return after investment management fees:
 - Percentiles 5%, 25%, 50%, 75%, 95%, mean, and standard deviation; and
 - The initial discount rate and mean of the discount rate at the end of the projection period. [Effective December 1, 2022]
- .05 The following average forecasted key demographic summary statistics should be disclosed at a minimum of every other year for the first 10 years and every five years thereafter:
- total number of active participants and their average age, average service, and average projected salary, if relevant;
 - total number of inactive members and the total amount of annual pensions being paid; and
 - mean total liability and active/inactive liability split. [Effective December 1, 2022]

.06 The actuary should provide the following statistics for the projected liability, projected assets, projected funded status, and any other key output from the model upon which the actuary expresses an opinion (e.g., open group funded ratio):

- percentiles 5%, 25%, 50%, 75%, 95%;
- mean;
- the average of those values that are below the 5th percentile of the range of values produced by the entire set of modelled scenarios or above the 95th percentile, according to which side of the distribution should be considered unfavorable. As an example, values below the 5th percentile should be expected to be used for value of assets and funded status, whereas values above the 95th percentile should be expected to be used for liabilities; and
- the corresponding average for the values below the 2.5th or above the 97.5th percentile.

These statistics should be provided as a minimum for every other year for the first 10 years and every five years thereafter. [Effective December 1, 2022]

Disclosure statements

.07 The actuary signing a report on the stochastic modelling should include the following statements:

- While the actuary believes that the model inputs are reasonable at the time this report has been prepared, other reasonable model inputs could be used, resulting in potentially very different distributions of forecasted outcomes.
- The disclosures in this report have been prepared in compliance with subsection 3270, Disclosure for Stochastic Models Used to Comply with Specific Regulatory Pension Plan Funding Requirements. [Effective December 1, 2022]

.08 The actuary signing a funding report requiring stochastic modelling should provide the following statement, with appropriate reference to any separate stochastic modelling report:

- The funding valuation assumptions are consistent with the stochastic model inputs. [Effective December 1, 2022]

3300 Full or Partial Wind-up Valuation

- .01 This Section 3300 applies to advice that an actuary provides on the funded status or funding with respect to the wind-up, in full or in part, of a pension plan.

3310 General

- .01 The actuary's advice with respect to a pension plan that is being wound-up, in full or in part, should take account of the circumstances affecting the work. [Effective December 1, 2022]
- .02 The actuary should take account of subsequent events up to the cut-off date. [Effective December 1, 2022]
- .03 The pension plan's assets should be valued at liquidation value. [Effective December 1, 2022]

Scope

- .04 This section is not intended to prescribe the manner in which:
- the pension plan's assets would be allocated between jurisdictions in the case of wind-up of a pension plan covering members in several jurisdictions;
 - benefit entitlements would be determined;
 - contributions to a pension benefits guarantee fund would be determined;
 - funding obligations would be determined; or
 - the pension plan's assets would be allocated between the employer, or such other entity that has entitlement to the plan's assets, and the members or between members themselves.

Rather, those issues would be determined in accordance with the law or the plan provisions, or an entity empowered thereunder to make that determination. It may be appropriate, however, to use the results of the valuation to address one or more of those issues, or to disclose their resolution in the report.

Circumstances affecting the work

- .05 For the purposes of Section 3300, the circumstances affecting the work would include:
- whether the actuary's advice relates to the funded status or the funding of the pension plan, or a combination thereof;
 - the terms of the appropriate engagement under which the work is being performed; and
 - the application of the law to the work.

Cut-off date

.06 The cut-off date would be the date up to which subsequent events would be recognized in the valuation.

Partial wind-up

.07 A partial wind-up occurs when a subset of the members terminates membership in circumstances that require wind-up with respect to those members. Such wind-up does not apply to the continuing members, although it may be necessary, for legal or other reasons, also to value the benefits of the continuing members.

.08 The law regarding partial wind-ups varies by jurisdiction. As a result, the application of law can cause a partial wind-up to range from an insignificant change in the pension plan to something similar to a full wind-up.

.09 The standards for a partial wind-up are the same as the standards for a full wind-up. Their application may be easier, however, when the partial wind-up applies to relatively few members. For example:

- the standard of materiality for determination of benefit entitlements may be less rigorous for continuing members than for those to whom the partial wind-up applies; or
- the standard of materiality for reporting wind-up expenses may be less rigorous.

3320 Assumptions

.01 The actuary should select assumptions that:

- are either best estimate assumptions or are best estimate assumptions modified to incorporate margins for adverse deviations to the extent, if any, required by law or by the terms of an appropriate engagement;
- are selected as at the cut-off date; and
- reflect the expected method of benefit settlement. [Effective December 1, 2022]

.02 Unless it is expected that expenses will not be paid from the pension plan's assets, the actuary should select an explicit assumption regarding the expenses of wind-up and either offset the resulting expense provision against the pension plan's assets or add the resulting expense provision to the pension plan's liabilities. [Effective December 1, 2022]

3330 Reporting: External user report

- .01 If a previous external user report was prepared with respect to the wind-up, the actuary should describe and quantify the gains and losses between the prior calculation date and the calculation date. [Effective December 1, 2022]
- .02 An external user report should:
- include the wind-up date, the calculation date, the cut-off date, and the report date;
 - describe the events precipitating the wind-up, of which the actuary is aware, that affect the terms of the wind-up, the benefit entitlements, or the valuation results;
 - describe the sources of membership data, plan provisions, and the pension plan's assets, and the dates at which they were compiled;
 - describe the membership data, including any assumptions made about missing membership data;
 - describe the tests applied to determine the sufficiency and reliability of the membership data and plan asset data for purposes of the work;
 - subject to any applicable privacy legislation:
 - include the detailed individual membership data; or
 - include an offer to provide detailed individual membership data on request to the employer, the plan administrator, or the regulator;
 - describe the liquidation value of the assets and a summary of the assets by major category;
 - describe the pension plan's provisions, including an identification of
 - any benefits that have been insured;
 - any amendments made since any previous external user report with respect to the plan which affect benefit entitlements; and
 - any subsequent events or post-wind-up contingencies, of which the actuary is aware, which affect benefit entitlements;
 - report the explicit assumption regarding the expenses of wind-up or justify the expectation that expenses will not be paid from the pension plan's assets;

- report the funded status at the calculation date;
- disclose subsequent events of which the actuary is aware, whether or not the events are taken into account in the work and, if there are no subsequent events of which the actuary is aware, include a statement to that effect;
- state that the funded status at settlement may differ from that contained in the report unless the report includes the funded status at the time of final settlement;
- state whether an updated report will be required in the future;
- if the actuary relies upon direction concerning unclear or contentious issues,
 - describe each such issue;
 - describe the direction relied upon or, where appropriate, a summary thereof; and
 - identify the person providing such direction and the basis of authority of such person;
- describe any post-wind-up contingencies that may affect the distribution of the pension plan's assets;
- describe whether a recalculation of the value of benefit entitlements is required at settlement;
- where a member has a choice that the member has not yet made between receiving a commuted value and a deferred or immediate pension, describe the assumptions made regarding such choice;
- if applicable, describe the method to allocate the pension plan's assets among classes of members and the method to distribute surplus;
- describe the actuary's role in calculating commuted values, the standards for their calculation, and an opinion on whether their calculation is in accordance with accepted actuarial practice in Canada; and
- describe the sensitivity of the valuation results to the pension plan's investment policy and to market conditions between the report date and the settlement date. [Effective December 1, 2022]

- .03 An external user report should provide the following four statements of opinion, all in the same section of the report and in the following order:
- A statement regarding membership data, which should usually be, “In my opinion, the membership data on which the valuation is based are sufficient and reliable for the purpose of the valuation.”
 - A statement regarding assumptions, which should usually be, “In my opinion, the assumptions are appropriate for the purpose(s) of the valuation(s).”
 - A statement regarding methods, which should usually be, “In my opinion, the methods employed in the valuation are appropriate for the purpose(s) of the valuation(s).”
 - A statement regarding conformity, which should be, “This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada.” [Effective December 1, 2022]
- .04 If, for any reason, the actuary is unable to provide the statements of opinion in paragraph 3330.03, the wording of the statements of opinion should be adjusted to reflect the necessary qualifications, including a description of the areas of non-compliance. The actuary should not provide the four statements of opinion in paragraph 3330.03 if the work does not comply with the standards, even if the non-compliance is stipulated by the terms of the engagement. [Effective December 1, 2022]
- .05 The external user report should be sufficiently detailed to enable another actuary to assess the reasonableness of the valuation. [Effective December 1, 2022]

Dates

- .06 The wind-up date of the pension plan would be determined by the regulator, the plan administrator or the plan sponsor based on the plan provisions and the law.
- .07 The calculation date of the funded status would usually be the wind-up date.
- .08 For a particular member:
- the date of calculation of benefit entitlement would depend on the circumstances of the wind-up, the terms of the pension plan, and the law, and may be the date of termination of employment, the date of termination of membership, the wind-up date, or another date; and
 - the settlement date would be the date of settlement of the member’s benefit entitlement.

Nature of wind-ups

- .09 The purpose of a wind-up valuation may be to determine, or to provide, the basis for determining:
- the funded status of the pension plan;
 - the total value of the benefit entitlements of all members prior to taking account of the funded status of the pension plan;
 - any required additional funding;
 - the amounts and methods of settlement of benefit entitlements, including any adjustment required due to a wind-up deficit; or
 - the amount and method of distribution of a wind-up surplus.
- .10 A wind-up may be complex and may take a long time. Delays may require a series of reports by the actuary. Since the funded status of the pension plan at the final settlement date may affect whether benefit entitlements can be settled in full, the reflection of subsequent events in each report would be critical.
- .11 For example, between the wind-up date and the settlement date:
- the wind-up liabilities may fluctuate if there are fluctuations in interest rates and annuity prices;
 - the pension plan's assets may fluctuate depending upon the manner in which they are invested; and
 - the surplus may fluctuate if the pension plan's assets and liabilities are not matched.
- .12 The actuary would usually report the value of the benefit entitlements of all members and the funded status of the pension plan. That report would be filed with the regulator for approval. After that approval, the plan administrator would settle the benefit entitlements.
- .13 The actuary may prepare, or may be required to prepare, a final report after settlement of all benefit entitlements. Such report, if any, would document the distribution of the pension plan's assets by describing those entitlements and their settlement.

Membership data

- .14 The membership data are the responsibility of the plan administrator. The actuary would, however, report on the sufficiency and reliability of the membership data, specifically including the commuted values used in the valuation whether or not the plan administrator was the calculator thereof.
- .15 The finality of wind-up would call for the actuary to obtain precise membership data. The actuary may, if the circumstances dictate, include contingency reserves in the wind-up valuation with respect to missing members if the actuary believes that additional members still have benefit entitlements under the pension plan but their membership information is missing.

.16 The reported membership data would include details of the amounts and terms of payment of each member's benefits.

Assumptions

.17 The selected assumptions would:

- in respect of benefit entitlements that are assumed to be settled by purchase of annuities, reflect single premium annuity rates;
- in respect of benefit entitlements that are assumed to be settled by lump sum transfer, reflect the standards in Section 3500 respecting commuted values; and
- in respect of benefit entitlements that are assumed to be settled in some other manner, reflect the manner in which such benefits would be settled.

.18 If future benefits depend on continued employment (e.g., the pension plan is terminating but employment is not), the actuary would consider reflecting contingencies such as future salary increases and termination of employment.

.19 If the pension plan provides special early retirement allowances that may be reduced if the members have employment income following their actual or assumed early retirement dates, then the wind-up valuation would require assumptions regarding the likelihood and the amounts of the members' future employment income. To extrapolate the pension plan's historical experience as a going concern would not necessarily be appropriate in selecting those assumptions.

.20 Wind-up expenses usually include, but are not limited to:

- fees related to the actuarial wind-up report(s);
- fees imposed by a regulator;
- legal fees;
- administration expenses; and
- custodial and investment management expenses.

.21 The actuary would either net wind-up expenses against the pension plan's assets or add the assumed wind-up expenses to the pension plan's liabilities in calculating the ratio of assets to liabilities as a measure of financial security of the benefit entitlements, unless the expectation is that expenses will not be paid from the pension plan's assets. However, an exception may be made for future custodial and investment management expenses, which may be netted against future investment return in the treatment of subsequent events.

Use of another person's work

.22 Some aspects of the wind-up may be unclear to the actuary or contentious. These could include:

- application of the plan documents and/or legislation;
- interpretation of the law;
- the determination of the wind-up date;
- the members, former members or recently terminated members to be included in the wind-up;
- whether or not to assume salary increases in determining benefit entitlements;
- eligibility for plant closure benefits and permanent lay-off benefits;
- eligibility for benefits payable only with the consent of the employer or plan administrator;
- the liquidation value of the pension plan's assets;
- the method to allocate the pension plan's assets among members;
- the allocation of surplus between the employer and the members; and
- whether or not wind-up expenses are to be paid from the pension plan's assets.

.23 To decide those aspects, the actuary may rely upon direction from another person with the necessary knowledge, such as legal counsel or the employer, or the necessary authority, such as a regulator or the plan administrator. The actuary would consider any issues of confidentiality or privilege that may arise.

Post-wind-up contingencies

.24 Post-wind-up contingencies may affect benefit entitlements. Examples are:

- member election of optional forms of benefits;
- member election of retirement date;
- salary increases; and
- change in marital status.

Subsequent events

.25 In contrast with a going concern valuation, in a wind-up valuation all subsequent events, ideally, would be reflected. This ensures that the funded status is presented as fairly as possible as of the report date. However, it would be impossible to recognize subsequent events right up to the report date. Accordingly, the actuary would select a cut-off date that is close to the report date.

- .26 The actuary would ascertain that no subsequent events have occurred between the cut-off date and the report date that would change the funded status significantly, otherwise the actuary would select a later cut-off date. For clarity, a subsequent event may be material yet not be so significant as to require selection of a later cut-off date.
- .27 It may be appropriate to have more than one cut-off date. For example, the actuary may select one cut-off date for the active membership data and another cut-off date for the inactive membership data.
- .28 Common subsequent events are:
- contributions;
 - expenses paid from the pension plan's assets;
 - actual investment return on the pension plan's assets;
 - change in annuity purchase rates;
 - change in assumptions or methodologies for the calculation of commuted values;
 - corrections to the membership data;
 - deaths of members; and
 - crystallization of post-wind-up contingencies.
- .29 One method for taking account of subsequent events is to determine the value of benefits as of the cut-off date and then discount such value back to the calculation date at an interest rate equal to the rate of investment return, net of investment expenses, earned on the pension plan's assets between the calculation date and the cut-off date. The pension plan's assets would be determined at the calculation date, but adjusted for the subsequent events (such as contributions and non-investment expenses) that affect the pension plan's assets.
- .30 There may be situations where, due to legal or practical considerations, subsequent events are not recognized, at least in a preliminary report and the cut-off date for such a report would be the calculation date. In such reports, the effect of subsequent events may be disclosed and quantified in an approximate manner. Where the effect of subsequent events is provided in a later report, it may be practical, in that report, to use a calculation date corresponding to the cut-off date.

Statements of opinion

- .31 Where different statements of opinion apply in respect of different purposes of the valuation, the above requirements may be modified, but would be followed to the extent practicable.

3400 Financial reporting of pension costs

- .01 This Section 3400 applies to advice that an actuary provides with respect to financial reporting of a pension plan's costs and obligations in the employer's or the pension plan's financial statements, where the calculations and advice are provided in accordance with an applicable financial reporting standard.

3410 General

- .01 For financial reporting purposes, the actuary should use methods and assumptions for the value of assets and pension benefit obligations that are appropriate to the basis of financial reporting in the employer's or pension plan's financial statements, as applicable, and that are consistent with the terms of an appropriate engagement and the circumstances affecting the work. [Effective December 1, 2022]

Circumstances affecting the work

- .02 For the purposes of Section 3400, the circumstances affecting the work would include:
- the terms of the appropriate engagement under which the work is being performed; and
 - the application of the law to the work.
- .03 The actuary would reflect the financial reporting standards specified by the terms of the appropriate engagement. Where financial reporting standards require methods and assumptions to be established by the preparers of the financial statements, the actuary would use the methods and assumptions specified by the preparers of the financial statements.

Plan provisions

- .04 The actuary would determine the plan provisions with sufficient accuracy for the purposes of the valuation. Sources of information on plan provisions include, where relevant
- current plan documents;
 - administrative practices;
 - cost-sharing arrangements; and
 - communication between the plan sponsor or plan administrator and the plan members or collective bargaining agent.
- .05 The actuary would consider all benefits in accordance with the terms of the appropriate engagement that are to be payable under the pension plan and would include provision for all such benefits expected to be paid under the plan.

Anticipated amendment or deferred recognition of a pending amendment

- .06 The actuary's advice on a pension plan may reflect a pending amendment to the plan if the amendment is definitive or virtually definitive, as appropriate, based on the applicable financial reporting standard and direction from the plan sponsor or plan administrator as applicable.

- .07 The effective date of the amendment is the date at which the amended benefits take effect, as opposed to the date when the amendment becomes either definitive or virtually definitive.
- .08 If an actuary is aware of an expected amendment to the pension plan, but does not reflect the amendment in the work, then the actuary would report the event in accordance with the requirements for the disclosure of subsequent events.

Data and extrapolations

- .09 In identifying the data need, the actuary would bear in mind the pertinent benefits (i.e., those applicable during retirement, disability, or following termination of employment).
- .10 The actuary may use data, including membership data, with an effective date different from the calculation date. In extrapolating data or results, the actuary would consider actual benefit payments and other relevant events between the effective date of the data and the calculation date. The actuary would not normally:
- use membership data with an effective date more than four years from the calculation date; nor
 - extrapolate valuation results more than four years from the effective date of the membership data.

Assumptions

- .11 The assumptions that the actuary uses would be best estimate assumptions, unless otherwise specified in the relevant financial reporting standards or as otherwise selected by the preparers of the financial statements.

Benefit commitments

- .12 The actuary would include in the valuation of pension benefit obligations the effect of a commitment to provide benefits beyond the terms of the plan to the extent stipulated by the preparers of the financial statements.

Expenses

- .13 The actuary's advice on a pension plan would take account of expenses, including whether or not they are expected to be paid from the pension plan's assets, if any.

