Distributed energy systems canada

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Today, the electricity sector represents $30 billion worth of Canada"s GDP. Electricity is the engine for every other sector of the economy--Canada"s economy and all the infrastructure that supports it would not be able to operate without this reliable supply of power.

Electricity also underpins our pivot to a cleaner future. Electrification, coupled with decarbonization of the electricity system, is already taking place. Since 2005, the electricity sector has reduced its greenhouse gas (GHG) emissions and it continues to do so today. Presently, the electricity sector is over 80% GHG free.

However, there are differences in alignment depending on the region in question and which resources are available to it. Some regions of Canada have a great deal of hydropower - others don"t. So, over the short-to-medium term, there are diverging views on the sector"s future among the different regions.

Over the long-term, however, there are fewer divisions and even those will most likely disappear. Fortunately, when we are thinking long-term to an electrified and decarbonized future, everybody is on the same page. The speed with which we can get there depends on the resources present in different regions; there are different views in terms of approach from one region to the next, but everybody agrees on the destination. We are definitely moving towards a future that will see significant reductions in GHG emissions across the entire economy through massive electrification.

Over the long-term, we are heading towards a future that will be decarbonized, and if electricity plays a central role in that decarbonisation, the demand for kilowatts will greatly increase. So, the future will require significant distributed energy resources. We will need significant grid-connected resources and just about everything that we can get from independent power producers. Looking at the report that CEA produced to achieve deep decarbonization in Canada, the prediction is that the demand for electricity will have to double by 2050 for us to move closer to our GHG targets.

Often when people think of the Canadian electricity system, the first thing that comes to mind is hydroelectricity because it"s been historically foundational to the Canadian economy. But there are new technologies that are allowing us to harness other resources, such as tidal power, which presents a huge opportunity for Canada.

The push to electrify the country is providing inspiring examples of creative solutions to deploy infrastructure and systems in remote communities--such as distributed hybrid systems.These are systems made up of a patchwork of both large power plants and microgrids powered by distributed energy resources, such as solar and wind power, to update and improve our centralized legacy systems. Decentralized energy systems like these could be capable of delivering efficient, reliable and renewable energy.

Canada has many strengths. For example, several industry-backed initiatives are broadening opportunities for carbon capture and storage facilities. One has been developed by SaskPower in Estevan, Saskatchewan. Since its establishment, the facility has attracted energy experts from all over the world. Five years from now, we might see the same ground-breaking leadership in tidal power--another of Canada"s strengths.

"The regulation regime under which the electricity sector operates doesn"t encourage innovation, and this makes it difficult to move forward on the construction of Canada"s future electricity grid, systems and infrastructure."

One of Canada"s other strengths that increases our competitiveness is our prowess in terms of high voltage electricity transmission. This is a function of the geography of our country and is vital to our economy. Canada"s low electricity prices also attract specific types of industries--such as data operations and server farms--to set up shop here. Combined with our environmental profile, which offers cooler temperatures during the winter, low electricity prices make Canada attractive for these types of industries.

What are the most important policy and regulatory matters the federal and provincial governments must address to increase our innovation and competitiveness in the North American and global power sector?

The entire sector is struggling with this. We are studying successful use cases in Australia, the United States and the United Kingdom. Some jurisdictions have struck upon a policy model that enables streamlined innovation and implementation.

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