

Human-induced Climate Change

APEGBC's Position on Human-Induced Climate Change

Final Council-approved version

Version date: September 08, 2016

Position

- A. APEGBC accepts that there is strong evidence that human activities, in particular activities that emit greenhouse gases, are contributing to global climate change.
- B. APEGBC Registrants¹ have the potential to influence greenhouse gas emissions through their professional activities, and are expected to consider the impact of their work on the climate.

Greenhouse gas emissions are changing the climate

Scientific evidence shows a global warming trend that has accelerated over the past 100 years. Further, multiple lines of evidence show that emissions of greenhouse gases—in particular carbon dioxide and methane—from human activities are the primary driver of this trend (IPCC 2014). Data from the US National Oceanographic and Atmospheric Administration show that nine of the ten warmest years on record have occurred since the year 2000 (NOAA 2015). Projections based on global climate models indicate that global temperatures will continue to rise (IPCC 2014). Climate scientists have confidence in the ability of these models to produce credible, quantitative projections of the future climate, because they are based on fundamental physical principles and have consistently been shown to reproduce observed features of the current climate and past climate changes.

The scientific community has determined that in order to stabilize the climate, greenhouse gas emissions must be reduced by 40%–70% from current levels by mid-century (IPCC 2014). The Province of British Columbia has legislated targets of 33% reductions by 2020 and 80% reductions by 2050 from a 2007 baseline (Province of BC 2007). The BC Government continues to develop and refine climate change legislation and policies in consultation with a broad range of stakeholders, including local governments, professional associations such as APEGBC, and the general public. Significantly, the December 2015 Paris Climate Conference achieved a global framework agreement on climate action, with more than 190 countries recognizing that climate change represents an urgent and potentially irreversible threat to human societies and the planet, and that deep reductions in global greenhouse gas emissions will be required.

As outlined in APEGBC's first position paper on climate change (APEGBC 2014), a range of regional climate impacts are predicted in British Columbia, including changes in precipitation patterns—particularly the intensity, duration and frequency of precipitation events—and warmer summer and winter temperatures. Increased risks are expected as a result of these changes, including risks related to flooding, forest fires, air-pollution events, and supply of fresh water. Adaptation measures will be required to increase infrastructure resilience and to

¹ For the purposes of this paper, the term “APEGBC Registrants” includes: professional engineers, professional geoscientists, provisional members, licensees, limited licensees, engineers-in-training, and geoscientists-in-training.

protect the public from climate change. APEGBC's first position paper describes the evolving role for APEGBC Registrants related to adapting infrastructure to a range of potential future climate patterns. Adaptation should also be combined with actions that mitigate human-induced climate change.

Engineers and geoscientists can contribute to mitigating human-induced climate change through their professional activities

At its core, climate change mitigation includes actions to reduce the quantity of greenhouse gas emissions released into the atmosphere, in particular carbon dioxide from the combustion of fossil fuels. Mitigation will require moving toward a low-carbon economy and replacing fossil fuels with renewable energy, where possible. Mitigation can also refer to sequestering carbon dioxide from the atmosphere, or finding ways to store carbon dioxide (or other greenhouse gases) that would otherwise be released.

The work of engineers and geoscientists can positively influence how energy and resources are produced and used in their projects, thus helping to reduce greenhouse gas emissions. APEGBC Registrants work in a wide variety of different roles—as employees, employers, researchers, academics, consultants, and in regulatory and managerial positions—and they often work on teams with other specialists. Although engineers and geoscientists may not be the implementers of strategic decisions that influence energy use and greenhouse gas emissions for the projects they work on, they are encouraged to consider how the impact of climate change may be relevant in their engineering and geoscience analysis and in the recommendations that they provide to their clients on engineering and geoscience issues. These expectations are highlighted in the APEGBC Code of Ethics and the *APEGBC Professional Practice Guidelines – Sustainability* (V1.1, revised 2016). In many cases, the strong links between renewable energy, energy efficiency, and greenhouse gas emissions reduction mean that there is a potential business case for solutions with lower associated climate impacts, especially when the full project life costs and benefits are accounted for.

As government, industry and public awareness of climate change increases, APEGBC Registrants will be increasingly expected to assess the potential climate impacts of projects that they are working on, and likely will be expected to offer alternatives that could reduce project greenhouse gas emissions. In fact, many engineers and geoscientists are already influenced by Provincial regulations and guidelines related to climate change adaptation and greenhouse gas emissions mitigation (BC Ministry of Environment 2015).

Expectations and Resources for APEGBC Registrants

Professional activities of APEGBC members are, in many cases, constrained by the requirements of their clients, as well as by the existing codes, standards, legislation, and regulations that govern their areas of work. Engineers and geoscientists would not be expected to take on responsibilities or liability where they would not be reasonably expected to have the appropriate knowledge or expertise to advise clients on climate change-related matters. The association and its standing committees will continue to contribute to the development of new and existing regulatory tools, as well as to provide guidance for its members and to advocate for the professions.

The *APEGBC Professional Practice Guidelines – Sustainability* may serve as a valuable reference for APEGBC Registrants. The guidelines provide a high-level process to follow that can assist APEGBC Registrants in fulfilling their responsibilities related to society and

the environment, and deliver more sustainable solutions. APEGBC is developing and enhancing all of its professional practice guidelines to ensure they accurately reflect the standard of care that is expected of APEGBC professionals related to climate change. APEGBC helps its registrants maintain current knowledge on the topic of climate change and its implications by linking to relevant resources and tools on the Climate Change Information Portal on the APEGBC website. The portal is updated as climate change-related content is developed. Initially, the content focuses on climate change adaptation issues, with content related to mitigation to be added as it becomes available.

Concluding Remarks

APEGBC accepts that the best-available scientific evidence indicates that global climate is changing at an unprecedented rate and that emissions of carbon dioxide and other greenhouse gases from human activities are leading contributors to this change. APEGBC also recognizes that recently recorded climate change is associated with increased frequency of extreme weather events and other significant impacts that are predicted to accelerate over time.

Going forward, mitigation of human-induced climate change will be important. Engineers and geoscientists have roles and responsibilities in helping guide society to adapt to these changes and to reduce greenhouse gas emissions in order to mitigate climate change. APEGBC will provide guidance for its members on practising in a changing climate through the provision of professional practice guidelines that relate to climate change mitigation and adaptation. Accelerated climate change presents new and evolving challenges, opportunities, and risks that will need to be considered by APEGBC Registrants in the fulfillment of their professional responsibilities.

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