3420 Reporting: External user report

.01 An external user report should:

- include the calculation date and the report date;
- describe the sources of membership data, plan provisions, and the pension plan's assets, and the dates at which they were compiled;
- describe the membership data and any limitations thereof, and any assumptions made about missing or incomplete membership data;
- describe the tests applied to determine the sufficiency and reliability of the membership data and plan asset data for purposes of the work;
- describe the market value of assets and a summary of the assets by major category;
- describe the pension plan's provisions;
- describe any material accounting policies relevant to the work;
- describe any commitment to provide benefits beyond the terms of the plan reflected in the valuation of pension obligations;
- report the funded status at the calculation date and the applicable service cost;
- disclose any pending but definitive or virtually definitive amendment of which the actuary is aware, and whether or not such amendment has been included in determining the funded status and the service cost;
- disclose subsequent events of which the actuary is aware, whether or not the events are taken into account in the work, and, if there are no subsequent events of which the actuary is aware, include a statement to that effect;
- describe any contingent benefits provided under the pension plan and the extent to which such contingent benefits are included or excluded in determining the funded status and the service cost;
- describe any benefits that are not contingent benefits and that have been excluded in determining the funded status and the service cost;
- describe the method and period selected in connection with any amortizations;

- if the valuation is an extrapolation of an earlier valuation, then describe the method and any assumptions for, and the period of, the extrapolation; and
- state whether or not the valuation and/or extrapolation conforms with the actuary's understanding of the financial reporting standards specified by the terms of an appropriate engagement. [Effective December 1, 2022]

.02 An external user report should provide the following four statements of opinion, all in the same section of the report and in the following order:

- A statement regarding membership data, which should usually be, "In my opinion, the membership data on which the valuation is based are sufficient and reliable for the purpose of the valuation."
- A statement regarding assumptions which should usually be, "In my opinion, the assumptions are appropriate for purposes of the valuation."
- A statement regarding calculations, which should usually be, "In my opinion, the calculations have been made in accordance with my understanding of the requirements of [name financial reporting standard]"
- A statement regarding conformity, which should be, "This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada." [Effective December 1, 2022]

.03 If, for any reason, the actuary is unable to provide the statements of opinion in paragraph 3420.02, the wording of the statements of opinion should be adjusted to reflect the necessary qualifications, including a description of the areas of non-compliance. The actuary should not provide the four statements of opinion in paragraph 3420.02 if the work does not comply with the standards, even if the non-compliance is stipulated by the terms of the engagement. [Effective December 1, 2022]

.04 An external user report should be sufficiently detailed to enable another actuary to assess the reasonableness of the valuation. [Effective December 1, 2022]

Membership data

.05 Any assumptions and methods used in respect of insufficient or unreliable membership data would be described.

Reference to report on funding

.06 The descriptions required in the external user report may be incorporated by reference to an external user report on funding.

3500 Pension commuted values

3510 Scope

- .01 The standards in this Section 3500 apply to advice on the computation of commuted values, including commuted values to be paid from a pension plan that is registered under an Act when the method of settlement is a lump sum payment in lieu of an immediate or deferred pension resulting from death or individual termination of plan membership, except for the specific circumstances that are described below in paragraph 3510.03. In particular, the standards in this Section 3500 apply:
- In a jurisdiction whether or not there is legislation in that jurisdiction that specifically provides for portability of pension benefit credits.
 - Regardless of limits imposed by the Income Tax Act (Canada) on amounts that may be transferred to other tax-sheltered retirement plans.
 - Subject to paragraph 3570.05, regardless of the specific adjustments to commuted values in order to determine the lump sums paid from a pension plan required by the terms of the plan in accordance with applicable legislation. An example of such an adjustment would be the requirement by pension legislation to reduce the lump sum payment to a former pension plan member if the plan is less than fully funded.
 - As modified by subsection 3570, to the determination of commuted values of pensions and deferred pensions payable from target pension arrangements, such as certain target benefit plans and multi-employer pension plans. For purposes of this Section 3500, a target pension arrangement is a pension plan for which applicable legislation contemplates the reduction to the accrued pensions of plan members and beneficiaries while the pension plan is ongoing as one of the available options for maintaining the funded status of the pension plan, and where the reduction in accrued pensions is not necessarily caused by the financial distress of the plan sponsor or sponsors.
 - Under a reciprocal pension agreement between plan sponsors where the result of the reciprocal agreement is either to establish a pension amount determined on a defined contribution basis or to establish an account balance under a defined contribution provision of a plan, whether the account balance is to be converted immediately or subsequently into a pension.
- .02 The standards in this Section 3500 also apply to the determination of a lump sum payment from the pension plan in lieu of an immediate or deferred pension to which a plan member's former spouse is entitled after a division of the member's pension on marital breakdown.

- .03 The standards in this Section 3500 do not apply:
- under a reciprocal pension agreement between plan sponsors where the result of the reciprocal agreement is to provide defined pension benefits or target pension benefits for the plan member;
 - to the determination of commuted values of pensions and deferred pensions payable from pension arrangements that are not registered under an Act;
 - to the conversion of defined pension benefits or target pension benefits to a defined contribution arrangement where there is no termination of active employment;
 - to the determination of commuted values of pensions that have commenced payment and where commutation is at the discretion of the member, except as explicitly required under paragraphs 3510.02 or 3560.01;
 - when calculating the capitalized value of pension benefits for actuarial evidence purposes, pursuant to Part 4000, where such value does not relate to a commuted value payable from a registered pension plan; or
 - To the determination of commuted values of pensions and deferred pensions under a target pension arrangement in the case of a full or partial wind-up.

Act

- .04 For the purposes of this Section 3500, “Act” means a pension benefits standards act of a province or the federal government of Canada or the Income Tax Act (Canada).

Retirement compensation arrangements

- .05 Since retirement compensation arrangements (RCAs) are not required to be registered under the Income Tax Act (Canada), this Section 3500 applies to commuted values payable from an RCA only if the RCA is registered under a pension benefits standards act of a province or the federal government of Canada.

3520 Method

- .01 A commuted value calculated in accordance with the methods and assumptions of this Section 3500 is intended to represent the economic value of the immediate or deferred pension that would have been paid from the pension plan. That is, it is intended to represent the value that the marketplace would attribute to that pension, while reflecting certain simplifications in the calculations and requiring in some cases that certain assumptions be common among different plans. It is not intended to include any value that marketplace participants such as insurance companies might attribute to potential costs different than expected due to the assumption of risks such as longevity and inflation.

- .02 The commuted value should be independent of the funded status of the pension plan, except in the circumstances described in paragraph 3540.18 and paragraph 3570.05. [Effective December 1, 2022]
- .03 The period for which the commuted value applies before recomputation is required may be established by the plan terms or applicable legislation, or by a plan administrator who is empowered to specify such period. Commuted values paid after the end of such period should be recomputed on the basis of a new valuation date. If the period for which the commuted value applies before recomputation is required is not established by the terms of the plan or applicable legislation, or by a plan administrator who is empowered to specify such period, the period should be established as nine months after the valuation date. [Effective December 1, 2022]
- .04 The commuted value should be adjusted for interest, taking into account the requirements of applicable legislation, between the valuation date and the first day of the month in which the payment is made. Unless otherwise required by applicable legislation, the interest rates used to calculate the commuted value should be used for such adjustment. [Effective December 1, 2022]
- .05 Subject to paragraph 3570.05, the commuted value should reflect the plan member's full benefit entitlement as a deferred or immediate pensioner, as may be applicable, determined under the terms of the pension plan. In the case of a deferred pensioner, the commuted value should include the value of the death benefit that would have applied before commencement of the deferred pension. [Effective December 1, 2022]
- .06 A commuted value should not be calculated using methods or assumptions that produce a commuted value smaller than the value computed in accordance with this section. [Effective December 1, 2022]

Valuation date

- .07 The valuation date means the date as of which a value is being computed. Generally, this would be the date upon which the plan member becomes entitled to an immediate or deferred pension resulting from death or individual termination of plan membership, or as of such other date as may be determined either by applicable legislation, by the terms of the plan, or by a plan administrator who is empowered to do so, on which the right to receive a commuted value becomes effective.
- .08 In the event that recomputation is required in accordance with these standards, a new valuation date would be established. Calculations would be made at the new valuation date in accordance with the standards in effect on the new valuation date.

Conditions attached to payment

- .09 Applicable legislation or the terms of the plan may attach conditions to the payment of the full commuted value when the plan is less than fully funded on a plan termination basis.

Benefit entitlement

- .10 The following applies except for commuted values calculated in accordance with subsection 3570. Subject to paragraph 3530.09, where at the valuation date, a plan member has the right as a deferred or immediate pensioner, as may be applicable, to optional forms of pension, and where such right is contingent on an action that is within the member's control and where it is reasonable to assume that the member will act so as to maximize the value of the benefit, the option that has the greatest value would be used in determining the commuted value. For example, where a member has terminated employment and, upon application, is eligible for a particular benefit such as a subsidized joint and survivor form of pension that has a value, it is reasonable to assume that, upon acquiring expert advice, the member will apply for the benefit.
- .11 The commuted value using these assumptions made in accordance with the preceding paragraph 3520.10 and subsequent paragraphs 3530.06 and 3530.09 may prove to have recognized certain potential entitlements that are never realized, or may prove to have disregarded certain entitlements that ultimately provide value.

Alternative methods and assumptions

- .12 A commuted value may be calculated based on methods and assumptions that differ from those prescribed in these standards only if
- the resulting value is larger; and
 - such value is required by the terms of the plan or applicable legislation, or by a plan administrator who is empowered to specify the basis on which commuted values are to be determined.

3530 Demographic assumptions

- .01 Except for situations specifically noted below, the following should be assumed:
- separate mortality rates for male and female members; and
 - except for commuted values calculated in accordance with subsection 3570, mortality rates in accordance with a mortality table promulgated from time to time by the Actuarial Standards Board for the purpose of these calculations.
[Effective December 1, 2022]
- .02 No adjustment should be made to reflect the health or smoker status of the member.
[Effective December 1, 2022]
- .03 The age of the plan member on the valuation date should be used when valuing a pension.
[Effective December 1, 2022]

- .04 If the plan provides a contingent benefit only to the person who is the plan member's spouse at the date of termination of membership, the actual age of the spouse, if any, should be used in the computation. If this information cannot be obtained, an appropriate proportion married and age difference between the plan member and spouse should be assumed. [Effective December 1, 2022]
- .05 Where the plan provides a contingent benefit to a plan member's spouse and a change in the member's marital status after the valuation date is relevant to the determination of the commuted value, an appropriate assumption should be made concerning the likelihood of there being an eligible spouse, and the age of that spouse, at the time of death. [Effective December 1, 2022]
- .06 The following applies, except for commuted values calculated in accordance with subsection 3570. When valuing deferred pensions, including deferred pensions for a plan member who may also be entitled to an immediate pension, the normal retirement age should be used, except in the situation where the terminated plan member has the right to elect an earlier commencement date and the consequent early retirement pension exceeds the amount that is of actuarial equivalent value to the pension payable at normal retirement age. In this case, subject to paragraph 3530.09, it should be assumed with a probability of 50% that retirement will occur at the age that would result in the highest commuted value and with a probability of 50% that retirement will occur at the earliest age at which the plan member will be entitled to an unreduced lifetime pension. In the situation where the terminated plan member's age on the valuation date is greater than or equal to the earliest age at which the plan member will be entitled to an unreduced lifetime pension, subject to paragraph 3530.09, the valuation date should be used as the assumed retirement date, with the commuted value incorporating any retroactive payments required by applicable legislation. [Effective December 1, 2022]
- .07 For the purposes of paragraph 3530.06, where the early retirement reductions for a deferred pension are different for different periods of accrued service, the retirement age that would result in the highest commuted value would reflect the value of the pension earned for all periods of accrued service combined. However, the age at which the plan member will be entitled to an unreduced lifetime pension would be determined separately for each period of accrued service.

- .08 For the purposes of paragraph 3530.06, where the amount of a member's deferred lifetime pension is projected to be affected at one or more retirement dates by limits imposed by the Income Tax Act (Canada) ("*ITA limits*"), the earliest retirement age at which the plan member will be entitled to an unreduced lifetime pension would be the earliest retirement age at which the member's deferred lifetime pension either:
- is not affected by the ITA limits and the deferred lifetime pension is not reduced for early commencement; or
 - is affected by the ITA limits and the ITA limits at that age do not include a reduction for early commencement.
- .09 However, where a right described in paragraph 3520.10 or 3530.06 is contingent upon an action that is within the member's control and where it is not reasonable to assume the retirement assumption determined in accordance with paragraph 3530.06 or where it is not reasonable to assume that the member will always act to maximize the value of the benefit under paragraph 3520.10, an appropriate assumption would be made for the likelihood and timing of such action. For example, where a member is continuing in employment and is entitled to an unreduced pension that commences upon termination of employment, it may not be reasonable to assume that the member will immediately terminate employment in order to become eligible for an immediate benefit. In determining the likelihood and timing of such action, group data may be used.
- .10 The demographic assumptions would be the same for all types of immediate and deferred pensions.

Mortality

- .11 Commuted values would not vary according to the sex of the plan member when required by applicable legislation or by the terms of the plan or by the plan administrator if the administrator is so empowered by the terms of the plan. In this case, a blended mortality approach would be adopted by either developing a mortality table based on a combination of male and female mortality rates, or computing the commuted value as a weighted average of the commuted value based on male mortality rates and that based on female mortality rates. The relative proportions of males versus females would be appropriate for the particular plan.
- .12 If the requirement that commuted values do not vary according to the sex of the plan member is legislated and applies only to benefits earned after a particular date or only to a subgroup of plan members, the use of a blended mortality approach may be extended to commuted values of benefits earned prior to such date or to commuted values of benefits of all members.

3540 Economic assumptions

- .01 Economic assumptions that vary depending on whether the pension is fully indexed, partially indexed, or non-indexed should be selected. For commuted values calculated in accordance with subsection 3570, the economic assumptions should be determined in accordance with subsection 3570. [Effective December 1, 2022]
- .02 Economic assumptions should be selected based on the reported rates for the applicable CANSIM series for the calendar month immediately preceding the month in which the valuation date falls. [Effective December 1, 2022]
- .03 Two interest rates and two rates of pension escalation, when applicable, should be calculated. The first rate is applicable to the first 10 years after the valuation date and the second is applicable to all years thereafter. [Effective December 1, 2022]
- .04 The commuted value of a fully or partially indexed pension should be at least equal to the commuted value applicable to a non-indexed pension in the same amount and having similar characteristics. [Effective December 1, 2022]

- .05 The following three factors should be determined from the CANSIM series:

CANSIM Series	Description	Factor
V122542	Seven-year Government of Canada benchmark bond yield, annualized (final Wednesday of month)	i_7
V122544	Long-term Government of Canada benchmark bond yield, annualized (final Wednesday of month)	i_L
V122553	Long-term real-return Government of Canada bond yield, annualized (final Wednesday of month)	r_L

Note that the factors determined above are not the reported CANSIM series, but the annualized value of the reported figure. [Effective December 1, 2022]

- .06 A fourth factor should also be determined as follows:

$$r_7 = (1 + r_L) * (1 + i_7) / (1 + i_L) - 1$$

[Effective December 1, 2022]

.07 Four bond yield spreads should be determined, based on the index yields for the final Wednesday of the calendar month immediately preceding the month in which the valuation date falls, calculated as follows:

$$PS_{1-10} = (\text{Canada Mid-term provincial bond index yield, annualized}) - (\text{Canada Mid-term federal non-agency bond index yield, annualized})$$

$$CS_{1-10} = (\text{Canada Mid-term corporate bond index yield, annualized}) - (\text{Canada Mid-term federal non-agency bond index yield, annualized})$$

$$PS_{10+} = (\text{Canada Long-term provincial bond index yield, annualized}) - (\text{Canada Long-term federal non-agency bond index yield, annualized})$$

$$CS_{10+} = (\text{Canada Long-term corporate bond index yield, annualized}) - (\text{Canada Long-term federal non-agency bond index yield, annualized})$$

The bond index yields, before being annualized, referred to in this paragraph 3540.07 are the average semi-annual mid market yields to maturity for each index published by FTSE Canada Debt Capital Markets at the market close on the final Wednesday of the calendar month immediately preceding the month in which the valuation date falls, or such other bond index yields or calculation bases that may be promulgated from time to time by the Actuarial Standards Board for purposes of these calculations.

The bond index yields used to calculate PS_{1-10} , CS_{1-10} , PS_{10+} , or CS_{10+} are not the yields published, but the annualized value of the published figures.

If PS_{1-10} , CS_{1-10} , PS_{10+} , or CS_{10+} as calculated above is less than zero, the bond yield spread should be set equal to zero. [Effective December 1, 2022]

.08 Two spread adjustments should be determined as follows:

$$s_{1-10} = (0.667 * PS_{1-10}) + (0.333 * CS_{1-10})$$

$$s_{10+} = (0.667 * PS_{10+}) + (0.333 * CS_{10+})$$

If s_{1-10} or s_{10+} as calculated above is more than 1.5%, the spread adjustment should be set equal to 1.5%. [Effective December 1, 2022]

.09 6 The following interest rates should be used to calculate commuted values:

	Interest rates
First 10 Years	$i_{1-10} = i_7 + s_{1-10}$
After 10 Years	$i_{10+} = i_L + 0.5 * (i_L - i_7) + s_{10+}$

If i_{1-10} or i_{10+} as calculated above is less than zero, that interest rate should be set equal to zero. [Effective December 1, 2022]

.10 For pensions that are fully indexed to increases in the Consumer Price Index the rates of pension escalation should be determined based on the implied rates of increase in the Consumer Price Index for any escalation falling within the first 10 anniversaries of the valuation date inclusive, and thereafter determined as follows:

	Implied rates of increase in CPI
First 10 Years	$C_{1-10} = (1+i_7) / (1+r_7) - 1$
After 10 Years	$C_{10+} = (1+i_L + 0.5 * (i_L - i_7)) / (1+r_L + 0.5 * (r_L - r_7)) - 1$

[Effective December 1, 2022]

.11 For pensions that are partially indexed to increases in the Consumer Price Index, the rates of pension escalation should be determined by applying the partial indexing formula of the plan to those rates of increase in the Consumer Price Index, determined in accordance with paragraph 3540.10. [Effective December 1, 2022]

.12 Where rates in pension escalation are related to increases in the average wage index, it should be assumed that the average wage index will increase at rates that are one percentage point higher than the rates of increase in the Consumer Price Index. [Effective December 1, 2022]

.13 A pension that is indexed according to an excess interest approach involves increases that are linked to the excess of formula A over formula B, where A is some proportion of the rate of return on the pension fund or on a particular class of assets, and B is a base rate or some proportion of the rate of return on another asset class. In determining the interest rates under formula A and formula B, the interest rates determined in accordance with paragraph 3540.09 should be used as proxies for the rate of return on the pension fund or on any particular asset class for which the rate of return is expected to be equal to or greater than the non-indexed interest rates determined in accordance with paragraph 3540.09. [Effective December 1, 2022]

.14 Prior to calculating the commuted value, the rates of interest and/or rates of pension escalation determined in accordance with this subsection 3540 should be adjusted using either of the following approaches:

- round each of the rates of interest and rates of pension escalation to the nearest multiple of 0.10%; or
- round to the nearest multiple of 0.10%
 - the rates of interest; and
 - the compound difference between the rates of interest and the rates of pension escalation (the “rounded interest rates net of pension escalation”).

