

## SMRs and a Nuclear Technology Roadmap for Canada

Robert S. Walker, PhD, FCAE

### Abstract

The COP21 commitment to decarbonize the world's economies presents an unprecedented opportunity for nuclear power to be a core element of the global response - a trusted source of clean, reliable, affordable, safe energy in a larger strategy that includes renewables and energy conservation. Canada, as a top tier nuclear nation, has the opportunity to take a leadership role in demonstrating the practical implementation of such a strategy.

However, this opportunity for nuclear power is not status quo for the nuclear sector here in Canada and around the world. There are many challenges – technological, economic, regulatory and social - facing the sector. A failure to address these challenges over the near- to medium-term is likely to lead to a diminishing role for nuclear power in the decades ahead.

Building consensus here in Canada on the way ahead for Canada's nuclear sector as a contributor to the nation's COP21 commitments carries some urgency. A necessary element of this consensus should be a medium- to long-term nuclear technology roadmap for Canada, one that looks forward 25 to 50 years. This roadmap should chart the course for public- private partnerships in domestic nuclear technology development, demonstration and deployment that will contribute significantly to COP21 targets, be competitive in global markets and strengthen public trust.

This paper presents options for a nuclear technology roadmap for Canada. It argues that SMR technology has the potential to be a core element of the roadmap given Canada's nuclear technology history and specific domestic energy needs.