

A Changing Climate in British Columbia

Evolving responsibilities for **APEGBC** and **APEGBC Registrants**

A changing climate in British Columbia means evolving responsibilities for APEGBC and APEGBC Registrants

APEGBC Position Paper (Published January 27, 2014)

Position

- A. APEGBC recognizes that the climate is changing and commits to raising awareness about the potential impacts of the changing climate as they relate to professional engineering and geoscience practice, and to provide information and assistance to APEGBC registrants in managing implications for their own professional practice.
- B. APEGBC registrants (professional engineers, professional geoscientists, provisional members, licensees, limited licensees, engineers-in-training and geoscientists-in-training) are expected to keep themselves informed about the changing climate, and consider potential impacts on their professional activities.

The changing climate in British Columbia

The climate in British Columbia is continuing to change, challenging many traditional assumptions of long-term climate stability. There are expected to be a range of impacts at the regional level, including changing precipitation patterns (such as intensity, duration and frequency), hotter summers (potentially leading to increased risk of drought and forest fire events) and warmer, wetter winters (potentially increasing flood risks).¹ Future characteristics of temperature, precipitation, the frequency of extreme events and sea level may be affected as the climate continues to change, and is likely to be markedly different from conditions in the recent past.²

Implications for APEGBC registrants

While analysis and consideration of widely available historical climate information will continue to be of value to APEGBC registrants, it is increasingly important for registrants to consider how the climate is changing and how it is expected to change in the future. It is also essential to appreciate that, as scientific knowledge evolves, so too will projections of future climate patterns. This presents challenges for APEGBC registrants in carrying out activities that must be resilient to a range of potential future climate patterns. These challenges include not only developing an informed understanding of the requirements to address the rare, extreme climatic events that may be important to the APEGBC registrants' work, but also appreciating how repeated climatic stresses over long periods of time can affect the viability of certain options.

¹ Rodenhuis, D, K.E. Bennett, A.T. Werner, T.Q. Murdock and D. Bronaugh, 2007 (Revised 2009): "Climate Overview 2007: Hydro-climatology and Future Climate Impacts in British Columbia". Pacific Climate Impacts Consortium, University of Victoria, Victoria, BC. 312pp.

² Pacific Climate Impacts Consortium "Plan2Adapt Tool for British Columbia": <http://www.pacificclimate.org/tools-and-data/plan2adapt>

Engineering and geoscience practice in British Columbia should be carried out with appreciation of the changing climate

APEGBC registrants are, by training, people who solve problems and make decisions in the face of uncertainty, and as such are well-positioned to respond to the changing climate. Using sound judgment, with respect to potential impacts of the changing climate, is likely to be especially important for APEGBC registrants whose work involves projects in the built environment, such as construction, transportation, and energy sectors (infrastructure).³ Many of these infrastructure projects have service lives of a half-century or more and may be expected to be subjected to a wide range of factors over their lifetime, including the changing climate. Where appropriate and reasonable, infrastructure projects undertaken by APEGBC registrants should include an assessment of the resiliency of the design to a range of potential future climate patterns.

APEGBC registrants are often required to provide information to decision makers on the pros and cons of various courses of action. APEGBC recognizes that there are gaps in the current knowledge, training, guidelines and other information available to APEGBC registrants on the topic of the changing climate. It is acknowledged that guidance is limited on how to source and use appropriate climatic data. Nonetheless, some APEGBC registrants are already being asked to consider the effects of the changing climate in their work, for example, through the professional practice guidelines on legislated flood assessments in BC.⁴ This is likely to continue and there will be a need to fill any gaps identified. By keeping APEGBC registrants informed about the potential impacts of the changing climate as guided by sound, peer-reviewed science, APEGBC is taking prudent steps toward assisting APEGBC registrants in maintaining their standards of practice.

Concluding remarks: responding to the changing climate

APEGBC recognizes that the climate in British Columbia is changing, and commits to raising awareness within APEGBC and externally about the needs of APEGBC registrants and the potential implications for APEGBC Registrants. For example, the needs of registrants may include improved access to historical climatic information and projections of the changing climate with suitable temporal and spatial resolution. In consultation with APEGBC registrants, government and subject matter experts, updates may be made to existing codes, guidelines and standards, and new guidelines may be developed where a need is identified. The implication for APEGBC registrants is that they will need to study new or revised guidance material, and apply it where appropriate in their professional practice.

Professional development opportunities will also be made available by APEGBC to fill gaps in the material currently available. APEGBC committees and staff will continue to explore how the impacts of the changing climate may influence (and potentially be better addressed by) APEGBC and APEGBC Registrants. Any resources that may be required each year for the purpose of raising awareness and providing assistance to APEGBC registrants will be considered as part of the annual budget development process.

In the course of their professional practice, APEGBC Registrants have a responsibility to stay informed about the changing climate and its influence on their practice.

³ PIEVC (Public Infrastructure Engineering Vulnerability Committee): http://www.pievc.ca/e/index_.cfm

⁴ APEGBC, 2012. "Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC". <https://www.apeg.bc.ca/getmedia/18e44281-fb4b-410a-96e9-cb3ea74683c3/APEGBC-Legislated-Flood-Assessments.pdf.aspx>

This is especially important where there is the potential for future effects of the changing climate (or related weather conditions) to affect public safety. APEGBC is aware that the changing climate is likely to result in new challenges and risks that may affect APEGBC registrants' work through changing demands from their employers or clients and new regulations and standards. APEGBC registrants are uniquely positioned to manage uncertainty in complex projects, and they will play a pivotal role in guiding and advising decision makers on how to respond to the changing climate.