The final rates of pension escalation would then be determined based on the compound difference between the rounded rates of interest and the rounded interest rates net of pension escalation. This approach produces rounded interest rates, unrounded rates of pension escalation and rounded interest rates net of pension escalation.

Any rates of interest, increase, or escalation used in calculations prior to the final step of the determination should not be rounded. [Effective December 1, 2022]

Pension index frequency

.15 Reasonable approximations may be used to take into account the specific circumstances of the situation regarding payment frequency, indexing frequency, and time and amount of the first increase of pension escalations.

Pension indexed on an excess interest formula

.16 If the pension is indexed on an excess interest formula and the particular asset class is one for which the rate of return is expected to be less than the interest rates determined in accordance with paragraph 3540.09, in determining the expected rate of return on a particular asset class for this purpose, the current economic environment as well as future expectations would be considered.

Other modifications

- .17 Where pension escalation rates are either modified by applying a maximum or minimum annual increase, with or without carry forward of excesses or deficiencies to later years, or modified by prohibiting a decrease in a year where the application of the formula would otherwise cause a decrease in pension, the pension escalation rates otherwise applicable would be adjusted, based on the likelihood of the modification causing a material change in the pension payable in any year. In determining such likelihood, the current economic environment as well as future expectations would be considered. Either a stochastic or deterministic analysis may be used to determine the pension escalation rates.
- .18 Where pension escalation rates are based on the funded status of the pension plan, the pension escalation rates otherwise applicable would be adjusted, based on the likelihood of the plan's funded status causing a material change in the pension payable in any year. In determining such likelihood, the current funded status of the plan and the projected funded status in future years would be considered in determining the pension escalation rates. A stochastic or deterministic analysis may be used to determine the pension escalation rates.
- .19 Where pension escalation rates are not determined by reference to increases in the Consumer Price Index, the commuted value would be consistent with the values of non-indexed pensions and fully indexed pensions.

3550 Disclosure

- .01 When communicating the amount of the commuted value of a member's pension, the following should be provided:
- A description of the benefit entitlements involved.
 - A description of the actuarial assumptions used in determining the commuted value and the rate of interest to be credited between the valuation date and the first day of the month in which the payment is made. For indexed pensions, both the non-indexed nominal interest rates and the pension escalation assumptions should be disclosed separately.
 - A statement of the period for which the commuted value applies before recomputation is required.
 - When the payment of the full commuted value is subject to a condition based on the funded status of the plan, the additional contribution required for the payment of the full commuted value to be made or the recommended schedule for payment of the balance of the commuted value, if applicable.
 - A statement that, because the commuted value is based on a number of assumptions, the retirement income provided by the commuted value may be either greater or less than the pension payments that the member would have received from the pension plan.
 - A statement as to whether the commuted value has been computed in accordance with these standards. [Effective December 1, 2022]
- .02 Where the commuted value has not been determined in accordance with these standards, it should be clearly stated that the calculation is not in compliance with these standards and, unless the areas of noncompliance are due to the requirements of applicable legislation, the areas of noncompliance and the reasons for the noncompliance should be disclosed. [Effective December 1, 2022]
- .03 When communicating to the plan administrator an actuarial basis to be used in determining commuted values, it should be stated that the actuarial basis is in accordance with these standards. [Effective December 1, 2022]
- .04 The disclosures in paragraphs 3550.01 to .03 above and paragraph 3570.12 would be made in both an external user report and a written internal user report.

Disclosure of plan values which differ from these standards

- .05 In a situation where the use of commuted values (called plan values in this subsection 3550) that are different from those computed in accordance with this Section 3500 is required by the terms of the plan or applicable legislation, or by a plan administrator who is empowered to specify the basis on which commuted values are to be determined, the following disclosure requirements are applicable:
- If the plan values are lower, it should be disclosed that the commuted values so calculated are in accordance with the terms of the plan or the applicable legislation but not in accordance with the standards.
 - If the plan values are higher, it should be disclosed that the commuted values so calculated are in accordance with the terms of the plan or the applicable legislation and the standards. [Effective December 1, 2022]
- .06 Where commuted values that do not vary according to the sex of the plan member are required to be calculated, and where that requirement applies only to benefits earned after a particular date or only to a subgroup of plan members, the extent to which the blended mortality approach has been extended to benefits earned before the particular date or to benefits of all members should be described. [Effective December 1, 2022]
- .07 Where assumptions or methods described in these standards are used to calculate a commuted value in a situation where these standards do not apply, it should not be stated or implied that the commuted value has been computed in accordance with these standards. [Effective December 1, 2022]

3560 Reduced life expectancy

- .01 The standards in this subsection 3560 apply to advice on the computation of commuted values, from a registered pension plan, where the right to receive the lump sum is based on subsection 51.1 of the regulations to the Ontario Pension Benefits Act. These standards may also be applicable in other directly comparable situations.
- .02 These standards do not apply where the right to receive a lump sum is not conditional upon medical certification, under legislation, or the terms of the plan, even if the former member is known to be terminally ill.
- .03 All standards set out in Section 3500 apply, except as superseded by the following recommendations.

- .04 The commuted value should be calculated as of the date of the medical certificate specifying that the former member has life expectancy less than two years, even if other conditions for payment of the benefit (such as spousal consent) are not met until a later date. [Effective December 1, 2022]

- .05 The commuted value should be adjusted for interest and benefits paid to the date of payment. [Effective December 1, 2022]
- .06 The computation should not be adjusted to reflect the actual death or change in health of the former member after the valuation date. However, if a former pension plan member becomes eligible for immediate commencement of a pension after the date of the medical certificate and prior to payment of the benefit, this eligibility should be reflected in the calculation. [Effective December 1, 2022]
- .07 If the former member is entitled to a commuted value transfer based on the terms of the plan or legislation that is not conditional on reduced life expectancy, the amount payable should be the greater of the amount calculated in accordance with this subsection 3560 and the amount computed in accordance with subsections 3520 through 3540 and subsection 3570, if applicable, without regard to shortened life expectancy. [Effective December 1, 2022]

Benefit entitlement

- .08 The commuted value would reflect the plan member's full benefit entitlement as a deferred or immediate pensioner, as may be applicable, determined under the terms of the pension plan.

There are three possible cases:

- (a) A former member with deferred pension entitlement, not eligible for immediate commencement of pension.

In this case, the commuted value would reflect the present value of the death benefits that would be payable in respect of the former member. For this purpose, the value of the death benefit would be calculated as of the valuation date, assuming the former member died as of the valuation date.

- (b) A former member with deferred pension entitlement, eligible for immediate commencement of pension.

In this case, the lump sum value would be the greater of the amount determined as in (a) above and a value determined as if the member had retired at the date of valuation and elected the most favourable combination of the highest surviving spouse pension permitted by the plan (if there is an eligible spouse) and the longest guaranteed period available under the plan. This value would be determined as for pensioners in (c) below.

- (c) A former member in receipt of pension.

In this case, the commuted value would reflect the present value of pension payments for a period certain of four months from the valuation date, any additional guaranteed payments and any survivor benefits potentially payable.

Disclosure

- .09 When communicating the amount of the commuted value of a member's pension, a description of the survival period assumption would be provided.

3570 Target pension arrangements

- .01 The standards in this subsection 3570 apply to the determination of commuted values of pensions and deferred pensions payable from target pension arrangements, such as certain target benefit plans and multi-employer pension plans. A target pension arrangement is a pension plan for which applicable legislation contemplates the reduction to the accrued pensions of plan members and beneficiaries while the pension plan is ongoing as one of the available options for maintaining the funded status of the pension plan, and where the reduction in accrued pensions is not necessarily caused by the financial distress of the plan sponsor or sponsors.
- .02 All standards set out in preceding subsections of Section 3500 apply, unless indicated otherwise or as superseded by the following recommendations.
- .03 A commuted value calculated in accordance with the going concern assumptions and methods of this subsection 3570 is intended to represent the economic value of the immediate or deferred pension that would have been paid from the target pension arrangement in accordance with the terms of the pension plan and applicable legislation.

- .04 The commuted value should be calculated as the actuarial present value on the valuation date of the member's benefit entitlement as a deferred or immediate pensioner and, subject to the paragraphs that follow in this subsection 3570, determined using the same going concern assumptions as used in the most recent funding actuarial valuation report or cost certificate filed with the applicable pension regulator. [Effective December 1, 2022]

- .05 The actuarial present value of the member's benefit entitlement may be adjusted to reflect the funded status of the pension plan or to reflect the member's share of the plan assets, only as required by applicable legislation or by the terms of the plan, as described in official plan documents such as a plan text, benefits policy, and/or collective agreement. The funded ratio of the plan used to determine the adjustment should be calculated in accordance with accepted actuarial practice and should be based on a valuation date no earlier than the valuation date of the most recent funding actuarial valuation report or cost certificate filed with the applicable pension regulator. Subject to the exceptions in paragraphs 3570.09 and 3570.10, the assumptions used to calculate the funded ratio of the plan should be consistent with the assumptions used to calculate the actuarial present value of the member's benefit entitlement and there should be consistency with respect to the inclusion or exclusion of provisions for adverse deviations in the calculations, unless the actuary determines that consistency is not appropriate due to an unusual situation, in which case the actuary would describe and justify the rationale for such lack of consistency. [Effective December 1, 2022]

Assumptions

- .06 The assumptions used to calculate the commuted value would be the assumptions used for the pension plan's going concern valuation from the most recent funding actuarial valuation report or cost certificate filed with the applicable pension regulator.
- .07 Notwithstanding paragraph 3570.06, the commuted value would not include any margins for adverse deviations in the assumptions or provisions for adverse deviations that are reflected in the going concern valuation, unless their inclusion in the commuted value is required by applicable legislation or by the terms of the plan, as described in official plan documents such as a plan text, benefits policy, and/or collective agreement.
- .08 Notwithstanding paragraph 3570.06, the interest rate used to calculate the commuted value would be net of any adjustment for investment expenses and, if required by applicable legislation or by the terms of the plan as described in official plan documents such as a plan text, benefits policy, and/or collective agreement, would be adjusted for any non-investment expenses that are expected to be paid from the pension plan's assets.

- .09 Notwithstanding paragraph 3570.06 and subject to paragraph 3570.10, when calculating the commuted value of a deferred pension, the assumptions used to determine the actuarial present value of the member's benefit entitlement would be assumptions that are appropriate for purposes of performing an actuarial valuation of a pension plan consisting of only the group of deferred pensioner members of the plan. The actuary would use judgment in such circumstances. For example, in the case of the going concern valuation from the most recent funding actuarial valuation report of a plan filed with the applicable pension regulator, the age that deferred pensioner members are assumed to commence their pension may not be a material assumption and therefore the normal retirement age was used. However, if deferred pensioner members have the right to elect an earlier commencement date and the consequent early retirement pension exceeds the amount that is of actuarial equivalent value to the pension payable at normal retirement age, it may be appropriate to assume pension commencement at an earlier age for purposes of calculating the commuted value.
- .10 Notwithstanding paragraph 3570.06, with the exception of variations based on age and sex, the mortality assumption used to calculate the commuted value would be an assumption that is appropriate for the overall plan membership and would not vary for different subsets of the plan population.

Combination plans

- .11 Some plans provide certain benefits that fall within the definition of the benefits provided by target pension arrangements, while other benefits provided by the plan fall within the scope of this Section 3500, but do not fall within the definition of the benefits provided by target pension arrangements. For these plans, the commuted value of the benefits that fall within the definition of the benefits provided by target pension arrangements would be calculated in accordance with this Section 3500, including subsection 3570. The commuted value of the benefits that do not fall within the definition of the benefits provided by target pension arrangements would be calculated in accordance with this Section 3500, but would not reflect the requirements of subsection 3570.

Disclosure

- .12 In addition to the disclosures specified in preceding subsections of Section 3500, any adjustments determined in accordance with paragraph 3570.05 should be disclosed. Adjustments determined in accordance with paragraph 3570.05 are considered to be a component of the calculation of a commuted value that is in accordance with the standards.
[Effective December 1, 2022]

4000—Actuarial Evidence

Table of Contents

4100	Scope	4003
4200	General.....	4005
4210	Circumstances affecting the work.....	4005
4220	Financial interest of the actuary	4006
4230	Role as expert	4006
4240	Testimony	4007
4250	Capitalized values	4008
4260	Assumptions and methods	4008
4270	Application of law	4008
4300	Actuarial Evidence Calculations, Other than Capitalized Value of Pension Plan Benefits for a Relationship Breakdown and Criminal Rate of Interest	4010
4310	Scope	4010
4320	Assumptions and methods	4010
4330	Contingencies	4011
4400	Capitalized Value of Amounts Other than Pension Plan Benefits for a Relationship Breakdown	4012
4410	Scope	4012
4420	Assumptions and methods	4012
4500	Capitalized Value of Pension Plan Benefits for a Relationship Breakdown	4014
4510	Scope	4014
4520	Method.....	4014
4530	Assumptions	4019
4540	Reporting: external user report	4024
4600	Calculation of Criminal Rate of Interest.....	4025
4610	Scope	4025
4620	Data	4025
4630	Method.....	4025
4700	Reporting.....	4027
4710	External user report.....	4027
4720	Internal user report	4029

4100 Scope

- .01 Part 1000 applies to work within the scope of this Part 4000.
- .02 The standards in Part 4000 apply to actuarial evidence work.
- .03 With respect to actuarial evidence work:
- An expert is an actuary who is qualified by knowledge, skill, experience, training or education to render an opinion or otherwise testify concerning the matter at hand; and
 - An expert opinion is a conclusion drawn from actuarial knowledge and experience or from the application of one or more actuarial methods to a body of data.
- .04 An expert opinion may be provided in a written report, oral or written testimony or both.
- .05 The provision of an expert opinion which is actuarial evidence work and which involves a practice area such as insurance or pensions is work in both that practice area and the actuarial evidence practice area. The actuary would refer to the standards applicable to that practice area, in addition to the standards in Part 4000.

Examples

- .06 Examples of actuarial evidence work are:
- Determination of the capitalized value of pecuniary losses arising as a result of an event such as personal injury, death or wrongful dismissal from employment;
 - Determination of capitalized values of pensions in marriage or common-law relationship breakdown proceedings;
 - Expert opinions given in litigation arising from work completed in respect of a pension plan or an insurance business;
 - Work as an expert advisor to a mediating official, such as a judge;
 - Determination of effective rates of interest in cases of alleged charging of criminal interest rates; and
 - Provision of an expert opinion with respect to another actuary's work that is being challenged or in cases of alleged professional negligence.

- .07 Work in a practice area, such as insurance or pensions, may be performed in an adversarial environment but not involve an anticipated expert opinion for a dispute resolution proceeding. Such work would not normally be considered to be actuarial evidence work. Examples of such work, where the standards in Part 4000 are not applicable, are:
- Pension plan valuations or costings related to union negotiations or actuarial assistance with the merger of pension plans or the valuation of a pension plan in connection with the sale of a business; and
 - Actuarial assistance with the valuation of an insurer, the merger of insurers or the acquisition of an insurer.

Fact evidence

- .08 The standards in Part 4000 do not apply to the work of an actuary who is providing only fact evidence, and not an expert opinion. For example, an actuary testifying in his or her own defense in a proceeding related to professional negligence would normally be providing fact evidence, and not an expert opinion. As another example, an actuary may be providing evidence in a dispute resolution proceeding regarding his or her involvement in work performed in a practice area such as insurance or pensions. If the circumstances were not adversarial and there was no anticipation of a dispute resolution proceeding at the time the work was performed, the actuary's evidence in the dispute resolution proceeding would normally be fact evidence and not an expert opinion. The standards in Part 4000 would apply, however, if the actuary's role includes providing an expert opinion in a dispute resolution proceeding, where such opinion is expected or required to be independent.

Litigation advice

- .09 The terms of an appropriate engagement may require that the actuary provide only litigation advice, other than an expert opinion that is expected or required to be independent, such as assisting counsel or a client in identifying and analyzing legal or actuarial issues, advising in connection with relevant case law and preparing for cross-examination of opposing witnesses. In such cases, provided that the actuary makes it clear that the work product does not represent an expert opinion that is actuarial evidence work, the standards in Part 4000 would not apply.
- .10 The terms of an appropriate engagement may require that the actuary provide both litigation advice that is not actuarial evidence work and also an expert opinion. If work related to the expert opinion meets the definition of actuarial evidence work, then the standards in Part 4000 would apply to that aspect of the engagement.

4200 General

4210 Circumstances affecting the work

- .01 When performing actuarial evidence work, the actuary should take into account the circumstances affecting the work. [Effective January 1, 2023]
- .02 The circumstances affecting the work would include:
- relevant legislative or regulatory provisions;
 - rules of civil procedure and rules of court in the relevant jurisdictions;
 - other rules that may be applicable to the dispute resolution proceeding;
 - established legal principles relevant to the work; and
 - terms of an appropriate engagement under which the work is being performed.
- .03 Relevant legislative or regulatory provisions may include:
- provisions relating to allowable pecuniary damages under automobile insurance legislation or regulations;
 - provisions related to valuation of assets under a marital property act or regulations; and
 - provisions relating to pensions, benefits, insurance or workers' compensation.
- .04 Rules of civil procedure and rules of court, as well as other rules that may be applicable to the dispute resolution proceeding, may include:
- mandated assumptions;
 - required content and format of reports;
 - role of experts; and
 - duties and obligations of experts.
- .05 Established legal principles relevant to the work may address:
- issues relevant to the actuary's engagement; and
 - role and obligations of experts.
- .06 The terms of an appropriate engagement would define the role of the actuary and the purpose, context and scope of the work. An engagement for actuarial evidence work would not be appropriate if it would impair the ability of the actuary to perform independent and objective work.

- .07 Significant terms of an appropriate engagement may stipulate one or more of:
- assumptions to be used in the actuary's work;
 - methods to be used in the actuary's work; and
 - various scenarios to be considered by the actuary.
- .08 An engagement may be appropriate if its terms require that the actuary assist his or her client or counsel with challenging the application or a particular interpretation of existing law, regulation, court practice or established legal principles relevant to the work. Nothing in Part 4000 is intended to prevent the actuary from assisting with a challenge of the application or a particular interpretation of existing law, regulation, court practice or established legal principles relevant to the work, even if the result of such challenge of the application or a particular interpretation would otherwise, in the opinion of the actuary, be inconsistent with accepted actuarial practice.

