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Canada Must Tackle Consumer Emissions; Hydrogen, CCUS And LNG Are All Climate Wins

Reducing emissions in the upstream oil and gas sector matters, says Adam Waterous, managing partner and chief executive officer of **Waterous Energy Fund**, but it is also important to remember that only 15 per cent of greenhouse-gas (GHG) emissions are actually emitted on the production side.

The remaining 85 per cent of GHGs emitted comes from consumption, he told his week's Energy Roundtable virtual event, and so an environmentally-contentious Canada should first become a leader in terms of reducing its energy consumption.

"One of the key things, once you start focusing on reducing consumption, is you start focusing on transportation," he said, adding that Toronto leads the developed world in traffic congestion. Tackling that issue across Canada and in its "flagship city" would go a long way to improving the country's emissions profile.

"We need to really lean in on that. What's great is there is some great work being done on mass transit, and big investments being made in mass transit, and I think we can really turn the impact of the personal vehicle around."

In terms of reducing GHGs related to energy production, Waterous highlighted hydrogen and carbon capture, utilization and storage (CCUS) technologies the industry is pursuing, as well as the development of solvents to help replace the need for steam in SAGD. "There are all kinds of ways that you'll see over the next five, 10 or 15 years to have the emissions per barrel reduced in the Canadian oil and gas industry. That's kind of the first thing we have a moral obligation to do."

Hydrogen, CCUS benefits

In terms of hydrogen and CCUS, the former has two important characteristics that make it a promising energy carrier in the energy transition, according to Waqar Syed, managing director, energy technology and services, and head of U.S. institutional research,

ATB Capital Markets Inc.

First, in terms of energy storage, it acts similar to gas and oil in that it actually can be stored for extended periods of time to be used whenever it is needed, making hydrogen dissimilar to electricity, he told Wednesday's virtual event. However, what makes it similar to electricity, he said, is that it does not emit carbon emissions when converted into energy, unlike hydrocarbons. This is why many countries recognize hydrogen as key to achieving net-zero.

"Canada has a goal of increasing demand for hydrogen to about six per cent of the energy mix by 2030, rising to about 30 per cent of the energy mix by 2050. The European Union wants to have hydrogen be about 13 to 14 per cent of the energy mix by 2050 from under two per cent right now. These are very aggressive targets, and we may or may not reach those targets, but directionally this will be a high-growth industry."

Alberta has a competitive advantage when it comes to hydrogen, noted Syed, as the province can produce some of the lowest-cost hydrogen in the world thanks to its low-cost natural gas. In terms of producing 'blue' hydrogen, which involves removal and storage of the carbon dioxide from natural gas, Alberta has access to transportation networks necessary to move that CO₂, and it has access to the proper storage facilities as well, he said.

"Infrastructure-wise, Alberta is advantaged as well on the hydrogen scheme, and then it has all the manpower and technical expertise you need for handling gas, moving gas and storing gas," he noted. "That all exists in Alberta, and the governments seem to be committed as well. There's no surprise that a number of companies have recently decided to invest in hydrogen production."

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He added: “This is a high-growth industry. Alberta is well positioned to participate in that. The government of Alberta and the government of Canada have very aggressive targets to grow supply and demand for hydrogen.”

Alberta also can benefit from the need for CCUS by various energy-intensive industries, according to Syed. “You can see significant investments in carbon capture, in transportation, and you have a number of Canadian companies that have the infrastructure to move [CO₂], companies can provide the compression equipment, companies have the carbon capture solutions, in the private as well as the public arena, and then obviously on the storage side as well.”

The need for LNG

In terms of helping reduce GHGs worldwide, Waterous said exporting Canadian-produced liquefied natural gas (LNG) to the rest of the world is very important.

“The biggest single [GHG] problem in the world is the coal-fired electricity grid in the developing world, which is obviously in China. The great thing is that both Europe and the United States have proven that replacing the coal-fired electricity grid with natural gas is a fantastic way of reducing emissions.

“And so, we have a big, fat target — which is an Asian coal-fired electricity grid — to focus on,” he said, adding the most impactful thing Canada could do to combat global climate change would be to ship its LNG to Asia. “If you look at the lowest-GHG LNG shipped to China, it’s by Canadian LNG.”