



SOCIETY OF ACTUARIES

Article from:

Risk Management

December 2008 – Issue 14

Opportunities for Actuaries in the Emerging Australian Carbon Market

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Editor's Note: This article originally appeared in the August 2008 issue of Actuary Australia. Permission to reprint has been granted by The Institute of Actuaries of Australia.

Accounting firms, law firms and investment banks are active in the development of carbon markets. These organizations have existing business-client relationships that create opportunities for the development of carbon risks management services. Actuaries, insurance companies and reinsurers also have opportunities to participate in the development of carbon markets through the provision of risk management services. However, few actuaries or actuarial service providers have ventured into this emerging market or have appointed business development managers. Therefore this article covers domestic and international developments, offers some reflections on potential opportunities for actuaries in the carbon markets and finally provides insights into the skills needed to develop a successful carbon market practice.



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Domestic Developments

It is anticipated that the Australian Emissions Trading System will be established by 2010, and is projected to trade AUD \$105 billion at a carbon price of AUD \$25 per tonne. In addition to Australian Emissions Permits (AEPs), it is also anticipated that international linkages will occur through:

- Kyoto Certified Emission Reduction units (CERs), produced by carbon projects that have been certified by the UNFCCC's Clean Development Mechanism (CDM) Executive Board; and
- Emission Reduction Units (ERUs) created through Joint Implementation (JI) projects,

which allow the transfer or acquisition of trading units between states engaged in emissions trading.

It is also anticipated that the Australian scheme may allow a regulated operator to use other types of offset projects to create carbon credits to comply with obligations under a cap and trade system.

International Developments

Major international developments include the EU phase II implementation of the emissions trading system, the development of the U.S. voluntary and compliance markets and post-2012 uncertainty for the CDM market. Both the EU phase II and developments in the U.S. market suggest continued commitments within major markets to address or to start to address climate change. However, China recently became the world's largest emitter of greenhouse gases (GHGs), which reinforces the need to rapidly bring China into a global or regional cap and trade system to limit the further expansion of GHG emissions.

Opportunities

The development of a domestic carbon market with internationally sourced CERs and ERUs creates opportunities for:

- The development of new risk management products for sale to accounting firms, superannuation funds and investment banks;
- A new asset class for insurance companies and superannuation funds that may provide additional opportunities for portfolio diversification;
- Provision of carbon portfolio managements services; and

- New consulting services for: estimation of carbon footprints; environmental auditing; and compliance.

The creation of risk management products centers on traditional commodities portfolio risk management tools, such as derivatives, and the development of novel products that address specific risks associated with carbon markets. Carbon risks may be classified under one of the following headings:

- Price risks arising from the over- or under-allocation of emission trading units, or as a result of supply or demand constraints in the market;
- Valuation risks arising from changes in methodologies used to value emission reduction units;
- Overcrediting risks resulting from over-estimation of the carbon reduction from a project;
- Impermanence risks arising from the estimated carbon reductions not being maintained, which is a common problem encountered in forestry offset projects;
- Mismatch risks arising from misestimation or mismatching of carbon credit requirements that may result in the organization's need to purchase additional offsets or permits in the market at spot;
- Regulatory (e.g., issuance of CERs) and political risks; and
- Taxation risks arising from ill-defined taxation treatments.

Product development opportunities exist to create products that provide risk mitigation of issuance, valuation, overcrediting and impermanence risks. Products that address these issues may be useful to superannuation funds seeking to minimize the risks associated with investing in CDM projects that create CERs, while obtaining portfolio diversification benefits from these investments. Regulatory risks associated with issuance of new CERs are complicated by potential moral hazard if the speculative nature of applications can be passed on to insurers.

The creation of a new asset class also provides additional opportunities for portfolio diversification for insurance and superannuation funds. However, work needs to be done to establish the role and potential value of investing in AEPs, ERUs and CERs. Actuaries are well placed to help superannuation funds establish financial valuation methodologies for medium- to long-term investments in these securities. Medium- to long-term investments in these assets are complicated by the significant regulatory risks associated with carbon markets and additional political risks associated with projects that create CERs. Organizations developing projects to create CERs have tended to focus on markets, especially China, where the political risks are perceived to be low.