4220 Financial interest of the actuary

- .01 The amount of the actuary's compensation should not be related to the outcome of the matter (e.g., dispute resolution proceeding) in connection with which the work is done. [Effective January 1, 2023]
- .02 For example, contingency fees that depend on the outcome of the dispute resolution proceeding would not be appropriate.

4230 Role as expert

- .01 The actuary's actuarial evidence work should be independent and objective. [Effective January 1, 2023]
- .02 The actuary's role as an expert should be to assist the court or other entity in the dispute resolution proceeding in its search for truth and justice, and the actuary should not be an advocate for one side of the matter in dispute. [Effective January 1, 2023]
- .03 Where the terms of the engagement require that the actuary provide both litigation advice that is not actuarial evidence work and also an expert opinion that is actuarial evidence work, the litigation advice role should not influence the independence and objectivity of such expert opinion. [Effective January 1, 2023]

- .04 Where the actuary is providing both litigation advice that is not actuarial evidence work and an expert opinion that is actuarial evidence work, the actuary would have a clear understanding of the differences between the two roles included in the engagement. The actuary would clearly identify in any work product which component of the engagement is involved, and would ensure that the litigation advice role does not impair his or her ability to perform the actuarial evidence work.

4240 Testimony

- .01 The actuary's testimony should be independent, objective, and responsive. [Effective January 1, 2023]
- .02 Where the terms of the engagement require that the actuary provide both litigation advice that is not actuarial evidence work and also an expert opinion that is actuarial evidence work, the actuary should be aware that full disclosure of all work and work products with respect to both roles within the engagement may be required in any testimony. [Effective January 1, 2023]
- .03 In the course of providing testimony in the dispute resolution proceeding, the actuary should:
- present a balanced view of the factors surrounding the actuarial aspects of the questions put to him or her;
 - answer all the questions that are asked on the basis of his or her own best assessment of all the relevant factors;
 - apply best efforts to ensure that the evidence is clear and complete, that the information the actuary is providing will not be misunderstood or misinterpreted, and that the audience will be able to utilize it correctly; and
 - indicate when a particular issue or question falls outside his or her expertise. [Effective January 1, 2023]
- .04 The actuary should respond truthfully and fully to questions posed in the course of providing testimony, but the actuary need not volunteer information which is beyond the scope of the question posed. [Effective January 1, 2023]

- .05 Testimony is the actuary's communication presented in the capacity of an expert witness in any dispute resolution proceeding where the actuary is examined or cross-examined. Such testimony may be oral or written, direct or responsive, formal or informal.
- .06 When responding to a direct question relating to any error or shortcoming the actuary perceives in the report of another actuary or expert witness, the actuary would respond truthfully and fully, notwithstanding paragraph 4710.08.

4250 Capitalized values

- .01 The actuary should calculate the capitalized value of future amounts payable in respect of an individual utilizing the actuarial present value method. [Effective January 1, 2023]
- .02 Actuarial evidence work frequently deals with the determination of the capitalized value of amounts for purposes of a dispute resolution proceeding. These amounts are often payable in respect of an individual and sometimes in respect of a group of individuals. Such calculations must often be performed within a framework established by law, regulation, and/or legal precedent.
- .03 Payment of the capitalized value is an alternative to payment of defined amounts to which an individual is entitled. Often the courts and others have recourse to require payment of a capitalized value when payment of the defined amounts comprising that value is not practical or not desired.
- .04 Calculation of the capitalized value is within the domain of actuarial practice.
- .05 The actuary would not calculate the capitalized value of future amounts that are subject to any contingent event as the present value of an annuity certain. For example, when utilizing the actuarial present value method in respect of a life annuity, the capitalized value of each life annuity payment is weighted by the probability of survival to the date of that payment. Under this method, the present value of possible overcompensation in an individual circumstance is balanced by the present value of possible undercompensation.

4260 Assumptions and methods

- .01 The actuary should ensure that any assumptions stipulated by the terms of the engagement are plausible. [Effective January 1, 2023]
- .02 The assumptions and methods used by the actuary should take account of the circumstances affecting the work, including applicable law, regulation, court practice and established legal principles relevant to the work. [Effective January 1, 2023]
- .03 The assumptions and methods selected by the actuary should not be influenced by the party to the dispute resolution proceeding that has retained the actuary. [Effective January 1, 2023]

4270 Application of law

- .01 In a situation where law, regulation, court practice, or established legal principles relevant to the work mandates that a method or assumption be adopted in an actuarial evidence calculation, a broad interpretation of accepted actuarial practice in Canada is appropriate, so that in most such situations the law, regulation, court practice or established legal principles relevant to the work would be considered to be within the range of accepted actuarial practice in Canada.

- .02 Where an assumption is mandated by law, regulation, court practice or established legal principles relevant to the work, such assumption may be outside of the range of assumptions that the actuary considers to be reasonable.

4300 Actuarial Evidence Calculations, Other than Capitalized Value of Pension Plan Benefits for a Relationship Breakdown and Criminal Rate of Interest

4310 Scope

- .01 The standards in section 4300 apply to an actuary's advice when performing actuarial evidence calculations, other than for the capitalized value of pension plan benefits for a relationship breakdown and for a criminal rate of interest.

4320 Assumptions and methods

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| <p>.01 The assumptions and methods selected by the <u>actuary</u> should be appropriate in the aggregate, taking into account the purpose of the <u>work</u> and the parts of the standards that are applicable to the <u>actuary's work</u>. [Effective January 1, 2023]</p> <p>.02 The assumptions selected by the <u>actuary</u> should be <u>best estimate</u> assumptions, unless it is appropriate to incorporate <u>margins for adverse deviations</u> in accordance with the circumstances affecting the <u>work</u>. [Effective January 1, 2023]</p> |
|---|
- .03 Examples of the circumstances affecting the work where it would be appropriate to incorporate a margin for adverse deviations in an assumption include, but are not limited to:
- The assumption or the requirement for a margin for adverse deviations is mandated by law, regulation, court practice, or established legal principles relevant to the work; and
 - The actuary's work relates to a practice area such as insurance or pensions, and the standards for that practice area require or permit the inclusion of a margin for adverse deviations for such work.
- .04 Notwithstanding paragraph 4320.03, the terms of an appropriate engagement may stipulate assumptions that are not considered plausible by the actuary or methods that are not considered appropriate by the actuary. In such case, if the actuary performs the work in accordance with the terms of the engagement, the actuary would report the deviation from accepted actuarial practice in Canada.
- .05 The terms of the engagement may require that the actuary complete calculations for related items, such as one calculation for the capitalized value of a pecuniary loss and another calculation for the income tax gross-up. The underlying assumptions would be consistent for the calculation of these related items. In this example, the actuary would utilize the same underlying assumptions, such as the same real rate of interest, the same rate of price inflation and the same mortality assumption, for both the calculation of the capitalized value of the loss and the calculation of the income tax gross-up.

- .06 Where there are insufficient data to support a particular assumption regarding a contingency incorporated in the actuary's work, the actuary may present a range of results.

4330 Contingencies

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| <p>.01 The <u>actuary</u> should consider incorporating any contingency where, in the <u>actuary's opinion</u>, there are adequate legal, theoretical or empirical grounds to justify this. The <u>actuary</u> should disclose the omission from the <u>work</u> of any contingencies he or she considers material. [Effective December 31, 2013]</p> <p>.02 If the <u>actuary</u> gives advice on the effect of a specific contingency, that advice should be based on an assessment of that contingency, both alone and in combination with other factors, using appropriate actuarial methods. [Effective December 31, 2013]</p> |
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- .03 Where the actuary has prepared results under more than one scenario, the actuary's report would show the results of the actuarial calculations separately for each scenario and identify which contingencies have been incorporated in each scenario. For example, the results of the actuarial calculations under one scenario may include precise recognition of only net investment return and mortality. The results taking into account any other provision for contingencies would be prepared under another scenario and would be reported separately.
- .04 Recognition of a contingency may create a positive or negative effect on a calculation.

4400 Capitalized Value of Amounts Other than Pension Plan Benefits for a Relationship Breakdown

4410 Scope

- .01 The standards in Section 4400 apply to an actuary's advice when calculating the capitalized value of amounts other than pension plan benefits for a relationship breakdown. A capitalized value relates to amounts payable at various times, each amount subject to various contingencies related to the individual or to the individual's dependants. Examples of situations where capitalized values may be calculated are:

<u>Event</u>	<u>Capitalized Value of:</u>
Disability	individual's loss of earnings, loss of household services, and/or cost of extraordinary expenses attributable to the disability.
Death	dependant's loss of financial support and/or loss of household services.
Wrongful dismissal	individual's loss of earnings, pension benefits, and/or employer-sponsored benefits other than pensions.
Relationship breakdown	individual's support obligations.

4420 Assumptions and methods

Past loss

- .01 In some cases, the capitalized value is the present value of amounts payable both before and after the date at which the capitalized value is established. For example, in an accident caused by negligence, litigation of the damages may result in the capitalized value becoming payable several years after the accident. Then the damages consist of those in respect of both the period before and the period after the date at which the capitalized value is established, called "past losses" and "future losses", respectively.

Income tax

- .02 Subject to the terms of the engagement, the actuary may include an appropriate allowance in the capitalized value calculation for the expected effect of income tax, taking account of applicable law, regulation, court practice and established legal principles relevant to the work. The actuary's report would deal with income tax in an internally consistent way, and the report would fully disclose the assumptions and methods utilized.

Investment expenses

- .03 Subject to the terms of the engagement, the actuary may include an appropriate allowance in the capitalized value calculation for any expenses expected with respect to the future investment, management or administration of any settlement amount, taking account of applicable law, regulation, court practice and established legal principles relevant to the work. The actuary's report would deal with such investment expenses in an internally consistent way, and the report would fully disclose the assumptions and methods utilized.

4500 Capitalized Value of Pension Plan Benefits for a Relationship Breakdown

4510 Scope

- .01 The standards in this Section 4500 apply to an actuary's advice when the capitalized value of a pension plan's benefits is needed for calculating the value of property at the breakdown of the marriage, common-law relationship or other adult interdependent relationship of a plan member.
- .02 For the purposes of this Section 4500, "plan" means "pension plan" and is broadly defined, including not only a plan that is registered under the federal *Income Tax Act* but also an unregistered plan, such as a retirement compensation arrangement and an unfunded pension plan.
- .03 The standards in this Section 4500 do not apply when the purpose of the calculation is to calculate an amount, in respect of a pension benefit, to be paid:
 - by the plan to the plan member or beneficiary as a result of the plan member's death or termination of membership; or
 - by any party in connection with litigation other than in respect of a relationship breakdown.
- .04 The standards in this Section 4500 may provide useful guidance for similar calculations for other deferred compensation arrangements, such as a partnership retirement buy-out agreement, a sick leave buy-out plan, and a retirement lump sum allowance, but they do not provide useful guidance for current compensation arrangements such as group life and disability insurance.
- .05 The standards in this Section 4500 do not apply when applicable legislation mandates a different basis for the calculation of the value of a pension for family property purposes at the breakdown of the marriage, common-law relationship or other adult interdependent relationship of a plan member.

4520 Method

- .01 The benefits to be valued are the plan's benefits in respect of the member (including survivor benefits vested in the member's spouse) at the calculation date or calculation dates. [Effective January 1, 2023]
- .02 The value of the member's benefits is the capitalized value of the benefits to be valued, but assuming that the member has no spouse. The value of the survivor benefits vested in the member's spouse is the excess, if any, of the capitalized value of the benefits to be valued over the value of the member's benefits. [Effective January 1, 2023]

Principle

- .03 The capitalized value would conform to the intent of applicable family law. The capitalized value may, thus, differ from the corresponding transfer value from a registered pension plan. Transfer values typically include only unconditional rights, whereas property under family law typically includes both vested and contingent rights. Thus, such contingent rights as early retirement rights, bridging benefits, and ad hoc inflation adjustments are property to be considered in a calculation for relationship breakdown purposes.
- .04 The standards in this section will often produce more than one result, by taking account of alternative possibilities for:
- pension commencement age;
 - future increases in accrued benefits before and after retirement;
 - allocation of value earned before marriage or cohabitation;
 - inclusion or exclusion of non-vested benefits; or
 - special circumstances, such as buy-back or transfer of benefits.
- .05 If the actuary has reason to believe that the plan's financial position is so weak that payment of the capitalized benefits is doubtful, then the actuary would so report, making clear that allowance for this factor could significantly reduce the present values calculated, given that such present values have been calculated assuming that the plan would meet its obligations. In making that assessment, the actuary would take into account any benefits payable under provincial pension guarantee legislation. The actuary would take into account further the extent to which plan benefits are provided through a retirement compensation arrangement and/or an unfunded pension plan.
- .06 The terms of the actuary's engagement may determine some or all of:
- the relevant law or jurisdiction;
 - the calculation date or calculation dates;
 - retirement age, but only if established as a matter of fact pursuant to an agreement of the parties or a determination by the court; and
 - inclusion or exclusion of the effect of income taxes.

Benefits to be valued

- .07 The benefits to be valued would include all of the plan's contractual benefits, including pre- and post-retirement death benefits, and any contractual inflation protection and non-contractual inflation protection.

- .08 The plan member's benefits to be valued would exclude spousal survivorship benefits. Spousal survivor benefits would be valued if those benefits have vested upon retirement prior to the calculation date. Depending on the circumstances of the case, the actuary may provide a value for spousal survivor benefits that are conditionally vested or that vested after the calculation date. When spousal survivor benefits are valued, their value would be reported separately from the value of the plan member's pension benefits.
- .09 The form of plan benefits that would be valued would be the most favourable of any optional form available to the member with no spouse. For example, a 15-year guaranteed pension option would have a greater value than a five-year guaranteed pension option for a member with impaired mortality. However, if the applicable law disregards a particular optional form of plan benefit, then the actuary may omit that option in calculating the capitalized value.
- .10 The benefits may include or exclude any non-vested benefits. Non-vested benefits may be included in the values, or may be illustrated separately, and would be valued without discount for the possibility of future forfeiture. Separately from the illustrated values, the report may contain comments including suggestions for recognizing the contingent nature of non-vested benefits. The references in this paragraph to inclusion of values of non-vested benefits apply in jurisdictions where the inclusion of such values depends on the plan provisions applicable to a deferred vested member. In other jurisdictions, the inclusion of such values depends on the extent to which continued employment is assumed.
- .11 The capitalized values would include ancillary benefits that are provided by the plan as of the calculation date and are expected to become available to the member after the calculation date if the plan member continues as an active member of the plan, but are not available to the member as of the calculation date, such as unreduced early retirement benefits.
- .12 The actuary would disclose whether or not the benefits valued include benefits that will be provided by the plan after the calculation date and that are expected to become available to the member after the calculation date if the plan member continues as an active member of the plan, but are not available to the member as of the calculation date, for example:
- a future increase in benefits as a result of a collective bargaining agreement; or
 - a future increase in benefits as a result of an adopted plan amendment.
- .13 The benefits referred to in paragraph 4520.11 are those payable by the plan as a going concern, and not those payable on plan wind-up, if different, unless the plan has been fully wound up or partially wound up with respect to the plan member.

- .14 Where various legal interpretations for a specific question appear possible, the actuary would obtain clarification of such unclear matters from the instructing lawyer or from another authoritative source. If that is not possible, the actuary would advise that various interpretations exist, and would report the effects of these interpretations or report values that, in the actuary's opinion, are most consistent with accepted actuarial practice.

Calculation date

- .15 The calculation date may be single or multiple, depending on the circumstances and applicable law. The possibilities include:
- the date of separation;
 - the date of marriage or commencement of cohabitation;
 - the date of trial; and
 - the report date.

Applicable standards

- .16 The applicable standards are those in effect at the calculation date. If there are two or more calculation dates, the applicable standards for each calculation date are those in effect on that calculation date.

Future service

- .17 If the member's employment terminated before the calculation date and was not reinstated at the report date, then the actuary would include nothing in the capitalized value on account of assumed service after the calculation date, even if reinstatement is possible after the report date. The actuary may, however, report a useful alternative calculation that assumes reinstatement.
- .18 If the member's employment terminated between the calculation date and the report date and was not reinstated at the report date, then the actuary may, with disclosure, exclude from the capitalized value any non-vested benefits forfeited by the termination of employment.

Effect on capitalized value of minimum benefits

- .19 In calculating the capitalized value, the actuary would take account of any minimum benefit related to member contributions, for example:
- the so-called "50% minimum employer contribution rule"; and
 - a minimum benefit equal to the member's contributions accumulated with interest.
- .20 The minimum benefit would not necessarily be limited only to the value determined on a termination of employment assumption. The capitalized value would incorporate the relevant minimum benefit rule according to the event.

Effect on capitalized value of salary increases after the calculation date

- .21 If the pension is an earnings-related benefit, then the possibilities are:
- The capitalized value takes account of all the member's salary increases—general increases, promotional increases and seniority increases—after the calculation date;
 - The capitalized value takes account of the member's salary increases that result from general (as opposed to promotional and seniority) salary increases after the calculation date. A rationale for this possibility is that the member's spouse has no entitlement to the effect of promotions or seniority increases that the member earns after the calculation date;
 - The capitalized value does not take account of the member's salary increases after the calculation date. A rationale for this possibility is that the member's spouse has no entitlement to the effect of salary increases, which depend on the member's continued employment after the calculation date.
- .22 The assumed salary increases after the calculation date would be consistent with the average wage index assumption prescribed by paragraph 4530.12, except when there is evidence that an alternate salary increase assumption would be reasonable or the terms of an appropriate engagement require a different assumption.

Effect on capitalized value of non-contractual indexing of pensions and other benefit adjustments

- .23 In calculating the capitalized value, the actuary would assume continuance of the plan's established practice or current policy, if any, for non-contractual indexing for inflation of pensions after pension commencement age and of vested deferred pensions before pension commencement age, unless there is explicit reason not so to assume. The actuary would report:
- the established practice or current policy; and
 - the indexation assumption.
- .24 If that assumption is doubtful, then the actuary would also report the numerical effect on the capitalized value of helpful alternative assumptions.
- .25 In the case of a final or best average earnings plan, there would be no allowance made for indexing of vested deferred pensions before pension commencement age in the period for which salary increases are projected after the calculation date.

Effect on capitalized value of income tax

- .26 Income tax may be taken into account in the calculation in order to convert the before-tax value of the pension into an after-tax value. If income tax is to be taken into account, then the actuary would do so by estimating the average income tax rate during the member's retirement years based upon the member's anticipated retirement date and anticipated retirement income including accrued and projected future pension income, Canada/Quebec Pension Plan, Old Age Security, and other anticipated income in retirement. The projected retirement income would be computed in "current" dollars and would assume continuance of the tax environment at the report date or the calculation date (i.e., assuming continuation of the existing tax rates, brackets, surtaxes and clawbacks applied to the projected income in retirement expressed in "current" dollars). The actuary would disclose which date was used. If the tax environment is as at the report date, the actuary would disclose the use of any tax provisions that have not yet been enacted. If income tax is taken into account, the actuary would disclose both the before-tax value and the after-tax value of the pension.
- .27 The actuary may report useful alternative calculations that take income tax into account.

