The International Renewable Energy Agency (IRENA), is an organization created in 2009 with a stated goal to “Double the share of renewables in the “Decade of Action” to achieve energy transition objectives”. IRENA is made up of 138 member countries in addition to organizations such as Geothermal Canada who have “observer” status. This year the 10th session of the IRENA Assembly was held in Abu Dhabi where the secretariat is located.

IRENA has projects to support its mandate in various countries and recently published a report written by the Global Commission on Geopolitics (GCG) titled “A New World: The Geopolitics of the Energy Transformation”. The document considers many questions pertinent to Canada as the energy transformation unfolds, such as how will large hydrocarbon companies write off assets and when will peak demand for hydrocarbons come? Although Canada is not named directly in the text, the predictions and potential impacts for similar economies are worth reading.

The GCG was chaired by the former President of Iceland, Ólafur Ragnar Grímsson. The conclusions of the report state that the “global energy transformation driven by renewables will have significant geopolitical implications. It will reshape relations between states and lead to fundamental structural changes in economies and society.” In a short address to the Global Geothermal Alliance (GGA, a part of IRENA), Grímsson stated “Now is the time to enhance the engagement of the GGA. I say this because I’m convinced that the key energy challenge of the 21st century is how we heat and cool cities.”

These words are truer for Canada than almost any other country in the world. As those of us who live here know, Canada’s location in the northernmost part of the globe means that more than 60% of our energy expenditure is used for space heating. In some jurisdictions across Canada, heat energy is supplied by natural gas and, in others, by coal-powered electricity. In these jurisdictions there are important greenhouse gas emission (GHG) savings to be had by transitioning to a renewal energy source.

While the world is looking to reduce GHG emissions, Canada’s prairie provinces are facing an economic crisis as access to markets and global conditions in the hydrocarbon industry change. These two factors mean the geopolitics of the transformation will have a profound impact on Canada. As energy becomes more decentralized and diffused, countries like ours need to look to other alternatives to reduce our GHG emissions. There is no better fit for Canada than an energy alternative that builds on our previously developed prowess in drilling and fluid extraction from the deep subsurface. This is the moment to support these industries in the
transformational changes that are occurring globally.

On January 10th, I attended session A2 – The Legislators Forum. This forum was focused on “engaging communities in the energy transformation – adoption of national policies”. IRENA has engaged the Interparliamentary Union (IU), an organization with 179 countries represented and 130 years of history, to move the renewable agenda forward. Many countries spoke during the session, but most echoed the same message “how to get governments moving faster to reach climate reduction goals”. One of the representatives from the IU made the comment that there is a lot of lip service being paid to climate change initiatives including renewables, but action is lagging significantly behind words. She made the statement “there is no love without money”. The message from speakers at the session was that governments continue to pay lip service to the transformation but are not putting money behind their words.

There was also discussion in this session about gender bias and it was noted that women are underrepresented in the sector. The representative from Mexico made the statement “train a woman, train a nation”. In the evening there was a special dinner for “Women in Energy” that I was invited to attend. The dialogue continued during the dinner hosted by the UAE as to how to attract and support women in the field of energy and STEM-related jobs.

In the context of the January 10th afternoon session on “Geopolitics of the Energy Transformation”, it was pointed out that COP25 (Conference of the Parties, UN Climate Change Conference) was not very successful and in fact appeared to be a setback for renewables. Contradicting interests, big corporations, and other impediments were mentioned as hurdles preventing governments from moving forward rapidly in the transition from a hydrocarbon-based economy. COP26 will be jointly hosted by the United Kingdom and Italy and the representative from the UK stated, “we need to increase our ambitions many fold.” It was during this session that the “A New World” report was officially released.

The final session I attended on January 10th was “Enhancing dialogue among countries with high shares of renewables in their energy systems”. It was during this session that the expansion plans of China and India in coal-generated power production were discussed. The main discussion was the implication of these plans on the global carbon budget. A call to support China and India in choosing other options was made. There was also some discussion on hydrogen and it was pointed out that it is not a global solution. As hydrogen requires power to be produced, making it in grids dominated by non-renewables would be deleterious to the overall goals of GHG emissions reduction. Engineering matters related to containment and delivery were also mentioned as constraints on its widespread adoption. For Canada, where many of our grids are dominated by renewable hydro power, it may be a viable alternative for the transportation sector.

Lithium and other minerals required for batteries (a necessary part of the energy transformation) were discussed. As a mining nation, Canada stands to gain in this sector by supporting home grown extraction in addition to research and innovation in the purification of materials. One of the items that came up was the possibility of countries in the so called “Lithium triangle” of South America (Chile, Argentina and Bolivia) forming a commodity cartel.

