



Memorandum

To: All Fellows, Affiliates, Associates, and Correspondents of the Canadian Institute of Actuaries and other interested parties

From: Ty Faulds, Chair
Actuarial Standards Board

Bob Howard, Chair
Designated Group

Date: January 26, 2017

Subject: **Final Standards – Revisions to General Standards to Reflect the Use of Models**

Document 217006

Introduction

The attached final standards were approved by the Actuarial Standards Board (ASB) on December 7, 2016. These changes add subsection 1535 on models and revise subsections 1110, 1540, 1560, 1610, 1710, 1720, and 1820 of the standards with respect to the use of models.

Background

The ASB created a designated group (DG) that was responsible for developing a new section on models for the Standards of Practice. A [notice of intent](#) (NOI) on this topic was issued on September 8, 2011. The NOI contained no suggested text for the Standards of Practice other than a definition of “model”.

The ASB subsequently decided that it would be preferable to integrate standards for models into the existing structure of the Standards of Practice. It revised the DG in 2013 and restarted the task. A [second NOI](#) was issued on April 22, 2014, containing an initial draft of the changes to the Standards of Practice. This NOI was discussed in a session at the 2014 Annual Meeting.

Progress was discussed at a session of the 2015 Annual Meeting. An [exposure draft](#) (ED) was published on October 5, 2015. Further changes were made based on feedback from members; in particular a new subsection, 1535, was proposed. On July 26, 2016 a [second ED](#) was published. There was a session on the second ED at the Actuarial Evidence Seminar on September 23, 2016.

The current members of the DG are John Brierley, Richard Brown, Patrick Chamberland, David Hart, Bob Howard (Chair), Pat Johnston, Marthe Lacroix, and David Oakden.

Incidentally, a draft of an educational note to elaborate on the ED was published around the same time as the publication of each ED.

Changes Incorporated

The revisions to the standards incorporate the following changes:

- Addition of definitions 1110.31.1 model, 1110.31.2 model implementation, 1110.31.3 model risk, 1110.31.4 model run, and 1110.31.5 model specification;
- Addition of subsection 1535 (Models), which states the need for choosing an appropriate model and discusses the amount of effort required;
- Addition of 1540.01.1 in the subsection on control to require validation of models and mitigation of model risk;
- Addition of paragraphs 1540.05–.09 to elaborate on the model validation and model risk mitigation;
- Addition of paragraphs 1560.09–.11 to describe the documentation expected for a model;
- Revision to paragraph 1610.12 to clarify that using the work of another person does not constitute using the other person’s model;
- Revisions to section 1700 (Assumptions) to clarify the distinction between a “model” and a “calculation” and to clarify the meaning of “model assumption” in the context of the definition of “model” which was not previously in the Standards of Practice;
- Revisions to paragraph 1820.01 to require disclosure of any material limitation in a model as part of an external user report; and
- Addition of paragraphs 1820.26.1–.3 to elaborate on the reporting expected for a model.

COMMENTS RECEIVED

Sixteen submissions were received on the first NOI and nine on the second. Twelve submissions were received on the first ED and six on the second. The major comments received, and the responses of the DG to them, are summarized below.

1. General

Several submissions expressed concern that the amount of effort being required was unreasonable. Some suggested that work would be given to non-actuaries in preference to actuaries to avoid having to pay for useless effort.

The DG is strongly of the opinion that the amount of effort should be appropriate to the model and that most actuaries would agree that it was consistent with “due skill and care”. The text was modified to stress that the amount of effort would not be the same for all models and would take into account the financial significance of the use of the model, the complexity of the model, and other factors. Paragraph 1535.03 deals directly with this topic.

Two submissions contended that no change to the Standards of Practice was necessary because modelling is assumed to be part of “work” and thus already covered.

The DG was not persuaded. Although many of the tasks of modelling are already covered, such as approximation and the selection of assumptions, the Standards of Practice were silent on other important tasks, such as validation, mitigating model risk, and reporting on limitations.

Two submissions suggested that standard actuarial methods should be exempted from the standards related to models because there is already sufficient guidance in place for them.

The DG disagrees. Models using standard actuarial methods are as much in need of validation as those that do not. Existing standards give no guidance on choosing an appropriate model. However, the DG did agree that a standard actuarial method may be so deeply embedded in actuarial work that it may be unreasonable to expect an explicit justification for using that method. Accordingly, 1535.04 states that no justification is required for a standard actuarial method, provided that the method is used in the proper context.

2. Subsection 1110 Definitions

There were several suggestions for improving the new definitions.

The DG agreed with many of the suggestions and made a number of changes to clarify the text.

Some believe that the definition of model is too vague. For example, it is not clear whether the calculation of a pension commuted value involves the use of a model, and thus is subject to the expanded standard.

The DG admits that it cannot avoid some imprecision in the boundary between what is a model and what is not a model. (The corresponding educational note attempts to clarify the difference.) In the example given, it may not make any practical difference whether a model is required. In either case, the actuary will need to exercise "due skill and care" which will include ensuring that the method and assumptions are appropriate and that the calculations are accurate.

3. Subsection 1535 Models

Some wanted clarification of the expression "could be performed effectively manually" (initially in 1110.31.1, now in 1535.03). Because the expression now appears only in an example and is not in itself prescriptive, the DG does not believe that further clarification is needed. Actuaries will think of other examples of models that properly do not require formal documentation.

Some objected to the term "financial significance" as an indicator of the amount of effort required. The DG concedes that an actuary may expend more effort on a model with greater reputational risk than on another with less, even if the latter has greater financial significance. Subsection 1535 does not preclude such a choice; it merely does not use that example.

4. Subsection 1820

Some expressed concern that there would be too much and unhelpful disclosure for models. A couple of commenters pointed out that all models have limitations, and therefore, it would always be necessary to disclose something about every model.

The DG disagrees. In the Standards of Practice, the word "material" seldom appears, but it is understood everywhere. Thus only material limitations in a model that are relevant to the intended use of the model need to be disclosed in the actuary's report. The commenters do not appear to be objecting to disclosure of material limitations.

Due Process

The ASB's Policy on Due Process for the Adoption of Standards of Practice has been followed in the development of these revisions to the standards.

Effective Date and Early Implementation

These final standards are effective on January 1, 2018. Early implementation is encouraged.

TF, BH