4530 Assumptions

- .01 The actuary should select all assumptions, except those depending upon interpretation of applicable law. [Effective January 1, 2023]

Mortality rates

- .02 The actuary should assume mortality rates in accordance with a mortality table promulgated from time to time by the Actuarial Standards Board for the purpose of these calculations, modified, if appropriate, to reflect the member's or the member's spouse's impaired health, if medically determinable. [Effective January 1, 2023]
- .03 Tobacco use (or lack of tobacco use) would not, in itself, be sufficient reason to modify the mortality rates identified above.
- .04 Use of unisex mortality rates would not be appropriate except that it may be appropriate in situations where the plan member has terminated employment and has elected, or has the option to elect, a transfer value that was or would be calculated under a unisex basis.

Retirement age

- .05 If the retirement age is a matter of fact (i.e., one agreed by the parties or determined by the court), then the actuary would report the selection of the assumed retirement age as such.
- .06 The retirement of the member before the report date does not necessarily preclude assumption of a different retirement age.

.07 Unless paragraph 4530.05 applies, the actuary would usually assume and report the results for a range of useful retirement ages, based on data at the calculation date, which would include:

- The earliest age at which the member is entitled to a pension whose amount is not reduced on account of early retirement, assuming that the member’s service ceases at the calculation date;
- The earliest age at which the member is entitled to a pension whose amount is not reduced on account of early retirement, assuming that the member continues in service either to that age or to an earlier age after the calculation date;
- If there is an upper limit to the number of years of credited service, the earliest age at which the member has attained, or will attain, that upper limit and becomes entitled to a pension whose amount is not reduced on account of early retirement; and
- The normal retirement age.

Economic assumptions

.08 The actuary should select economic assumptions that depend on the reported rates for the applicable CANSIM series for the calendar month immediately preceding the month in which the calculation date falls. [Effective January 1, 2023]

.09 The actuary should determine from the CANSIM series the following four factors:

CANSIM Series	Description	Factor
V122487	average long (>10 yrs) Government of Canada bond yields (final Wednesday of month)	G_L
V122544	long-term Government of Canada benchmark bond yield, annualized (final Wednesday of month)	b_L
V122553	long-term Government of Canada real return bond yield, annualized (final Wednesday of month)	r_L
$(1 + b_L)/(1 + r_L) - 1$	break-even inflation rate	BEIR

Note that the factors determined above do not reflect the reported CANSIM series, but the annualized value of the reported figure. [Effective January 1, 2023]

Inflation and indexing

- .10 The actuary should calculate the projected benefit obligation for a pension that is fully indexed to increases in the consumer price index using an assumed inflation rate of EI. For pensions that are partially indexed to increases in the consumer price index, the actuary should derive inflation rates in a like manner by applying to the stipulated inflation rates the partial indexing formula of the plan. [Effective January 1, 2023]
- .11 The actuary should determine the assumed rate of inflation EI as:
- First 20 years $EI_{0-20} = BEIR$
 - After 20 years $EI_{20+} = 2.0\%$
- EI should be rounded to the nearest multiple of 0.01%. [Effective January 1, 2023]
- .12 Where increases in pensions are related to increases in the average wage index or where increases in salaries are assumed to occur in line with the average wage index, the actuary should assume that the average wage index will increase at rates that are 0.75% higher than EI. [Effective January 1, 2023]
- .13 The capitalized value of a fully- or partially-indexed pension should be at least equal to the capitalized value applicable to a non-indexed pension in the same amount and having similar characteristics. [Effective January 1, 2023]
- .14 Where the plan so provides, the indexing in any of the above arrangements may be modified by:
- applying a maximum or minimum annual increase, with or without carry forward of excesses or deficiencies to later years; or
 - prohibiting a decrease in a year where the application of the formula would otherwise cause a decrease.
- The actuary would then adjust the expected inflation rate for a year to reflect the probability and extent of modification for that year.
- .15 If the pension is indexed using an “excess investment return” approach, the expected indexation rate would be determined using the “floor rate” and the interest rates determined in accordance with paragraph 4530.18 to produce an expected indexation rate consistent with excess interest situations.
- .16 For a pension in a plan that has a policy or a history of indexing on an ad hoc basis, the actuary would determine an indexation rate consistent with the indexing policy or history.

Interest rates

.17 The actuary should calculate two interest rates, one applicable to the first 20 years following the calculation date, and the second one applicable to all years thereafter. [Effective January 1, 2023]

.18 The actuary should determine the interest rates as:

- First 20 years $i_{0-20} = G_L + 0.50\%$
- After 20 years $i_{20+} = 4.75\%$

Prior to calculating the capitalized value, the actuary should round the rate of interest for the first 20 years determined in accordance with this paragraph to the nearest multiple of 0.1%. [Effective January 1, 2023]

.19 The actuary should calculate the capitalized value of a pension using a two-tier interest rate of:

- i_{0-20} for the first 20 years; and
- i_{20+} thereafter. [Effective January 1, 2023]

Target pension arrangements

.20 A target pension arrangement is a pension plan for which applicable legislation contemplates the reduction to the accrued pensions of plan members and beneficiaries while the pension plan is ongoing as one of the available options for maintaining the funded status of the pension plan, and where the reduction in accrued pensions is not necessarily caused by the financial distress of the plan sponsor or sponsors, as contemplated in paragraph 4520.05.

.21 The actuary should disclose that the pension is from a target pension arrangement. If the actuary believes that the target pension arrangement, based on the funded status and structure of the pension plan, results in pension benefits that are much less secure than pension benefits from a pension plan which is not a target pension arrangement, the actuary should so disclose. [Effective January 1, 2023]

.22 If the actuary is aware that an adjustment to the target benefits in a target pension arrangement has occurred after the calculation date, either to accrued pensions or conditionally granted ancillary benefits, or has reason to believe that an adjustment to the target benefits in the target pension arrangement is likely to occur in the future, the actuary would so report.

- .23 For a target benefit arrangement, when possible based on the data available and when useful given the nature of the of target benefit arrangement, the actuary would assume and report the results for a range of useful scenarios, which may include:
- Value of pension benefits based on the current target benefits of the pension plan, including conditionally granted ancillary benefits.
 - Value of pension benefits excluding or partially excluding ancillary benefits which are conditionally granted on an ongoing basis based on the funded status of the plan.
 - Value of pension benefits assuming adjustments to target benefits in the future, based on actual changes to target benefits after the calculation date, based on the funded status of the pension plan or other factors the actuary feels are relevant.
 - Value of pension benefits based on the current target benefits of the pension plan, including conditionally granted ancillary benefits, adjusted by the funded ratio of the pension plan. The funded ratio of the plan used to determine the adjustment would usually be based on the most recent funding actuarial valuation report or cost certificate that is publicly available at the calculation date or at the report date. The actuary would use judgment when deciding which funded ratio to use in this scenario and may apply adjustments to the funded ratio. For example, the actuary may consider it appropriate to apply adjustments to the funded ratio to exclude any provision for adverse deviations in the assumptions used to determine the funded ratio and include any part of the plan assets not included in the calculation of the funded ratio. The actuary would provide details on any adjustments applied to the funded ratio of the pension plan and the rationale for such adjustments.

Assumptions selected by client

- .24 The actuary would obtain instructions from the client with respect to assumptions dependent upon the interpretation of applicable law.
- .25 The actuary would report his or her reliance on an assumption selected by the client.

4540 Reporting: external user report

- .01 Here is model text if the actuary reports without reservation with regard to relationship breakdown:

I have determined the capitalized value of the pension benefits and prepared this report in accordance with accepted actuarial practice in Canada, for purposes of an equalization of family property resulting from relationship breakdown under the [Family Law Act] of [province]. In my opinion, the capitalized values are appropriate for this purpose.

Respectfully submitted,

[actuary]

Fellow, Canadian Institute of Actuaries

4600 Calculation of Criminal Rate of Interest

4610 Scope

- .01 The standards in Section 4600 apply to an actuary's advice when determining whether the interest rate for a particular agreement or arrangement is a "criminal rate".
- .02 The *Criminal Code* of Canada defines "criminal rate" as meaning an effective annual rate of interest calculated in accordance with generally accepted actuarial practices and principles that exceeds 60 per cent on the credit advanced under an agreement or arrangement.

4620 Data

- .01 The actuary should ascertain or make assumptions regarding the quantum and timing of all amounts actually or deemed to be advanced as well as all amounts actually or deemed to be repaid either as principal or as "interest" as defined in the *Criminal Code*. [Effective December 31, 2013]
 - .02 The actuary should report all data used in the calculation, and their sources. [Effective February 1, 2018]
- .03 If data are not clear from the initial terms of the engagement, the actuary would obtain clarification from his or her client (for example, whether or not a particular item falls within the statutory definition of "interest," which party is the lender and which is the borrower, and/or the timing of a particular payment that could be made on various alternate dates).

4630 Method

- .01 The actuary should calculate and report the effective rate of interest compounded annually, "i", such that the following equality is established:

$$\sum_{r=1}^m A_r \times (1+i)^{t_r} = \sum_{s=1}^n B_s \times (1+i)^{t_s}$$

where

- m is the total number of payments advanced by the lender to the borrower;
- n is the total number of payments repaid by the borrower to the lender;
- A_r is the amount of the r^{th} payment advanced by the lender;
- B_s is the amount of the s^{th} payment repaid by the borrower, consisting of principal, "interest" as defined, or a combination of both;

- t_r is the period measured in years (including fractional parts of a year) between the time that the r^{th} payment is advanced by the lender to the borrower and the time on which the final repayment is made by the borrower to the lender; and
- t_s is the period measured in years (including fractional parts of a year) between the time that the s^{th} payment is repaid by the borrower to the lender and the time on which the final payment is made by the borrower to the lender. [Effective January 1, 2023]

- .02 If the calculation produces only one result, then the actuary would report that result. If the calculation produces more than one result, then the actuary would report only those that are positive and real, or zero.
- .03 The formula in paragraph 4630.01 applies in most, but not all, situations.

4700 Reporting

4710 External user report

- .01 For work pursuant to Part 4000, any external user report that is prepared should:
- Identify the person for whom the report was prepared and, if that person is acting on behalf of a party to the dispute, that party to the dispute;
 - State the effective date of the report and the effective date of any actuarial opinions and calculations in the report;
 - Describe any terms of the appropriate engagement that are material to the actuary's work, including the role of the actuary, the scope and purpose of the work, any limitations or constraints on the work and any stipulated assumptions or methods;
 - Where the actuary is aware of circumstances where the independence of his or her expert opinion may reasonably be questioned, disclose such circumstances;
 - Disclose the results of the work;
 - Describe the data, methods, and assumptions used for the work, including the terms and the amounts of the payments relevant to any calculations, for each of the scenarios presented in the report;
 - Identify the assumptions and methods that are constrained by law, regulation, court practice, or established legal principles relevant to the work;
 - Identify the differences between scenarios where the results of multiple scenarios are presented;
 - Identify any margins for adverse deviations that are included, except where the assumption or method is mandated by law, regulation, court practice, or established legal principles relevant to the work, and the rationale for inclusion of any identified margins for adverse deviations;
 - Describe every contingency that has been taken into account, and state that there may be other contingencies that could have a positive or negative effect that have not been taken into account;
 - Disclose the extent of the actuary's reliance on others;
 - List the sources of information on which the actuary has relied; and
 - Include any other information required in accordance with the rules of civil procedure, the rules of law, or other rules that may be applicable for the relevant jurisdiction. [Effective January 1, 2023]

- .02 Notwithstanding paragraph 1710.01, the actuary is not required to provide an opinion on assumptions which are stipulated by the terms of engagement provided such assumptions are plausible in accordance with paragraph 4320.03. [Effective January 1, 2023]
- .03 Notwithstanding paragraph 1710.01, the actuary is not required to provide an opinion on assumptions or methods described in paragraph 4340.01 which are within the range of accepted actuarial practice pursuant to paragraph 4340.01. [Effective January 1, 2023]
- .04 The actuary's external user report should be sufficiently detailed to enable another actuary to assess the reasonableness of the results. [Effective January 1, 2023]

- .05 The actuary would prepare any draft reports and other documentation, taking into account the potential disclosure of such documents that may be required as part of the dispute resolution proceedings.
- .06 Where the actuary reports the results of a capitalized value calculation without reservation, the disclosure wording that may be used is:

I have determined the capitalized value of those aspects of the pecuniary damages described herein and prepared this report in accordance with accepted actuarial practice in Canada. It is my opinion that the assumptions and methods for which I have taken responsibility are appropriate in the circumstances of this case and for the purpose of this report.

Respectfully submitted,

[actuary]

Fellow, Canadian Institute of Actuaries

Reporting with reservation

- .07 Reporting with reservation or stating that the reporting requirements have not been followed would not excuse an actuary from these reporting standards.
- .08 Notwithstanding paragraph 4340.01, the circumstances affecting the work may result in deviation from accepted actuarial practice in Canada. For example, the terms of the engagement may require that the actuary use an assumption that is outside of the range that the actuary considers plausible, or that the actuary use a method that the actuary considers is not appropriate, or that the actuary assist counsel with challenging a specific interpretation of the law. In such case, the actuary would disclose such deviation in the report.

New information

- .09 Notwithstanding paragraph 1420.01, where an event occurs, such as the availability of new information, after the actuary has completed his or her report, the actuary would consider the potential effect of such event on his or her work, and would advise his or her client on a timely basis, if appropriate and subject to the terms of the engagement.

Disclosure of other expert's report

- .10 The external user report need not disclose any error or shortcoming that the actuary identifies in the report of another actuary or other expert witness.

4720 Internal user report

- .01 Unless an internal user report conforms to the recommendations for an external user report, an internal user report should state that it is not to be given to an external user. [Effective January 1, 2023]

- .02 For the purpose of determining whether or not the work is in accordance with accepted actuarial practice, an internal user report continues to be an internal user report even if, in breach of the statement required by paragraph 4720.01, it is given to an external user or utilized in the dispute resolution proceeding.

Part 5000 has been replaced by Section 2800

Due to the implementation of IFRS 17, a new Section 2800 (Public Personal Injury Compensation Plans) replaces Part 5000, with separate sections for the valuation of insurance contract liabilities for financial reporting and the valuation of benefits liabilities for funding purposes. References to Part 5000 have been changed to refer to Section 2800 throughout the Standards of Practice.

6000 – Post-Employment Benefit Plans

Table of Contents

6100	Scope	6003
6200	Advice on the Funding, Funded Status, Financial Condition, or Financial Position of a Post-Employment Benefit Plan	6006
6210	General	6006
6220	Advice on Funding or Funded Status	6012
6230	Reporting: External User Report	6014
6300	Full or Partial Wind-up Valuation	6019
6310	General	6019
6320	Reporting: External User Report	6022
6400	Financial reporting of Post-Employment Costs	6028
6410	General	6028
6420	Reporting: External User Report	6031

6100 Scope

.01 The standards in part 6000 apply as follows:

- Section 6200 applies to advice that an actuary provides regarding the funding, funded status, financial position, or the financial condition with respect to a post-employment benefit plan, except where such advice relates to items covered by section 6300 or section 6400;
- Section 6300 applies to advice that an actuary provides regarding the funding, funded status, financial position, or the financial condition with respect to the wind-up, in full or in part, of a post-employment benefit plan; and
- Section 6400 applies to advice that an actuary provides regarding financial reporting of a post-employment benefit plan's costs and obligations in the employer's financial statements, or the post-employment benefit plan's financial statements, or the financial statements of a trust associated with the post-employment benefit plan, where the calculations and advice are provided in accordance with an applicable financial reporting standard.

For the purposes of determining whether section 6300 applies, the wind-up of a post-employment benefit plan would involve the termination of future benefits for some or all plan members, the termination of some or all plan benefits and the distribution of some or all of the plan's assets, if any. Examples of work with respect to wind-ups include the calculation of benefit plan costs or entitlements:

- When a benefit trust is being replaced with an insured arrangement;
- Where assets from a company's liquidation may be provided as cash in lieu of employee benefit plans upon insolvency or upon the wind-up of a post-employment benefit plan trust; and
- Where the plan sponsor offers cash in lieu of future benefits.

The cessation of benefit accruals or termination of a post-employment benefit plan, not involving the termination of plan benefits and distribution of plan or other assets, would not constitute a plan wind-up. For example, the closure of a post-employment benefit plan to future new members would not constitute a wind-up.

- .02 The standards in sections 6200 through 6400 apply to an actuary's advice with respect to a post-employment benefit plan that provides benefits other than pension benefits to the plan's members and their covered spouses and dependants, whether funded or not, whether insured or not, and whether in the private or public sector. Such plans include any arrangement that provides:
- Long-term employee benefits (and compensated absences) including long-service leave or sabbatical leave, jubilee or other long-service benefits, long-term disability benefits, and profit sharing, bonuses, and other deferred compensation such as retiring allowances that are to be paid far enough into the future to be considered to be a post-employment benefit (long-term employee benefits would generally include benefits that commence or continue to be payable more than 12 months after the initial incident that caused the benefit to be paid; for example, long-term disability benefits);
 - Short-term employee benefits (and compensated absences) that accumulate or vest, such as accumulated sick days or vacation days that can be saved in one period and drawn or paid out in another period;
 - Benefits to which plan members become entitled when they are no longer actively at work, such as post-employment life insurance or post-employment health care; and/or
 - Termination benefits payable to an employee as a result of termination of employment, if some or all of the benefits are payable on or after the date of termination of employment.
- .03 The standards in sections 6200 through 6400 do not apply to an actuary's advice with respect to any arrangement that is:
- A plan within the scope of part 3000 Pension Plans, section 2800 Public Personal Injury Compensation Plans, or part 7000 Social Security Programs;
 - A short-term employee benefit plan such as wages, salaries, and social security contributions, paid annual vacation/leave and paid sick leave, profit sharing and bonuses (if payable within 12 months of the end of the period to which they relate) and non-monetary benefits (such as medical care, housing, cars, and free or subsidized goods or services) for current employees that do not accumulate or vest;
 - A post-employment benefit plan whose benefits are all guaranteed by a life insurer; or
 - A social security program such as the Canada Pension Plan and Québec Pension Plan.

