Alberta EOR & CCUS- timely energy transition and ESG solutions

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With the announcement of the Federal climate plan last week, companies in Canada are intensifying reviews of decarbonization initiatives.

While the climate plan focuses on the transition away from hydrocarbons in the next twenty to thirty years, the reality is an energy transition will take more than just two or three decades.

In fact, the architects of the Federal climate plan seem to fall into the same trap as the UN Paris accord proponents and other environmental groups. That trap is the perception that an energy transition can be affected in several years instead of many decades. This a seriously flawed misconception of the complex nature of the world's use of energy according to Vaclav Smil, scientist and Professor Emeritus at the University of Manitoba and a Fellow of the Royal Society of Canada. Smil has written 40 books of research in the fields of energy, environmental and population change, food production and nutrition, technical innovation, risk assessment, and public policy and is recognized as perhaps the world's foremost thinker on the topic of energy of all kinds. In his book, "Energy Transitions", Smil states,

"Because of the requisite technical and infrastructural imperatives, and because of numerous and often entirely unforeseen social and economic implications (limits, feedbacks, adjustments), energy transitions taking place in large economies and on the global scale are inherently protracted affairs. Usually, they take decades to accomplish. "

In the course of his book, it becomes apparent Smil is not talking about two or three decades for a transition off fossil fuels. He decries studies that have a flawed, narrow focus on the introduction of a new primary energy source and its rise to assume a sizeable share of the market. He points out those studies often don't take into account important factors favouring energies that are more flexible, portable, efficient, or convenient (read here -affordable). He also notes that we live in complex, high energy societies with intricate, multi-layered dependencies on our prime energy source- fossil fuels-which again, points to a lengthy transition process.

"The greater the degree of reliance on a particular energy source or prime mover, the more widespread the prevailing uses and conversions, the longer their substitutions will take. This conclusion may seem obvious, but it is commonly ignored."

In light of the persistent nature of fossil fuels as a prime mover or energy source, initiatives like carbon capture, utilization, and sequestration (CCUS) attract more interest as options to reduce

carbon emissions globally. It has certainly attracted the interest of the IEA. In their September 2020 report– “CCUS in Clean Energy Transition”, the IEA reports CCUS will need to form a key pillar of efforts to put the world on the path to net-zero emissions. The report characterizes CCUS as “ the only group of technologies that contributes both to reducing emissions in key sectors directly and to removing CO2 to balance emissions that are challenging to avoid – a critical part of “net” zero goals.”

Calgary-based MP Greg McLean, Shadow Minister for Natural Resources & Canadian Northern Economic Development sees CCUS as a critical tool for reducing the industrial GHG emissions that are produced by many diverse industries. He has introduced Bill C-262 in Ottawa to provide tax incentives to industry to invest in CCUS technology. He suggests similar tax incentives already existing in the US reduce the competitiveness of Canadian industry, saying,

“The US Tax Code currently offers this type of tax credit which has led Canada to be uncompetitive and to lose out on potential investments in the CCUS field. Bill C-262 helps to level the playing field and makes Canada more competitive with our largest trading partner for the development of greenhouse gas mitigation technologies, motivating Canadian businesses to sequester carbon “

Canadian companies are already implementing CCUS technologies but one project, the Alberta Carbon Trunk Line (ACTL) system has emerged as the world’s newest integrated, large-scale CCUS system. As the world’s largest capacity pipeline for CO_2 from human activity, the ACTL is capable of transporting up to 14.6 million tonnes of CO_2 per year, representing approximately 20% of all current oil sands emissions or equal to the impact of capturing the CO_2 from more than 2.6 million cars. Wolf Midstream owns and operates the CO2 compression and pipeline transportation assets, while Enhance Energy Inc. is the owner and operator of the CO2 utilization and storage portion of the ACTL project through its enhanced oil recovery (EOR) operations.

Although the industry in Alberta is still in the early implementation stages of CCUS, Jeff Pearson, President of the Wolf Carbon Business Unit at Wolf Midstream sees CCUS as becoming increasingly important for Alberta companies in light of the recent announcement of the Federal government’s climate plan.

“CCUS is a recognized program within the clean fuel standard (CFS). It will provide opportunities for large emitters to essentially create credits under the CFS. It should drive some of the large emitters to look at CCUS as a viable commercial strategy upon implementation. The ACTL allows emitters to connect with end-users. We think enhanced oil recovery is today the most attractive use of CO2.”

Pearson sees value for small emitters as well.

“The reality is that as companies start capturing the CO2 from their emissions and reduce their emissions footprint, there are meaningful ESG reporting benefits. Whitecap is an example. They

have a large CCUS project in Weyburn Saskatchewan. In terms of getting to Net Zero, I think they are quite successful."

Whitecap Resources is a great CCUS/EOR success story. A counter on their website reports updates on the impressive amount of CO2 sequestered this year. When last checked, it was at 1,900,006,683 tonnes. In their 2020 ESG Report, Grant Fagerheim, President and CEO states that Whitecap sequesters more CO2 than they emit as a company and is targeting even further reductions in direct emissions. He affirms their commitment "to be among the most sustainable companies in the industry".

In closing, Jeff Pearson shared his thoughts on ACTL's growing role in Alberta,

"From an expansion perspective, we believe that the ACTL will form the initial backbone of a larger network that connects emitters to end-use and long-term CO2 storage. This will involve growing north from the Heartland area to the Oilsands which emit a large amount of our provincial emissions and also connecting new oil reservoirs for enhanced oil recovery. One thing we'd also like to help foster is the growth of new utilization applications in Alberta. COSIA's Carbon XPRISE is doing a great job of it and we think it's important to find more examples like that."

Maureen McCall is an energy professional who writes on issues affecting the energy industry.