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**PRACTICE GUIDELINE 5  
INSURER ENTERPRISE RISK MODELS**

March 2020

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## Preface to Practice Guideline 5

Practice Guideline 5 (PG 5) is the Australian adaptation of International Standard of Actuarial Practice 5: Insurer Enterprise Risk Models (“ISAP 5”) as adopted by the International Actuarial Association (“IAA”) Council 1 December 2018.

PG 5 provides guidance to Members when performing Applicable Services involving the use of Enterprise Risk Models for Insurers.

Actuaries play a principal role in assuring the financial soundness of Insurers and their approach often includes the use of Enterprise Risk Models. Specifically, the central importance of Enterprise Risk Models to insurance business management is demonstrated in two of the Insurance Core Principles (ICP) published by the International Association of Insurance Supervisors (“IAIS”) for assessment and supervision purposes: ICP 16 – Enterprise Risk Management for Solvency Purposes and ICP 17 – Capital Adequacy.

Increasingly Boards and senior managers of Insurers rely on enterprise risk modelling for both regulatory and management decision making purposes. As a result, Insurers, their stakeholders, and other interested parties have a strong interest in the reliable operation and transparent governance of the use of Enterprise Risk Models. As employees or advisors, Members play an important role in advising Insurers and others on the development or selection of the appropriate models and the related testing, validation and interpretation of the outcomes.

ISAP 5 is intended to:

- ▶ Facilitate convergence in standards of actuarial practice in connection with Insurer Enterprise Risk Models within and across jurisdictions;
- ▶ Increase public confidence in Applicable Services for enterprise risk management (ERM) purposes; and
- ▶ Demonstrate the IAA’s commitment to support the work of the IAIS in achieving effective Insurer ERM practice internationally.

Based on the nature and extent of the differences between PG 5 and ISAP 5, the Institute has assessed that there is “strong convergence” between PG 5 and ISAP 5. PG 5 materially conforms to international standards of the IAA, with allowance for local modification to fit local conditions. However, given the differences, it should be noted that compliance with PG 5 will not necessarily result in compliance with ISAP 5. Therefore, where a Member is required to perform work in conformity with ISAP 5 (e.g. because the work is being undertaken in an overseas jurisdiction) the Member should refer to the specific requirements of ISAP 5.

The principles and requirements of PG 5 are largely consistent with ISAP 5.

A number of minor changes have been made, principally for consistency with local conditions and for clarification purposes.

A full tabulation of the differences between PG 5 and ISAP 5 is set out in the Appendix to PG 5.

## 1. General

### 1.1. Purpose

This Practice Guideline (PG) provides guidance to Members when performing Applicable Services involving Enterprise Risk Models for Insurers. Its purpose is to increase public confidence in the ERM work provided by Members by giving Intended Users confidence that:

- ▶ Applicable 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.

Members are reminded of their professional experience obligations under the Code.

### 1.2. Classification

1.2.1. This PG has been prepared in accordance with Council's Policy for Developing Documents to Guide and Regulate Professional Practice, as varied from time to time. It must be applied in the context of the Code.

1.2.2. This PG is not mandatory.

1.2.3. Nevertheless, if the Services provided by a Member are covered to any extent by this PG, a Member should consider explaining any significant departure from this PG to the Principal and record that explanation.

1.2.4. Work performed under this PG is designated as an Applicable Service. As such, the Member's attention is directed towards the requirements of PG 1 (General Actuarial Practice).

### 1.3. Scope

This PG provides guidance to Members when providing Applicable Services involving the selection, modification, development and use of Enterprise Risk Models for Insurers, including stress and scenario tests to assess solvency, assess capital adequacy and produce risk metrics for ERM programs of Insurers.

This PG does not constitute legal advice. Any interpretation or commentary within this PG regarding specific legislative or regulatory requirements reflects the expectations of the Institute but does not guarantee compliance under applicable legislation or regulations. Accordingly, Members should seek clarification from the relevant regulator and/or seek legal advice in the event they are unsure or require specific guidance regarding their legal or regulatory obligations.