- .04 The standards in sections 6200 through 6400 also apply to an actuary's advice to an employer with respect to the self-insured element of a public personal injury compensation plan that covers the employees of that employer; for example, self-insured workers' compensation plans.
- .05 An actuary's advice with respect to a post-employment benefit plan may relate to items such as:
- Required or recommended funding of the plan;
 - Projected cash flows of the plan with or without future new entrants;
 - Determination of the actuarial present value of the projected or accrued benefits of the plan with or without future new entrants;
 - Determination of amounts for financial reporting of a plan's cost; or
 - Determination of the obligations for reporting in the employer's financial statements, or the plan's financial statements, or the financial statements of a trust associated with the plan.

6200 Advice on the Funding, Funded Status, Financial Condition, or Financial Position of a Post-Employment Benefit Plan

- .01 This section 6200 applies to advice that an actuary provides regarding the funding, funded status, financial position, or the financial condition with respect to a post-employment benefit plan, except where such advice is with respect to:
- The wind-up, in full or in part, of a post-employment benefit plan; or
 - The financial reporting of a post-employment benefit plan's costs and obligations in the employer's financial statements, or the post-employment benefit plan's financial statements, or the financial statements of a trust associated with the post-employment benefit plan, where the calculations and advice are provided in accordance with an applicable financial reporting standard.

6210 General

- .01 The actuary's advice with respect to a post-employment benefit plan should take account of the circumstances affecting the work. [Effective February 1, 2018]
- .02 The actuary should select an actuarial cost method that is consistent with the circumstances affecting the work. [Effective February 1, 2018]
- .03 The actuary should select an asset valuation method, where applicable, that is consistent with the circumstances affecting the work. [Effective February 1, 2018]
- .04 The actuary's advice with respect to a post-employment benefit plan should take account of the post-employment benefit plan's benefit provisions at the calculation date, except that the actuary may reflect a pending amendment to the post-employment benefit plan that increases the value of its benefits. [Effective June 30, 2013]
- .05 The actuary's advice with respect to a post-employment benefit plan should take account of all relevant data, including historical claims experience. [Effective June 30, 2013]
- .06 The actuary should select assumptions that are consistent with the circumstances affecting the work. [Effective February 1, 2018]
- .07 The actuary should determine the next calculation date and the actuary's advice should cover at least the period between the calculation date and the next calculation date. [Effective June 30, 2013]

Circumstances affecting the work

- .08 For the purposes of section 6200, the circumstances affecting the work would include:
- The terms of the appropriate engagement under which the work is being performed; and
 - The application of the law to the work.
- .09 The terms of an appropriate engagement would specify whether the actuary's advice relates to:
- The funded status or the funding of the post-employment benefit plan or a combination thereof;
 - The calculation of the actuarial present value of future benefits payable from a post-employment benefit plan;
 - The calculation of the expected future cash flows from a post-employment benefit plan; or
 - Other financial information with respect to the post-employment benefit plan that is actuarial in nature.
- .10 The terms of an appropriate engagement may specify the use of a particular actuarial cost method and/or a particular asset valuation method.
- .11 The terms of an appropriate engagement may specify that the actuary's advice may be related to the entire plan, or to a portion of the plan, or to a selected group of members only.

Actuarial cost methods

- .12 Actuarial cost methods include, among others:
- Cost allocation methods, which allocate the actuarial present value of projected benefits among time periods, including attained age actuarial cost methods, entry age actuarial cost methods, aggregate actuarial cost methods, and individual level premium actuarial cost methods;
 - Benefit allocation methods, which allocate a portion of the actuarial present value of projected benefits to a time period, including the accrued benefit actuarial cost method, the unit credit actuarial cost method, and the projected unit credit actuarial cost method; and
 - Forecast actuarial cost methods, which allocate a portion of the actuarial present value of projected benefits to the forecast period based on:
 - The actuarial present value, at the calculation date, of projected benefits at the end of the forecast period, including, if appropriate, benefits for those who are expected to become members between the calculation date and the end of the forecast period;

minus

- The actuarial present value of projected benefits at the calculation date;

plus

- The actuarial present value, at the calculation date, of benefits expected to be paid during the forecast period.

Asset valuation methods

- .13 If the plan has assets, the use of an asset valuation method that produces an asset value different from market value may be appropriate depending on the circumstances affecting the work. For example, the use of a smoothed asset value may be appropriate to moderate the volatility of contribution rates for purposes of advice on funding.
- .14 The value of assets may be, subject to specific requirements for different types of valuation, any of:
- Their market value;
 - Their market value adjusted to moderate volatility in investment returns;
 - The present value of their cash flows after the calculation date; and
 - Their value assuming a constant rate of return to maturity in the case of illiquid assets with fixed redemption values.

Plan provisions

- .15 The actuary would determine the plan provisions with sufficient accuracy for the purposes of the valuation. Sources of information on plan provisions include:
- Current plan documents;
 - Funding or underwriting arrangements;
 - Collective bargaining agreements;
 - Information regarding past practices;
 - Cost-sharing arrangements between the plan sponsor(s) or plan administrator and plan members; and
 - Communication between the plan sponsors or plan administrator and the plan members.

Prior plan provisions may be needed to analyze claims information from periods prior to the calculation date.

- .16 The actuary would consider all benefits that are to be payable under the post-employment benefit plan and would include provision for all such benefits expected to be paid under the plan.

Anticipated amendment or deferred recognition of a pending amendment

- .17 The actuary's advice on a post-employment benefit plan may, subject to disclosure, reflect an expected amendment to the plan if the amendment is definitive or virtually definitive, and the amendment increases the plan's benefits. For example, the plan sponsor may have a regular pattern of increasing the dental fee guide schedules that the post-employment benefit plan uses for its benefit limit. The actuary's advice would normally reflect continued adoption of such increased limits.
- .18 If, at the calculation date, an amendment to the post-employment benefit plan is definitive or virtually definitive, and:
- If the effective date of the amendment is during the period for which the report gives advice on funding, then the advice on funding up to the effective date may disregard the amendment, but the advice on funding after the effective date would take the amendment into account; or
 - If the effective date of the amendment is after the period for which the report gives advice on funding, then the advice on funding may disregard the amendment.
- .19 The effective date of the amendment is the date at which the amended benefits take effect, as opposed to the date when the amendment becomes either definitive or virtually definitive.
- .20 If an actuary is aware of an expected amendment to the post-employment benefit plan, but does not reflect the amendment in the work, then the actuary would report the event in accordance with the requirements for the disclosure of subsequent events.

Data

- .21 In addition to the current plan membership and asset data, if relevant, the actuary would collect information on historical claims experience, such as nature of absence and benefit levels. Data may come from the plan sponsor or plan administrator or other sources, such as insurance carriers, brokers, or external third-party plan administrators.
- .22 In identifying the data needed, the actuary would bear in mind the pertinent benefits (e.g., those applicable during retirement, disability, or following termination of employment). If applicable, the actuary may obtain claims data split by plan, by age, by location, by status (retiree, inactive, spouse, etc.) and by type of expense (drug, hospital, payment for loss of income, etc.).

- .23 Where appropriate, in analyzing any relevant historical claims data, the data would be adjusted to reflect the trend in the cost of benefits between the reference period and the calculation date. Where appropriate, the actuary would also adjust past experience results to reflect non-recurring influences such as changes in the benefits offered, significant changes in the demographics of the group, changes in government programs, or unusual claims.
- .24 Available data may have limited value or low credibility. Where the benefit cost for former members or current retirees is not fully credible or does not reasonably represent the likely benefit cost for similar future groups, the actuary may rely on the experience of other members or other sources of data that the actuary considers reasonable and relevant. Such other data would be adjusted appropriately for the expected differences between these groups and the group from which the data were drawn.
- .25 The actuary may project data, including membership data and data with respect to claim costs from the effective date of the data to the calculation date, using appropriate extrapolation techniques. The actuary would not normally extrapolate membership data more than three years from the effective date of the membership data. The actuary may also use recent credible claims experience in the extrapolation.

Assumptions

- .26 In establishing the assumptions, the actuary would usually assume the continuation of the current provisions and practices of government programs, but anticipate the effect of legislative changes scheduled to be implemented at a future date. The actuary may also present alternative results reflecting different scenarios of the future. If the purpose of the valuation is such that the effect of anticipated future government changes is to be taken into account, the actuary would make appropriate assumptions in respect thereof.
- .27 In determining claim costs assumptions, where necessary, the actuary would consider available claims experience with regards to items such as:
- Claimant age, member status, coverage category, and benefit type;
 - Credibility; and
 - Relevance to future periods and future benefit provisions.

- .28 The assumption with respect to the future claims trend rate, where necessary, may be divided into short-term and longer-term components. The short-term component would often be based on the level experienced in the recent past by the plan and plan members. The longer-term component would be consistent with the assumption regarding future changes in benefit programs and general economic conditions such as nominal Gross Domestic Product growth. The actuary would determine the period of time required to transition from the short-term trends to the longer-term trends and when the short-term trends may need to be revised.
- .29 In situations where there is not sufficient data with respect to claim costs—for example if the post-employment benefit plan has only a small number of members or does not yet have any members in payment status—the actuary may develop the applicable assumptions based on experience with other similar plans.

Discount rate

- .30 For post-employment benefit plans that are not funded, in selecting the best estimate assumption for the discount rate, the actuary would reflect the yields on fixed income investments, considering the expected future benefit payments of the plan and the circumstances affecting the work.

Expenses

- .31 The actuary's advice on a post-employment benefit plan would take account of expenses, including whether or not they are expected to be paid from the post-employment benefit plan's assets, if any.
- .32 The actuary would consider, as part of the claims experience, the administration costs related to the adjudication of the claims including any related general administration expenses charged by the party adjudicating the claims and all applicable taxes. The actuary would also consider other expenses related to the post-employment benefit plan.

Next calculation date

- .33 The next calculation date is the latest date for which the actuary considers the advice with respect to a post-employment benefit plan to be applicable. The actuary would take into consideration the terms of an appropriate engagement in determining the next calculation date, but the next calculation date would not normally be more than three years after the current calculation date.

6220 Advice on Funding or Funded Status

.01 If the actuary is providing advice with respect to the funding and/or funded status of a post-employment benefit plan that is pre-funded in some manner, the actuary should select either best estimate assumptions or best estimate assumptions modified to incorporate margins for adverse deviations to the extent, if any, required by the terms of an appropriate engagement.
[Effective February 1, 2018]

- .02 Advice on funding or funded status may include:
- Advice regarding the amount of assets to be earmarked, whether or not segregated, to cover post-employment benefit commitments;
 - Advice regarding a systematic method of accumulating funds to provide the post-employment benefit commitments; or
 - Advice on the funding implications of a plan amendment.
- .03 The terms of an appropriate engagement may specify applicable objectives of funding, which may include a formal or informal funding policy.
- .04 Objectives of funding specified by the terms of an appropriate engagement may include considerations such as the security of benefits and related provisions for adverse deviations, the allocation of contributions among time periods, and/or inter-generational equity.
- .05 Depending on the circumstances affecting the work, the actuary's advice on funding may describe a range of contributions.

Discount rate

- .06 If the actuary's advice relates to the funding or funded status of a post-employment benefit plan, in selecting the best estimate assumption for the discount rate, the actuary may either:
- Take into account the expected investment return on the assets, if any, of the post-employment benefit plan at the calculation date and the expected investment policy after that date; or
 - Reflect the yields on fixed income investments, considering the expected future benefit payments of the post-employment benefit plan and the circumstances affecting the work.

- .07 In establishing the discount rate assumption, the actuary would assume that there will be no additional returns achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy except to the extent that the actuary has reason to believe, based on relevant supporting data, that such additional returns will be consistently and reliably earned over the long term.

6230 Reporting: External User Report

- .01 An external user report on work pursuant to section 6200 should:
- Describe any significant terms of the appropriate engagement that are material to the actuary's advice;
 - Include the calculation date, the report date, and the next calculation date, if applicable;
 - Describe the sources of membership data, plan provisions, the post-employment benefit plan's assets, if any, and historical claims data, if any, and the dates at which they were compiled;
 - Describe the membership data and any limitations thereof, and any assumptions made about missing or incomplete membership data;
 - Describe the tests applied to determine the sufficiency and reliability of the membership data and plan asset data for purposes of the work;
 - Describe the assets, if any, including their market value and a summary of the assets by major category;
 - Describe the post-employment benefit plan's provisions, including the identification of any pending definitive or virtually definitive amendment of which the actuary is aware, and the manner in which any such amendments have been reflected in the actuary's advice;
 - Disclose subsequent events of which the actuary is aware, whether or not the events are taken into account in the work, or, if there are no subsequent events of which the actuary is aware, include a statement to that effect;
 - State the type of valuation undertaken under the terms of the appropriate engagement;
 - For any one valuation undertaken, describe and quantify the gains and losses between the prior calculation date and the calculation date;
 - For any one valuation undertaken, report the effect on the key results of the valuation of using a discount rate 1.0% lower than that used for the valuation; and
 - For any one valuation undertaken, where relevant, report the effect on the key results of the valuation of using an assumed future claims trend rate 1.0% higher than that used for the valuation. [Effective February 1, 2018]

- .02 For each valuation undertaken by the actuary, the external user report should:
- If there is no provision for adverse deviations, include a statement to that effect;
 - Describe the claims administration expenses or other plan expenses that are included in the work; and
 - Report the results of the valuation. [Effective March 31, 2015]
- .03 An external user report that provides advice on funding should:
- Describe the rationale for any assumed additional returns, net of investment management expenses, from an active investment management strategy, included in the discount rate assumption;
 - Describe the determination of contributions or a range of contributions between the calculation date and the next calculation date; and
 - If contributions are fixed by the terms of the post-employment benefit plan or other governing documents (e.g., a collective agreement), then either:
 - Report that the contributions are adequate to fund the post-employment benefit plan in accordance with its terms; or
 - Report that the contributions are not adequate to fund the post-employment benefit plan in accordance with its terms; and
 - Describe the contributions required to fund the post-employment benefit plan adequately in accordance with its terms;
 - Describe one or more possible ways in which benefits may be reduced such that the contributions would be adequate to fund the post-employment benefit plan in accordance with its terms; or
 - Describe a combination of increases in contributions and reductions in benefits that would result in the funding being in accordance with its terms. [Effective June 30, 2013]

- .04 An external user report should provide the following four statements of opinion, all in the same section of the report and in the following order:
- A statement regarding membership data, which should usually be, “In my opinion, the membership data on which the valuation is based are sufficient and reliable for the purpose of the valuation.”;
 - A statement as to assumptions, which should usually be, “In my opinion, the assumptions are appropriate for the purpose(s) of the valuation(s).”;
 - A statement as to methods, which should usually be, “In my opinion, the methods employed in the valuation are appropriate for the purpose(s) of the valuation(s).”; and
 - A statement as to conformity, which should be, “This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada.” [Effective June 30, 2013]
- .05 An external user report should be sufficiently detailed to enable another actuary to examine the reasonableness of the valuation. [Effective June 30, 2013]

Significant terms of appropriate engagement

- .06 Significant terms of the appropriate engagement may include matters such as:
- The use of a specified actuarial cost method;
 - The use of a specified asset valuation method, where applicable;
 - The exclusion of benefits for purposes of a valuation;
 - The extent of margins for adverse deviations, if any, to be included in selecting assumptions; and
 - The funding policy, which may include pay-as-you-go funding.

Membership data

- .07 The actuary would describe any assumptions and methods used in respect of insufficient or unreliable membership or census/employee data.
- .08 The actuary may describe limitations on the tests conducted in the review of the data which has been determined to be sufficient and reliable for purposes of the valuation(s). For example, the actuary may describe that the data tests will not capture all possible deficiencies in the data and reliance is also placed on the certification of the plan sponsor or plan administrator as to the quality of the data.

Methods

- .09 For each valuation included in the external user report for which there was a prior valuation, the description of the actuarial cost method would include a description of any change to the actuarial cost method used in the prior valuation and the rationale for such change.
- .10 For each valuation included in the external user report for which there was a prior valuation, the description of the method to value the assets, if any, would include a description of any change to the asset valuation method used in the prior valuation and the rationale for such change.

Types of valuations

- .11 An external user report with respect to a post-employment benefit plan would normally include information on only one valuation, which is typically a going concern valuation. To the extent that the external user report provides information with respect to multiple valuations, the actuary would include information with respect to the types of valuations required by the circumstances affecting the work.

Assumptions

- .12 For each valuation included in the external user report for which there was a prior valuation, the description of assumptions would include a description of any changes to the assumptions used in the prior valuation.
- .13 For each valuation included in the external user report, the description of the assumptions would, if appropriate for the circumstances affecting the work, describe:
- The development of the assumed claim costs;
 - The claims experience information used to develop the assumed claim costs; and
 - The extent to which the claims experience information has influenced the selection of the assumed future cost trend rates.

Relevant results of the valuation

- .14 The results of the valuation will depend on the purpose(s) of the valuation and the circumstances affecting the work. The results of the valuation may include such information as:
- The present value of projected benefits;
 - The present value of projected benefits allocated to periods up to the calculation date;
 - The projected cash flows; and/or
 - The service cost for periods following the calculation date.

Reporting gains and losses

- .15 The reported gains and losses for a valuation would include the gain or loss due to a change in the actuarial cost method or a change in the method for valuing the assets, if any, and each significant change in assumptions and plan provisions determined at the calculation date. If an amendment to the post-employment benefit plan prompts the actuary to change the assumptions, the actuary may report the combined effect of the amendment and the resultant change in assumptions.

Sensitivity analysis

- .16 When following the recommendations to illustrate the effect of a change in discount rate, trend rate or other assumption on a valuation, the actuary would maintain all other assumptions and methods as used in the underlying valuation.

Reference to other reports

- .17 The disclosures required in the external user report may be incorporated by reference to another actuarial valuation report prepared in accordance with accepted actuarial practice with the same calculation date.

Statements of opinion

- .18 Where different statements of opinion apply in respect of different purposes of the valuation, the above requirements may be modified but would be followed to the extent practicable.
- .19 While a separate statement regarding assumptions would usually be included in respect of each purpose of the valuation, the statements regarding assumptions may be combined where the statements do not differ among some or all of the valuation's purposes. The report would indicate clearly which statement regarding assumptions applies to each of the valuation's purposes.
- .20 While a separate statement regarding methods would usually be included in respect of each purpose of the valuation, the statements regarding methods may be combined where the statements do not differ between some or all of the valuation's purposes. The report would indicate clearly which statement regarding methods applies to each of the valuation's purposes.