The formal IRENA assembly of nations was held on January 11th. Canada’s comments were delivered by Ambassador Grossman who stated, on behalf of Minster O’Regan, Canada’s commitment to the energy transformation and included geothermal as part of that
In addition to Canada, several other countries including Greece and Jordan mentioned geothermal as part of their renewable portfolios. It was also mentioned that the Netherlands has significant funds to finance renewable projects in emerging nations. Although not mentioned directly at the conference, the Netherlands came out in strong support for geothermal energy as part of their energy transformation in 2019. They released a geothermal roadmap “Masterplan for Geothermal Energy in the Netherlands” subtitled “A broad foundation for sustainable heat supply”, outlining their monetary, regulatory and technical commitments.

A second document pertinent to geothermal development and released in 2019 was from the European Technology and Innovation Platform who have had a working group on geothermal for several years. Their roadmap, published as “European Technology and Innovation Platform for Deep Geothermal”, is full of ideas for technological advancement, innovative solutions to various problems, as well as how to progress from research and innovation to deployment and development. As with the study from the Netherlands, there are many lessons Canada can take from these documents.

The final day of deliberations (January 12th) included a session organized by the Global Geothermal Alliance, entitled “Enabling frameworks for accelerated development.” It was during this session that Former President Grimsson stressed the importance of geothermal energy in making a difference in the energy transformation, especially in the direct-use sector for space heating. For the session, the GGA posed three questions:

1. What are the key challenges that need to be addressed to have geothermal energy play a more prominent role in the global energy transformation?
2. How is your country/region addressing the need to decarbonize the heating and cooling sector in cities, including through geothermal energy? What are the key challenges and success stories?
3. How can members and partners of the Global Geothermal Alliance further support the accelerated deployment of geothermal energy worldwide?

I was able to deliver the following response on behalf of Minister O’Regan:

**De-Risking Projects**

- De-risking investment is a key way to accelerate the deployment of geothermal energy for power production and governments have a role to play in this area.
- The Government of Canada has launched a suite of national programs to support the transition to a low-carbon economy.
- As part of those efforts, the Emerging Renewable Power Program will provide up to $200 million to support the deployment of renewable energy technologies that are commercially available but have yet to be deployed in Canada.
  - First-of-kind renewable projects face higher risks, costs and more regulatory issues than projects using established renewable energy sources.
  - This program mitigates project risks through government funding, allowing Canada to diversify its electricity generation mix.
- Two geothermal projects were selected as part of this program, with the Government providing over $50 million in support.
When completed, these projects will represent the first utility-scale projects using geothermal energy for power production in Canada.

Supporting innovation

Supporting innovation is also key to accelerate the development and deployment of geothermal energy technologies. This is why the Government of Canada is providing $7 million in funding to Eavor Technologies for the development of an innovative prototype for a closed-loop geothermal system.

In addition to presenting the words of the Minister, I was also able to underscore Ólafur Grímsson’s call for action as to the importance utilizing geothermal energy for space heating. During the session, Saudi Arabia directly asked about developing geothermal resources in the context of their active oil and gas fields. I was able to provide a brief description of the work being done in Canada through the Deep Earth Energy Corp. and the Alberta No. 1 projects as well as meet with three representatives of their energy ministry. They seemed very interested in establishing a relationship with details to be worked out later.

The IRENA conference was part of a UAE government sponsored week of activities under the banner “Sustainability Week”. In addition to the IRENA conference, various events took place over the week including an extensive trade show. That event showcased sustainability products, management strategies and service companies. There was sector representation ranging from recycling of waste, water management, solar and wind developers, desalination, carbon sequestration, smart grids, electric vehicles (including electrified municipal utility vehicles such as street sweepers), and a host of other products related to enhanced sustainability and livability. I felt that Canadian companies and innovative technologies were underrepresented in terms of the role Canada could or does play in these various sectors. There was no representation (other than myself and those who had attended the IRENA sessions) from the geothermal or geothermal sectors, but Canadian consular staff were helpful in connecting me to research and education institutions that are potentially interested in including deep geothermal energy in their renewable energy research portfolios or education curriculum.

Canada can make a difference both globally and domestically in the energy transformation currently underway and highlighted at the IRENA Assembly. By continuing to support projects and by enhancement of its support for research, development and innovation, empowering the existing expertise within the geothermal and oil and gas industry, the Canadian Government can show leadership in the global transformation and achieving the goals of IRENA.

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January 15, 2020