### 1.4. Compliance

A Member may fail to follow the guidance of this PG but still comply with it where the

Member:

- 1.4.1. Complies with requirements of Law that conflict with this PG;
- 1.4.2. Complies with requirements of the Code or a Professional Standard applicable to the work that may conflict with this PG; or
- 1.4.3. Departs from the guidance in this PG and provides, in any Report, an appropriate statement with respect to the nature, rationale, and effect of any such departure.

#### **1.5. Relationship to PG 1**

Compliance with PG 1 is a prerequisite to compliance with this PG. References in PG 1 to “the Applicable PPD” or “all Applicable PPDs” should be interpreted as applying equally to this PG 5, where appropriate.

#### **1.6. Defined Terms**

This PG uses various capitalized terms whose precise meaning is defined in the Glossary of General Defined Terms Used in Practice Guidelines or Code.

#### **1.7. Application**

This version of PG 5 incorporates additional conformance changes to align with the Institute’s new Code (effective 31 March 2020).

#### **1.8. Effective Date**

This PG is effective for Applicable Services performed in connection with Insurer Enterprise Risk Models on or after 31 March 2020.

## **2. Appropriate Practices**

### **2.1. Understanding of Risk and Uncertainty**

The Member should have or obtain sufficient knowledge and understanding of the nature of risk and uncertainty in relation to the subject of the assignment or work. Members should consider both the potential rewards and costs, when assessing risk and uncertainty. In performing services related to risk assessment, the Member should consider, or may rely on others who have appropriately considered, the following:

- 2.1.1. Information about the financial strength, risk profile, business management and risk environment of the Insurer that is relevant to the assignment;
- 2.1.2. Information about the Insurer's own risk management framework and approach, including its attitude to the assumption of risk as relevant to the assignment; and
- 2.1.3. The relationship between the Insurer's financial strength, risk profile, business management and risk environment as identified in 2.1.1 above, and the Insurer's risk management framework and approach as identified in 2.1.2 above. If in the Member's professional judgement, a significant inconsistency exists then that inconsistency should be reflected in the risk assessment and disclosed.

### **2.2. Proportionality**

In applying PG 1 paragraph 1.6, Reasonable Judgment, and paragraph 1.6.2, the Member should also consider proportionality in respect of the nature, scale and complexity of the underlying risks.

### **2.3. Assumption Setting**

2.3.1. When choosing or advising on the choice of assumptions for inclusion in the Insurer Enterprise Risk Model, in addition to following PG 1 paragraphs 2.7, Assumptions and Methodology set by the Member and 2.8, Assumptions and Methodology Prescribed, the Member should consider factors including but not limited to, the following:

- (a) Internal policies, likely management actions, and experience of the past history of management actions;
- (b) Contractual requirements, policy wording and past experience;
- (c) Factors outside of management control, such as policyholder behaviour, taxation, regulatory requirements and reserving requirements; and
- (d) Risk mitigation techniques such as reinsurance and hedging and any limitations to these techniques.

The Member's assumptions should normally reflect the actual situation as of the Evaluation Date, modified for any known or expected future changes.

2.3.2. When constructing or advising on the construction of Insurer Enterprise Risk Models, the

Member should be satisfied that the assumptions are reasonable by obtaining and reviewing information from appropriate sources, such as:

- (a) Management of the Insurer being modelled;
- (b) Knowledgeable persons at the Insurer;
- (c) The Insurer's business plan and if available, the most recent assessment of how the Insurer will function under severely adverse scenarios;
- (d) External industry experts;
- (e) Requirements of Law; and
- (f) Other subject matter experts.