6300 Full or Partial Wind-up Valuation

- .01 This section 6300 applies to advice that an actuary provides with respect to the wind-up (termination of future benefits for some or all members, the termination of some or all plan benefits, and the distribution of some or all of the plan's assets, if any), in full or in part, of a post-employment benefit plan. Examples of work with respect to wind-ups include the calculation of benefit plan costs or entitlements:
- When a benefit trust is being replaced with an insured arrangement;
 - Where assets from a company's liquidation may be provided as cash in lieu of employee benefit plans upon insolvency or upon the wind-up of a post-employment benefit plan trust; and
 - Where the plan sponsor offers cash in lieu of future benefits.
- .02 This section 6300 does not apply in situations where the post-employment benefit plan is no longer available for future members but accrued benefits are not being settled.

6310 General

- .01 The actuary's advice with respect to a post-employment benefit plan that is being wound up, in full or in part, should take account of the circumstances affecting the work, and assume the plan is being wound up at the calculation date. [Effective February 1, 2018]
- .02 The actuary should take account of subsequent events up to the cut-off date. [Effective June 30, 2013]
- .03 The post-employment benefit plan's assets, if any, should be valued at liquidation value. [Effective June 30, 2013]
- .04 The actuary should take account of the post-employment benefit plan's benefit provisions at the calculation date, except that the actuary may reflect a pending amendment to the post-employment benefit plan. [Effective June 30, 2013]
- .05 The actuary's advice with respect to a post-employment benefit plan should take account of all relevant data, including historical claims experience. [Effective June 30, 2013]

- .06 The actuary should select assumptions that:
- Are either best estimate assumptions or are best estimate assumptions modified to incorporate margins for adverse deviations to the extent, if any, required by the terms of an appropriate engagement;
 - Are selected as at the cut-off date; and
 - Reflect the expected method of benefit settlement. [Effective February 1, 2018]
- .07 Unless it is expected that expenses will not be paid from the post-employment benefit plan's assets, the actuary should select an explicit assumption regarding the expenses of wind-up and either offset the resulting expense provision against the post-employment benefit plan's assets, if any, or add the resulting expense provision to the post-employment benefit plan's liabilities. Expenses may include administration costs (which may be incurred from a third-party administrator or an insurer), or other expenses. [Effective June 30, 2013]

Scope

- .08 This section does not prescribe the manner in which:
- Benefit entitlements would be determined;
 - Funding obligations would be determined; or
 - The post-employment benefit plan's assets, if any, would be allocated between the employer(s) and the members or among members themselves.
- .09 Rather, those issues would be determined in accordance with the law, the plan provisions or governance documents, or by an entity empowered thereunder to make that determination. It may be appropriate, however, to use the results of the valuation to address one or more of those issues, or to disclose their resolution in the report.

Circumstances affecting the work

- .10 For the purposes of section 6300, the circumstances affecting the work would include:
- Whether the actuary's advice relates to the funding, funded status, financial position, or the financial condition of the post-employment benefit plan, or a combination thereof;
 - Whether the actuary's advice relates to the present value of expected future benefits under the post-employment benefit plan;
 - The terms of the appropriate engagement under which the work is being performed; and
 - The application of the law to the work.

Cut-off date

- .11 The cut-off date would be the date up to which subsequent events would be recognized in the valuation.

Partial wind-up

- .12 A partial wind-up occurs when a subset of the members terminates membership in circumstances that require wind-up with respect to those members. Such wind-up does not apply to the continuing members, although it may also be necessary, for other reasons, to value the benefits of the continuing members.
- .13 The standards for a partial wind-up are the same as the standards for a full wind-up.

Assumptions

- .14 The selection of the assumptions would normally be determined in accordance with the law (if applicable), the plan provisions or governance documents, or by an entity empowered thereunder to make that determination.
- .15 The actuary may need to consider various appropriate tax treatments for calculations prepared for wind-ups of post-employment benefit plans.

Expenses

- .16 The actuary would consider as part of the claims experience the administration costs related to the adjudication of the claims, including any related general administration expenses charged by the party adjudicating the claims and all applicable taxes. The actuary may also consider other expenses related to the post-employment benefit plan.

Plan provisions

- .17 The actuary would determine the plan provisions with sufficient accuracy for the purposes of the valuation. Sources of information on plan provisions include:
- Current plan documents;
 - Funding or underwriting arrangements;
 - Collective bargaining agreements;
 - Information regarding past practices;
 - Cost-sharing arrangements between the plan sponsor(s) or plan administrator and plan members; and
 - Communication between the plan sponsors or plan administrator and the plan members.

Prior plan provisions may be needed to analyze claims information from periods prior to the calculation date.

- .18 The actuary would consider all benefits that are to be payable under the post-employment benefit plan and would include provision for all such benefits expected to be paid under the plan.

6320 Reporting: External User Report

- .01 If a previous external user report was prepared with respect to the wind-up, the actuary should describe and quantify the gains and losses between the prior calculation date and the calculation date. [Effective June 30, 2013]
- .02 An external user report should:
- Include the wind-up date, the calculation date, the cut-off date, and the report date;
 - Describe the events precipitating the wind-up, of which the actuary is aware, that affect the terms of the wind-up, the benefit entitlements, or the valuation results;
 - Describe the sources of membership data, plan provisions, and the post-employment benefit plan's assets, if any, and historical claims data, if any, and the dates at which they were compiled;
 - Describe the membership data and any limitations thereof, including any assumptions made about missing or incomplete membership data;
 - Describe the tests applied to determine the sufficiency and reliability of the membership data and plan asset data for purposes of the work;
 - Subject to any applicable privacy legislation:
 - Include the detailed individual membership data; or
 - Include an offer to provide detailed individual membership data on request to the plan sponsor or the plan administrator;
 - Describe the liquidation value of the assets, if any, and a summary of the assets by major category;
 - Describe the post-employment benefit plan's provisions, including an identification of:
 - Any amendments made since any previous external user report with respect to the plan which affect benefit entitlements; and

- Any subsequent events or post-wind-up contingent events, of which the actuary is aware, which affect benefit entitlements;
- Report the explicit assumption regarding the expenses of wind-up or justify the expectation that expenses will not be paid from the post-employment benefit plan's assets, if any;
- Report the funded status at the calculation date, and state whether an updated report will be required in the future;
- If applicable, report the settlement value for each plan member when settlement is to be made by cash payments to the member;
- Disclose subsequent events of which the actuary is aware, whether or not the events are taken into account in the work and, if there are no subsequent events of which the actuary is aware, include a statement to that effect;
- State that the funded status at settlement may differ from that contained in the report, unless the report includes the funded status at the time of final settlement;
- If the actuary relies upon direction concerning unclear or contentious issues:
 - Describe each such issue;
 - Describe the direction relied upon or, where appropriate, a summary thereof; and
 - Identify the person providing such direction and the basis of authority of such person;
- Describe any post-wind-up contingent events that may affect the distribution of the post-employment benefit plan's assets, if any;
- Describe whether a recalculation of the value of benefit entitlements is required at settlement;
- Where a member has a choice of settlement options that the member has not yet made, describe the assumptions made regarding such choice;
- If applicable, describe the method to allocate the post-employment benefit plan's assets among classes of members and the method to distribute surplus;

- Describe the actuary's role in calculating settlement values, including the assumptions and methods used for their calculation; and
 - Describe the sensitivity of the valuation results to the post-employment benefit plan's investment policy and to market conditions between the report date and the settlement date. [Effective February 1, 2018]
- .03 An external user report should include the following four statements of opinion, all in the same section of the report and in the following order:
- A statement regarding membership data, which should usually be, "In my opinion, the membership data on which the valuation is based are sufficient and reliable for the purpose of the valuation.";
 - A statement regarding assumptions, which should usually be, "In my opinion, the assumptions are appropriate for the purpose(s) of the valuation(s).";
 - A statement regarding methods, which should usually be, "In my opinion, the methods employed in the valuation are appropriate for the purpose(s) of the valuation(s)."; and
 - A statement regarding conformity, which should be, "This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada." [Effective June 30, 2013]
- .04 The external user report should be sufficiently detailed to enable another actuary to examine the reasonableness of the valuation. [Effective June 30, 2013]

Dates

- .05 The wind-up date of the post-employment benefit plan would be determined by the plan administrator or the plan sponsor or others with responsibility to wind up the plan, based on the plan provisions, the law, and the circumstances of the wind-up.
- .06 The calculation date of the funded status would usually be the wind-up date.
- .07 For a particular member, the date of calculation of benefit entitlement would depend on the circumstances of the wind-up and the terms of the post-employment benefit plan, and may be the date of termination of employment, the date of termination of membership, the wind-up date, or another date.

Nature of wind-ups

- .08 The purpose of a wind-up valuation may be to determine, or to provide the basis for determining:
- The funded status of the post-employment benefit plan;
 - The total value of the benefit entitlements of all members prior to taking account of the funded status of the post-employment benefit plan;
 - Any required additional funding;
 - The amounts and methods of determining benefit entitlements, including any adjustment required due to a wind-up deficit;
 - The amount and method of distribution of a wind-up surplus; or
 - Payout for loss of benefit entitlements upon insolvency.
- .09 A wind-up may be complex and may take a long time. Delays may require a series of reports by the actuary. Since the funded status or other available funds for the post-employment benefit plan at the final settlement date may affect whether benefit entitlements can be settled in full, the reflection of subsequent events in each report would be critical.

Membership data

- .10 The finality of wind-up would call for the actuary to obtain precise membership data. The membership data are the responsibility of the plan sponsor or plan administrator. However, if the actuary is working with incomplete, unreliable, or missing data the actuary would make assumptions regarding the data. The actuary may, if the circumstances dictate, include a provisional sum in the wind-up valuation with respect to missing members if the actuary believes that additional members might have benefit entitlements under the post-employment benefit plan but their membership information is missing.

Assumptions

- .11 The selected assumptions would:
- In respect of benefit entitlements that are assumed to be settled by purchase of insurance, reflect single premium rates; and
 - In respect of benefit entitlements that are assumed to be settled in some other manner, reflect the manner in which such benefits would be settled.

- .12 If future benefits depend on continued employment, the actuary would consider reflecting contingent events. For example, if a member is eligible for post-retirement benefits only if the member remains in employment until age 55, the actuary may make an assumption as to the probability of this event occurring and the member's benefit may be discounted for the probability of the event occurring.
- .13 Wind-up expenses usually include, but are not limited to:
- Fees related to the preparation of the actuarial wind-up report;
 - Legal fees;
 - Insurer or adjudicator administration expenses; and
 - Custodial and investment management expenses.
- .14 The actuary would either net wind-up expenses against the post-employment benefit plan's assets, if any, or add the assumed wind-up expenses to the post-employment benefit plan's liabilities in calculating the ratio of assets to liabilities as a measure of financial security of the benefit entitlements, unless the expectation is that expenses will not be paid from the post-employment benefit plan's assets, if any. However, an exception may be made for future custodial and investment management expenses, which may be netted against future investment return in the treatment of subsequent events.

Subsequent events

- .15 Ideally, in a wind-up valuation, all subsequent events would be reflected. This ensures that the funded status is presented as fairly as possible as of the report date. However, it would be impossible to recognize subsequent events right up to the report date. Accordingly, the actuary would select a cut-off date that is close to the report date.
- .16 The actuary would ascertain that no subsequent events have occurred between the cut-off date and the report date that would change the funded status significantly; otherwise the actuary would select a later cut-off date. For clarity, a subsequent event may be material yet not be so significant as to require selection of a later cut-off date.
- .17 It may be appropriate to have more than one cut-off date. For example, the actuary may select one cut-off date for the active membership data and another cut-off date for the inactive membership data.

.18 Common subsequent events are:

- Contributions remitted to the plan;
- Expenses paid from the post-employment benefit plan's assets, if any;
- Actual investment return on the post-employment benefit plan's assets, if any;
- Change in assumptions;
- Corrections to the membership data; and
- Deaths of members or other significant plan experience.

Use of another person's work

.19 Some aspects of the wind-up may be unclear to the actuary or contentious. Examples are:

- The determination of the wind-up date;
- The members, former members, or recently terminated members to be included in the wind-up;
- Whether or not to assume salary increases or health care cost trend rate in determining benefit entitlements;
- Eligibility for benefits payable only with the consent of the plan sponsor or plan administrator;
- The liquidation value of the post-employment benefit plan's assets, if any;
- The method to allocate the post-employment benefit plan's assets, if any, among members; and
- Whether or not wind-up expenses are to be paid from the post-employment benefit plan's assets, if any, or included in the calculation of the liabilities or expected future benefits.

.20 To decide those aspects, the actuary may rely upon direction from another person with the necessary knowledge, such as legal counsel or the employer, or the necessary authority, such as the plan sponsor or plan administrator. The actuary would consider any issues of confidentiality or privilege that may arise.

Statements of opinion

.21 Where different statements of opinion apply in respect of different purposes of the valuation, the above requirements may be modified, but would be followed to the extent practicable.

6400 Financial Reporting of Post-Employment Costs

- .01 This section 6400 applies to advice that an actuary provides regarding financial reporting of a post-employment benefit plan's costs and obligations in the employer's financial statements, or the post-employment benefit plan's financial statements, or the financial statements of the trust associated with the post-employment benefit plan, where the calculations and advice are provided in accordance with an applicable financial reporting standard.

6410 General

- .01 For financial reporting purposes, the actuary should use methods and assumptions for the value of assets, if any, and post-employment benefit obligations that are appropriate to the basis of financial reporting in the employer's or post-employment benefit plan's or trust's financial statements, as applicable, and that are consistent with the circumstances affecting the work. [Effective February 1, 2018]

Circumstances affecting the work

- .02 For the purposes of section 6400, the circumstances affecting the work would include:
- The terms of the appropriate engagement under which the work is being performed; and
 - The application of the law to the work.
- .03 The actuary would reflect the financial reporting standards specified by the terms of the appropriate engagement. Where financial reporting standards require methods and assumptions to be established by the preparers of the financial statements, the actuary would use the methods and assumptions specified by the preparers of the financial statements.

Plan provisions

- .04 The actuary would determine the plan provisions with sufficient accuracy for the purposes of the valuation. Sources of information on plan provisions include:
- Current plan documents;
 - Funding or underwriting arrangements;
 - Collective bargaining agreements;
 - Information regarding past practices;
 - Cost-sharing arrangements between the plan sponsor(s) or plan administrator and plan members; and
 - Communication between the plan sponsor or plan administrator and the plan members.

Prior plan provisions may be needed to analyze claims information from periods prior to the calculation date.

- .05 The actuary would consider all benefits in accordance with the terms of the appropriate engagement that are to be payable under the post-employment benefit plan and would include provision for all such benefits expected to be paid under the plan.

Anticipated amendment or deferred recognition of a pending amendment

- .06 The actuary's advice on a post-employment benefit plan may reflect an expected amendment to the plan if the amendment is definitive or virtually definitive, as appropriate based on the applicable financial reporting standard.
- .07 The effective date of the amendment is the date at which the amended benefits take effect, as opposed to the date when the amendment becomes either definitive or virtually definitive.
- .08 If an actuary is aware of an expected amendment to the post-employment benefit plan, but does not reflect the amendment in the work, then the actuary would report the event in accordance with the requirements for the disclosure of subsequent events.

Data

- .09 In addition to the current plan membership and asset data, if any, the actuary would collect information on historical claims experience, such as nature of absence and benefit levels. Data may come from the plan sponsor or plan administrators or other sources, such as insurance carriers, brokers, or external third-party plan administrators.
- .10 In identifying the data needed, the actuary would bear in mind the pertinent benefits (i.e., those applicable during retirement, disability, or following termination of employment). If applicable, the actuary may obtain claims data split by plan, by age, by location, by status (retiree, inactive, spouse, etc.) and by type of expense (drug, hospital, payment for loss of income, etc.).
- .11 Where appropriate, in analyzing any relevant historical claims data, the data would be adjusted to reflect the trend in the cost of benefits between the reference period and the calculation date. Where appropriate, the actuary would also adjust past experience results to reflect non-recurring influences such as changes in the benefits offered, significant changes in the demographics of the group, changes in government programs, or unusual claims.
- .12 Available data may have limited value or low credibility. Where the benefit cost for former members or current retirees is not fully credible or does not reasonably represent the likely benefit cost for similar future groups, the actuary may rely on the experience of active members or other sources of data that the actuary considers reasonable and relevant. Such other data would be adjusted appropriately for the expected differences between these groups and the group from which the data were drawn.

- .13 The actuary may project data, including membership data and data with respect to claim costs from the effective date of the data to the calculation date, using appropriate extrapolation techniques. The actuary would not normally extrapolate membership data more than three years from the effective date of the membership data. The actuary may also use recent credible claims experience in the extrapolation.

Assumptions

- .14 The assumptions that the actuary uses would be best estimate assumptions, unless otherwise specified in the relevant financial reporting standards or as otherwise selected by the preparers of the financial statements.
- .15 Repealed
- .16 In determining initial claim costs assumptions, the actuary would consider available claims experience with regards to items such as:
- Claimant age, member status, coverage category, and benefit type;
 - Credibility; and
 - Relevance to future periods and future benefit provisions.
- .17 In situations where there are insufficient data with respect to claim costs—for example, if the post-employment benefit plan has only a small number of members or does not yet have any members in payment status—the actuary may develop the applicable assumptions based on experience with other similar plans.
- .18 If the actuary is determining the assumption with respect to the future claims trend rate, where necessary, it may be divided into short-term and longer-term components. The short-term component would often be based on the level experienced in the recent past by the plan and plan members. The longer-term component would be consistent with the assumption regarding future changes in benefit programs and general economic conditions such as nominal Gross Domestic Product growth. The actuary would determine the period of time required to transition from the short-term trends to the longer-term trends.

Expenses

- .19 The actuary's advice on a post-employment benefit plan would take account of expenses, including whether or not they are expected to be paid from the post-employment benefit plan's assets, if any.

Benefit commitments

- .19.1 The actuary would include in the valuation of the post-employment benefit obligations the effect of a commitment to provide benefits not specified in the terms of the plan to the extent stipulated by the preparers of the financial statements.
- .20 The actuary would consider, as part of the claims experience, the administration costs related to the adjudication of the claims including any related general administration expenses charged by the party adjudicating the claims and all applicable taxes. The actuary may also consider other expenses related to the post-employment benefit plan.

Extrapolations

- .21 The actuary may extrapolate results of an earlier valuation using appropriate extrapolation techniques. The actuary would not normally extrapolate valuation results more than four years from the effective date of the membership data.

