



From the Editor / L. Ian MacDonald

Sustainable Energy

Welcome to our second annual full issue on sustainable energy. Clean energy is not an oxymoron. As Jim Prentice, a former federal minister at both Industry and Environment, writes in this issue: "If you are in the energy business today, you are in the environment business. They are two sides of the same coin."

There's no doubt that Canada has an abundance of resources—with proven oil reserves of more than 170 billion barrels, and perhaps twice that in potential yield, and some 1,300 trillion cubic feet of natural gas, a 200-year supply. We also have a huge market in the United States, to whom Canada supplies 27 per cent of their oil imports, 85 per cent of their gas imports, and 100 per cent of their electricity imports. A single Canadian pipeline company, Enbridge, ships more oil to the US than does Saudi Arabia. But the US also accounts for more than 99 per cent of our energy exports, and there is general agreement on the need to diversify markets for Canada's resources, while developing them in a sustainable manner.

To begin, David McLaughlin considers the alignment between Canada and the United States on meeting the Copenhagen target of reducing GHG emissions to 17 per cent below 2005 levels by 2020. While the targets are voluntary, Canada now seems unlikely to meet them, writes McLaughlin, former president of the National Round Table on the Environment and the Economy (NTREE), which was phased out by the Harper government in 2012.

Then, Clare Demerse and Dan Woy-nillowicz of Clean Energy Canada make a compelling case that clean energy could become the next oil sands—a leading sector of the Cana-

dian energy space. They note that the International Energy Agency predicts climate change will "require mobilizing US\$36 trillion in clean energy investments by 2050," providing a huge export opportunity for Canada in both goods and services.

Canadian Nuclear Association President John Barrett argues for the importance of maintaining public research facilities such as the National Research Council's facility at Chalk River, Ontario. "Even the largest companies will not build research reactors for their own use," he writes, "but they will use them if they exist."

Wondering about the future of transport? Bob Fesmire writes that it's in electricity, and already here in segments such as electric vehicles (EVs), and the electric-powered shipping industry, notably cruise ships. "There's a quiet revolution going on in transportation," writes Fesmire, co-author of *Energy Explained*, a non-technical introduction to the energy industry.

Natural Resources Minister Greg Rickford shares the Conservative government's agenda for responsible development of Canada's abundant resources. Priorities include accessing new markets, enhancing safety and environmental regulation, forging strong relationships with aboriginal peoples and investing in innovation. As he also notes: "Canada has developed one of the world's cleanest electricity systems, with over 75 per cent of our supplies coming from emission-free sources: hydropower, nuclear and non-hydro renewable energy."

NDP Leader Tom Mulcair offers a reply from the Official Opposition on the imperatives of clean energy. Quite simply, he writes, "It's time to start enforcing basic rules of sustainable development, like polluter-pay." In this way, he argues, environmental

clean-up costs would not be passed on to the next generation.

Genome Canada President Pierre Meulien writes of the role of genomics, "reading the DNA embedded in an organism," in helping Canada's energy patch achieve greener production and extraction of hydrocarbon energy. "The sector's sustainability issues need to be addressed on an urgent basis," he concludes, and energy companies and government policy makers need to work together to make it happen.

Contributing Writer Dan Gagnier, chair of the International Institute of Sustainable Development, sums up the legacy of the Energy Policy Institute of Canada (EPIC), of which he was president, and which brought together leading stakeholders from the energy sector with federal, provincial and territorial governments. While EPIC wound up its work at the end of July, some of its initiatives remain worthy works in progress, while the issues of global warming and climate change are more urgent than ever.

Scott Thurlow, president of the Canadian Renewable Fuels Association makes the case for biofuel as the cleanest source of fuel available. "The priority we place on sustainability and innovation," he writes, "will ultimately determine our long term prosperity."

Finally, from the Canadian Oil Sands Innovation Alliance, which represents 13 oil sands producers, its president Dan Wicklum writes of the unprecedented sharing of research to improve environmental performance in the oil sands. Much of this innovative technology can also be exported. **P**