Superannuation funds may also be able to construct portfolios with similar performance characteristics to portfolios of AEPs, ERUs and CERs by directly investing in clean technology funds and commodities markets. There is a strong linkage between regulatory risks and the likely performance of these asset classes. A recent example of the regulatory risks faced by clean technology is the adoption of means testing of government subsidies

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for solar electrification. Such changes can dramatically affect the demand and hence value of a particular segment.

As superannuation funds and insurance companies look to invest in AEPs, ERUs and CERs, opportunities will be created for actuarial services at different parts of the project pipeline. Actuarial consulting firms may be able to capitalize on client needs by developing and selling carbon portfolio management services to their client base. To illustrate the types of services needed, it is useful to examine the project development process for CERs (Figure 1). The types of projects that may be undertaken include: wind power, hydroelectricity, landfill gas, energy recovery, energy switching, tidal power and geothermal power.

Based on the project development process, potential carbon advisory services include:

- The assessment of client risk management needs;
- Carbon credit origination (creation of CERs);
- Provision of investment assessments;

- Project structuring and financing to create CERs, which may be done in conjunction with investment banks;
- AEP, ERU and CER portfolio management services;
- Back-office services for the issuance, tracking and management of certificates; and
- Carbon footprint, environmental auditing and compliance services that are related to risk management and mitigation.

Skills

The ideal carbon market actuary has technical skills in finance, environment and development, but also brings significant skills in working with clients to quantify the financial implications of carbon risks and risk management and mitigation measures. To provide clients with risk management solutions, actuaries will need to develop business relationships with originators and other service providers. This leads to a need for actuaries to move into exciting and challenging business development roles and away from traditional consulting work.

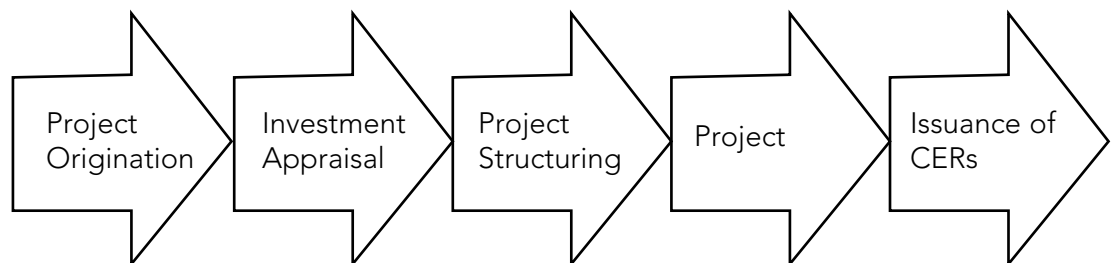


Figure 1. The Project Development Process for CERs

In this environment, networking, communication and sector knowledge are likely to be as important as knowledge of general risk assessment and management principles.

Conclusions

The actuarial profession has yet to grasp the challenge of developing business models and expanding business opportunities in the emerging carbon markets. However, opportunities still exist for actuaries to exploit established linkages with insurance companies and super-annuation funds and take a significant stake in the carbon markets. It therefore makes sense for actuarial firms and actuaries to be actively engaged in carbon-management services for their clients that have carbon-risk exposures. The alternative is that the major accounting firms and the accounting profession will capture this market. The best evidence for this is the active recruitment of personnel by accounting

firms in this sector and the active participation of accounting firms at major carbon expos. A possible “way in” for actuaries is to seek to join firms already moving into these areas, such as multi-function firms like KPMG, PwC and the like. A number of other professionals are either active or taking steps into these areas as well—carbon footprint auditing is already growing as an industry. Specialized emissions auditors are in place (the big accounting/consulting firms consult in that area). Actuaries are as well-placed as accountants to participate in the emerging carbon market, and the actuarial profession should consider ways to facilitate and encourage participation in this new market. ♦

“ Product development opportunities exist to create products that provide risk mitigation of issuance, valuation, overcrediting and impermanence risks. ”

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