6420 Reporting: External User Report

- .01 An external user report should:
- Include the calculation date and the report date;
 - Describe the sources of membership data, plan provisions, the post-employment benefit plan's assets, if any, and historical claims data, if any, and the dates at which they were compiled;
 - Describe the membership data and any limitations thereof, and any assumptions made about missing or incomplete membership data;
 - Describe the tests applied to determine the sufficiency and reliability of the membership data and plan asset data for purposes of the work;
 - Describe the assets, if any, including their market value and a summary of the assets by major category and the method used to value the post-employment benefit plan's assets;
 - Describe the post-employment benefit plan's provisions, including the identification of any definitive or virtually definitive pending amendment of which the actuary is aware, and whether or not such amendment has been reflected in determining the plan's obligations;
 - Describe any material accounting policies relevant to the work;

- Describe any commitment to provide benefits beyond the terms of the plan reflected in the valuation of post-employment benefit obligations;
- Disclose subsequent events of which the actuary is aware, whether or not the events are taken into account in the work, and, if there are no subsequent events of which the actuary is aware, include a statement to that effect;
- Include all other provisions as required for disclosure purposes as per the terms of the appropriate engagement, such as:
 - Reporting the funded status at the calculation date and the applicable service cost or expected cost of new claims;
 - Describe any contingent benefits provided under the post-employment benefit plan and the extent to which such contingent benefits are included or excluded in determining the funded status and the service cost;
 - Describe any benefits that are not contingent benefits and that have been excluded in determining the funded status and the service cost;
 - Describing the method and period selected in connection with any amortizations;
 - If the valuation is an extrapolation of an earlier valuation, describe the method and any assumptions for, and the period of, the extrapolation; and
 - Stating whether or not the valuation and/or extrapolation conforms with the actuary's understanding of the financial reporting standards specified by the terms of an appropriate engagement. [Effective May 1, 2019]

.02 An external user report should provide the following four statements of opinion, all in the same section of the report and in the following order:

- A statement regarding membership data, which should usually be, “In my opinion, the membership data on which the valuation is based are sufficient and reliable for the purpose of the valuation.”;
- A statement regarding assumptions which should usually be, “In my opinion, the assumptions are appropriate for purposes of the valuation.”;
- A statement regarding calculations, which should usually be, “In my opinion, the calculations have been made in accordance with my understanding of the requirements of [name financial reporting standard]”; and
- A statement regarding conformity, which should be, “This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada.” [Effective March 31, 2015]

.03 An external user report should be sufficiently detailed to enable another actuary to examine the reasonableness of the valuation. [Effective June 30, 2013]

Membership data

.04 Any assumptions and methods used in respect of insufficient or unreliable membership data would be described.

Reference to other external reports

.05 The descriptions required in the external user report may be incorporated by reference to another actuarial valuation report prepared in accordance with accepted actuarial practice in Canada.

7000 – Social Security Programs

Table of Contents

7100	Scope	7003
7200	General	7004
7210	Circumstances affecting the work	7004
7220	Data.....	7005
7300	Valuation	7006
7310	Methods.....	7006
7320	Assumptions	7007
7330	Economic Assumptions.....	7008
7340	Non-economic Assumptions.....	7009
7350	Margins for Adverse Deviations	7009
7360	Sensitivity Testing	7010
7400	Experience Analysis.....	7012
7500	Reporting on the Valuation of a Social Security Program.....	7013

7100 Scope

01. Part 1000 applies to work within the scope of this part 7000.
02. The standards in part 7000 apply to an actuary when performing or reviewing, advising on, or opining on work related to social security programs.
03. In Canada, the social security programs include the Canada Pension Plan (CPP), the Québec Pension Plan (QPP), the Old Age Security (OAS) program, and other similar plans that fall under the definition of social security program.
04. The standards in part 7000 do not apply to programs established solely or primarily for government employees, to workers' compensation programs, or to programs that primarily provide health insurance or property and casualty insurance.

7200 General

7210 Circumstances affecting the work

.01 The actuary's work on the valuation of benefit liabilities or other items contained in the financial statement of a social security program, or on the financing arrangements of a social security program, should take into account the circumstances affecting the work.
[Effective February 1, 2018]

.02 The circumstances affecting the work would include

- terms of the relevant statute, regulations, and other binding authorities;
- relevant accounting standards and policies; and
- terms of an appropriate engagement under which the work is being performed;

and the circumstances affecting the work may include the financing policy of the social security program.

.03 The terms of an appropriate engagement would define the role of the actuary and the purpose of the work. The work of the actuary may include the provision of advice on the financing of the social security program, its financial condition, and any other actuarial item required under the terms of an appropriate engagement.

.04 The terms of an appropriate engagement may specify applicable policies of the social security program relevant to the work of the actuary. These policies may include a formal or informal financing policy, an accounting policy, and an investment policy.

.05 Significant terms of an appropriate engagement may stipulate one or more of

- use of a specified asset value or method of asset valuation; and
- use of a specified financing method based on a pre-determined financing objective.

.06 Objectives of financing specified by the terms of an appropriate engagement may include, but are not limited to, a specific funding target, the security of benefits, a principle of equity among generations, and/or a stable contribution rate over the long term.

.07 The actuary would take into account established practice (if relevant) when no law exists with regard to certain benefit provisions or financial measures (for example, the basis for future indexation of retirement benefits).

7220 Data

- .01 Where sufficient, reliable, and relevant data are not available for the valuation of a specific benefit, the actuary should make appropriate assumptions and/or introduce appropriate methods to compensate for any perceived deficiencies in the data.
[Effective October 15, 2017]
- .02 Sufficient, reliable, and relevant data may not be available to the actuary in various circumstances, for example,
- a newly established social security program;
 - the relevant statute may have been amended to provide a new or revised benefit;
 - an applicable policy of the social security program may have been recently revised; or
 - the social security program administration practices may have recently changed.
- .03 Where the data are not sufficient, not fully reliable, and/or not sufficiently relevant to expected future experience for a specific benefit, the actuary may consider taking one or more of the following actions:
- introducing appropriate assumptions regarding missing, incomplete, or unreliable data; and
 - adjusting data and historical experience for the purpose of the work, as appropriate, to remove any perceived distortions, such as the effect of historical inflation or one-time benefit changes.
- .04 For a newly established or substantially changed social security program, the actuary would take into account other relevant information, including relevant experience of comparable social security programs.

7300 Valuation

7310 Methods

- .01 The actuary should value the social security program assuming that it continues indefinitely as a going concern. [Effective October 15, 2017]
- .02 The actuary should select an actuarial cost method that is consistent with the circumstances affecting the work. [Effective February 1, 2018]
- .03 The actuary's work should take into account the benefits, relevant policies, and administration practices of the social security program, as of the calculation date, and should take into account any virtually definitive amendment to these items that is expected to have a material effect on benefits, unless the circumstances affecting the work require otherwise. [Effective February 1, 2018]
- .04 The actuary would use a valuation methodology that is consistent with the financing method used for the social security program. Two methods are available:
- An open group methodology, under which contributions and benefits of both current and future participants are considered, is most appropriate for pay-as-you-go and partially funded social security programs and may also be used for social security programs that are meant to be fully funded; and
 - A closed group methodology, under which only current participants are considered, with or without their assumed future benefit accruals and contributions, is only appropriate for a fully funded social security program that is meant to be fully funded.
- .05 For a social security program that is meant to be fully funded, the actuary would:
- Measure the funded status of the social security program under a closed group methodology; and
 - If also using an open group methodology, disclose the relationship between the social security program's current assets and the present value of its future contributions and the present values of its current and anticipated future liabilities over the projection period.

- .06 Based on the circumstances affecting the work, the actuary may judge an alternative valuation methodology to be more appropriate. That approach would be used with justification communicated in the report.

- .07 The projection period used in the actuary's work should be sufficient considering the circumstances affecting the work. [Effective February 1, 2018]

Amendments and subsequent events

- .08 The actuary's valuation of the social security program would reflect all virtually definitive amendments of which the actuary is aware on the calculation date, including those amendments with an effective date after the calculation date. Where the circumstances affecting the work require otherwise, the actuary may exclude the effect of a known virtually definitive amendment, but the actuary would disclose the effect of such amendment.

7320 Assumptions

- .01 The actuary should select assumptions that reflect the projection period and the expectation that the social security program will continue indefinitely as a going concern, but may adjust such assumptions to reflect short-term considerations, where appropriate. [Effective October 15, 2017]
- .02 The actuary should select either best estimate assumptions or best estimate assumptions modified to incorporate margins for adverse deviations to the extent, if any, mandated by law or by the circumstances affecting the work, and should provide the rationale for the decision made with respect to the inclusion or exclusion of margins. [Effective February 1, 2018]
- .03 Where a social security program has a policy or history of providing ad hoc adjustments to contributions or to benefits, or a periodic update of parameters of the program, such as the maximum insurable earnings, the actuary should recognize such policy or history when valuing the social security program by selecting assumptions consistent with such policy or history as appropriate, unless a virtually definitive decision to discontinue such adjustments or updates has been taken by the social security program. The actuary should value the social security program with and without any assumed ad hoc adjustments. [Effective October 15, 2017]

- .04 The actuary would consider any automatic balancing mechanisms that exist in a social security program when selecting the assumptions. The actuary would consider to what extent the social security program is “immunized” from the volatility of some variables by the automatic balancing mechanisms.

7330 Economic Assumptions

- .01 The needed economic assumptions may include
- the discount rate;
 - the expected rate of investment income;
 - the expected investment and administrative expenses;
 - the expected rate of general inflation;
 - the expected real wage growth;
 - the expected labour force participation rate; and
 - the expected unemployment rate.
- .02 The economic assumptions needed would depend on the nature of the benefits that are being valued, and may vary by year.
- .03 The actuary would develop and disclose separate nominal assumptions, but may prefer to complete the calculations using rates that are net of inflation, net of expenses or net of some other factor.
- .04 When determining the best estimate assumption for the expected rate of investment income, the actuary would take into account the expected pattern of risk-free rates of return, the expected additional investment return on the assets of the social security program at the calculation date, if any, and the expected investment policy after that date. The actuary would provide justification for the expected additional investment return. Possible justifications include
- additional returns over risk-free rates expected to be earned on non-risk-free fixed income assets of the type and quality owned on the reporting date and expected to be acquired pursuant to the investment policy of the social security program;
 - additional returns over risk-free interest rates expected to be earned on other types of investments, including publicly traded common or preferred equities, private placements, real estate, and private equity; and
 - projected composition of the investment portfolio in future years.

In establishing the assumption for the expected rate of investment income, the actuary would assume that there would be no additional returns achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy except to the extent that the actuary has reason to believe, based on relevant supporting data, that such additional returns will be consistently and reliably earned over the long term.

- 05 The expected investment expenses would depend on the investment policy of the social security program and the types of investments held and projected to be held in the future.
- .06 The assumed expected rate of investment income need not be a flat rate but may vary from period to period.

7340 Non-economic Assumptions

- .01 When setting non-economic assumptions, the actuary would reflect all material contingencies.
- .02 The needed non-economic assumptions may include
- the benefit take-up rates;
 - the expected fertility rate;
 - the expected migration rate; and
 - the expected mortality and morbidity rates.

7350 Margins for Adverse Deviations

- .01 The actuary should not include any margins for adverse deviations when the circumstances affecting the work require a best estimate calculation. [Effective February 1, 2018]
- .02 The actuary should include one or more margins for adverse deviations when the circumstances affecting the work require such margins. A non-zero margin should be sufficient, without being excessive. The overall provision for adverse deviations resulting from the application of all margins for adverse deviations should be appropriate in the aggregate. [Effective February 1, 2018]
- .03 If the actuary is required by the circumstances affecting the work to use a margin for adverse deviations that is outside the range that the actuary considers appropriate, the actuary may use such imposed assumption, but the actuary should disclose that the margin is outside of the appropriate range and disclose the reason for using such margin. [Effective February 1, 2018]

- .04 Examples of situations where the circumstances affecting the work might require an unbiased calculation include
- the legislation governing the social security program requires an unbiased calculation; or
 - the social security program's financing policy requires the use of best estimate assumptions.
- .05 Examples of situations where the circumstances affecting the work might require the inclusion of one or more margins for adverse deviations include
- the relevant legislation or financing policy requires inclusion of margins for adverse deviations; or
 - the level of uncertainty or volatility around a particular assumption is high, and not considered to be sufficiently mitigated by the underlying adaptability of the social security program.
- .06 Where the actuary includes a margin for adverse deviations, the actuary would provide the rationale for inclusion of the margin and for the selection of the specific amount of the margin. The rationale may include considerations such as
- the financing policy of the social security program;
 - the relative importance placed on the balancing of competing interests (e.g., benefit security versus cost of the social security program);
 - the level of uncertainty inherent in the assumption;
 - the level of reliability or credibility of the data or historical information upon which the assumption is based;
 - the asset/liability mismatch risk; and
 - the legislative or other restrictions on the ability to mitigate past adverse experience.

7360 Sensitivity Testing

.01 The actuary should perform sensitivity testing of adverse scenarios to illustrate plausible material risks to which the social security program may be exposed and to aid in the understanding of the effect of adverse changes to assumptions. [Effective October 15, 2017]

.02 The actuary may also perform sensitivity testing of favourable scenarios.

- .03 When selecting the assumptions and scenarios for sensitivity testing, the actuary would consider the circumstances affecting the work, and would select those assumptions that have a material impact on the valuation. The actuary may consider the use of testing of integrated sensitivity scenarios, for example, the effect of a deep and prolonged recession.
- .04 Assumptions tested may include, but are not limited to, the following:
- investment rate;
 - real wage growth;
 - labour force participation rates; and
 - mortality rates.

7400 Experience Analysis

- .01 The actuary should conduct an experience analysis, including a comparison of actual and expected experience for the period between the prior calculation date and the current calculation date. [Effective October 15, 2017]
- .02 The actuary should conduct a reconciliation of the main results of the social security program valuation between the prior calculation date and current calculation date. The reconciliation should include an analysis and itemization of the changes in the methodology and assumptions used, legislative amendments that occurred, or other components of the valuation that contributed to the change in the main results. [Effective October 15, 2017]
- .03 The actuary's analysis would include all significant experience variations. At a minimum, the actuary's analysis would consider the impact of any significant changes to the assumptions or methods used, any significant changes to the benefits or policies of the social security program, gains or losses due to investment returns on the social security program's assets, legislative changes, and any other areas where the difference between actual and expected experience is significant.

7500 Reporting on the Valuation of a Social Security Program

- .01 For work pursuant to this part, the actuary should prepare a report that:
- states the calculation date and the report date of the actuarial opinion given;
 - identifies the legislation or other authority under which the work is completed;
 - describes the significant terms of the appropriate engagement that are material to the actuary's work, including the purpose of the work;
 - describes the sources of the participants data, program provisions and policies, and assets, if any, and the dates at which they were compiled;
 - describes the data used for the valuation and any limitations thereof, and any significant assumptions made about insufficient or unreliable data;
 - describes the social security program's provisions, significant policies, and relevant administration practices, including the identification of any amendments made since the prior calculation date, and the effect of such amendments on the program's financial condition;
 - describes the social security program's source(s) of financing;
 - describes any automatic balancing mechanisms of the social security program;
 - describes any definitive or virtually definitive amendment, policy change or change to administration practice, confirms whether or not such amendment or change has been reflected in the valuation, and identifies the effect of such amendment or change on the program's financial condition;
 - discloses any subsequent events of which the actuary is aware, whether or not the events are taken into account in the work, or, if there are no subsequent events of which the actuary is aware, include a statement to that effect;
 - describes the nature and extent of material risks faced by the social security program, and the approach taken by the actuary to assess those risks;
 - states that the assumptions are best estimates, where that is the case, or discloses the aggregate provision for adverse deviations in the results, where the assumptions include margins for adverse deviations;

- describes the methodology used to assess the financial condition of the social security program at the calculation date. The description of the methodology should specify:
 - whether it is based on a closed or open participants group, and
 - how any automatic balancing mechanisms, if present, are incorporated;
- presents the projections of the components of the program's cash flows, including the contributions, benefits, administrative expenses, and investment income, if any;
- presents the key results of the valuation with and without any assumed ad hoc adjustments;
- states the key contribution rates required for the social security program, if applicable;
- describes and quantifies a reconciliation of the actual and expected experience with respect to the assets, if applicable, expenditures, and key contribution rates or other indicators of the social security program from the prior calculation date to the current calculation date; and
- describes sensitivity or scenario testing performed for key assumptions and reports the results of such testing.

Depending on the terms of the engagement, the report should:

- state the prior calculation date and next calculation date, as applicable;
- describe the social security program's assets, if any, including their market value, the assumptions and methods used to value the assets, and a summary of the assets by major category;
- state the financial condition of the social security program; and
- if the social security program is meant to be fully funded, state:
 - its funded status at the calculation date under a closed group methodology;
 - if also using an open group methodology, the extent to which the social security program's current assets and the present value of its future contributions cover the present values of its current and anticipated future liabilities over the projection period under an open group methodology;

and describe the differences between the above two measures. [Effective February 1, 2018]

.02 The report should provide the following five statements of actuarial opinion, all in the same section of the report and in the following order:

- A statement regarding the data, which would usually be, “In my opinion, the data on which the valuation is based are sufficient and reliable for the purpose of the valuation.”;
- A statement regarding the assumptions, which would usually be, “In my opinion, the assumptions used for the purpose of the valuation are reasonable and appropriate, both individually and in aggregate.”;
- A statement regarding the methods, which would usually be, “In my opinion, the methods employed in the valuation are appropriate for the purpose of the valuation.”;
- If applicable to the mandate, a statement certifying the required key contribution rates or other measures to finance the social security program. The statement may take the form of:

“Based on the results of this valuation, I hereby certify that the [name(s) of key contribution rate(s) and/or other measure(s)] to finance the [name of social security program] is [X.XX]% for the year [YYYY] and thereafter”;

- A statement regarding conformity to accepted actuarial practice, which should be, “This report has been prepared, and my opinions given, in accordance with accepted actuarial practice in Canada.”
[Effective October 15, 2017]

.03 The report should be sufficiently detailed to enable another actuary to examine the reasonableness of the valuation and to enable stakeholders, policymakers, and other interested parties to make informed decisions regarding the social security program.
[Effective October 15, 2017]

.04 There are several measures the actuary may use to present the results, including

- projected cash flows and ending positions,
- discounted cash flows, and/or
- contribution rates required.

- .05 The actuary may be asked to answer questions regarding the financial condition of the social security program, such as the estimated effect from changing an assumption used in the most recent valuation. In such instances, the actuary would specify the purpose and scope of the work and any limitations or constraints that apply to the interpretation of the results of the work compared to the results of the most recent valuation. If an actuarial opinion is required for such work, the actuarial opinion would be similarly adjusted.
- .06 The circumstances affecting the work may result in a deviation from accepted actuarial practice in Canada. For example, the applicable legislation or the terms of engagement may require that the actuary use a margin for adverse deviations that is outside the range that the actuary considers appropriate. In such case, the actuary would disclose such deviation in the report, and if practical, useful, and appropriate under the terms of the engagement, report the results of applying accepted actuarial practice.