2.3.3. When probability distributions are incorporated into an Insurer Enterprise Risk Model, the Member should be satisfied that the assumed distributions and correlations are appropriate relative to historical information and anticipated future changes and should also consider the possibility of plausible extreme values. In this regard, for each risk factor, the Member should provide an explanation of the differences between the incidence of actual extreme events included in the historical Data and the potential incidence of extreme events in the Insurer Enterprise Risk Model. The various probability distributions and correlations should recognize the possibility of simultaneous extreme values from multiple risk factors.

## **2.4. Stress and Scenario Testing**

2.4.1. In relation to stress tests or scenario tests the Member should disclose:

- (a) The significant assumptions used in the stress test or the scenario test, including the actions assumed to be taken by management; and
- (b) Any known limitations of the stress test or the scenario test and include an assessment of the potential impact of these limitations on results.

## **2.5. Assessing Consistency between Models**

Multiple models or multiple stress tests or scenario tests are often developed for different purposes for the same Insurer (e.g. accounting requirements, regulatory valuation, or risk evaluation to determine capital needs).

Where practical, the Member should assess the reasons for and the impact of using multiple models and multiple stress tests or scenario tests and provide an explanation of any material differences in results.

### **3. Communication**

#### **3.1. Disclosures**

In addition to complying with PG 1 Section 3 Communication, the Member should disclose:

- (a) Any significant inconsistency that exists between the Insurer's financial strength, risk profile, business management and risk environment as identified in 2.1.1 and the Insurer's own risk management framework and approach identified in 2.1.2(2.1.3);
- (b) An explanation of the differences between experience Data and potential extreme adverse values in the risk model (2.3.3);
- (c) An explanation of the differences between experience Data and the incidence of multiple extreme events in the Enterprise Risk Model (2.3.3);
- (d) The significant assumptions used in the stress or scenario test, including the actions assumed to be taken by management (2.4.1.a);
- (e) Any known limitations of the stress tests or scenario tests and an assessment of the potential impact of these limitations on results (2.4.1.b); and
- (f) An appropriate explanation of any material differences in results if multiple models and multiple stress tests and scenario tests are used by the Insurer (2.5).

**APPENDIX: COMPILATION OF DIFFERENCES BETWEEN PG 5 AND ISAP 5**

- i. Hyperlinks removed and replaced with capitalized terms.
- ii. Formatting and paragraph number changes made.
- iii. References to ISAP changed to Practice Guideline (PG).
- iv. References to ISAP 1 changed to PG 1.
- v. The term "actuary" changed to "Member".
- vi. The term "actuarial services" changed to "Applicable Services".
- vii. Definitions of Insurer and Insurer Enterprise Risk Model have been added.
- viii. References to "models" and "enterprise risk models" have been changed to "Insurer Enterprise Risk Models".
- ix. References to "insurers" have been changed to "Insurers".
- x. In Section 1.1, the following sentence has been added: "Members are reminded of their professional experience obligations under the Code".
- xi. A new Section 1.2, Classification, has been added and the subsequent sub-sections in Section 1 have been renumbered.
- xii. Added a new paragraph within Section 1.3 stating that the PG does not constitute legal advice.
- xiii. A new Section 1.4, Compliance, has been added to achieve consistency with PG 1 and PG 3.
- xiv. In Section 1.6, the term "Glossary" has been replaced with "Glossary of General Defined Terms Used in Practice Guidelines".
- xv. A new section 1.7, Application, has been added.
- xvi. In the first paragraph in Section 2.1, the word 'assignment' has been added to the first sentence ("...in relation to the subject of the **assignment** or work", and after this sentence the following sentence has been added: "Members should consider both the potential rewards and costs, when assessing risk and uncertainty".
- xvii. In Section 2.3.1 "valuation date" has been changed to "Evaluation Date", the date at which the Insurer Enterprise Risk Model is being considered or reviewed.
- xviii. The following defined terms have been added to the Glossary of Defined Terms Used in Practice Guidelines: Evaluation Date, Insurer and Insurer Enterprise Risk Model.