

Nova Scotia's net-zero future

(Commentary: AllNovaScotia.com 16 November 2021)

Larry Hughes

The news from COP26, the global climate summit being held in Glasgow, is showing the vast gulf between political climate rhetoric and the need for immediate climate action.

Nova Scotia is not immune to this.

One of the principles of Environment and Climate Change Minister Tim Halman's Bill 57, *Environmental Goals and Climate Change Reduction Act*, is that "climate change is recognized as a global emergency requiring urgent action".

How urgent?

Apparently so urgent that the minister ignored all but two of the proposed amendments submitted to the Law Amendments Committee. Later that week, after a quick third reading, the Bill received Royal Assent.

When questioned about the Bill's shortcomings, the minister responded, "We will be having some very, very big conversations in the months and years ahead".

The problem is, we do not have years when it comes to ensuring a net-zero emissions future.

Bill 57's net-zero target, "by 2050, to be net zero, by balancing greenhouse gas emissions with greenhouse gas removals and other offsetting measures", is generic and suggests a lack of understanding of the challenges associated with reaching and maintaining net-zero emissions.

The Bill's three references to net zero only deal with new, retrofitted, and leased Government buildings, requiring them to have "net-zero energy performance", without explaining what "net-zero energy performance" means.

The concept of net zero is straightforward; a jurisdiction's *total* emissions are the sum of its emissions *sources* and any emissions *sinks* it may claim.

If the total emissions are zero (sources equal sinks), the jurisdiction has reached net-zero emissions. If the total is less than zero, the jurisdiction has achieved net-negative emissions and could sell its negative emissions as credits. However, if the total is greater than zero (sources exceed sinks), the jurisdiction will need to reduce its emissions in another way, such as purchasing negative-emissions credits.

If the province's 2030 target of reducing its emissions sources to at least 53% below the levels in 2005 is met, emissions will be about 11 megatonnes, down from 16.2 megatonnes in 2019.

Which brings us to the question of Nova Scotia's emissions sinks.

An emissions sink is something that removes carbon from the atmosphere and stores it. When discussing net-zero emissions, emissions sinks are typically classified into either natural sinks (forests, wetlands, seagrass meadows, and croplands), or technologies for carbon capture and utilization or carbon capture and storage in geological structures.

This past summer, a student, Mark McCoy, and I conducted an analysis of Nova Scotia's natural sinks. Using the most recently published data, we estimated that in 2019, the province's carbon sinks (forests and wetlands) stored about 11.6 megatonnes of carbon dioxide annually (croplands were net emitters).

This means if Nova Scotia's emissions sources meet the 2030 target and its emissions sinks are maintained at 2019 levels, the province will have achieved net-zero or possibly net-negative emissions by 2030.

The province can sell its negative emissions to net-emitters as long the emissions from its emissions sources are less than the emissions removed by its emissions sinks.

However, if the sinks' abilities to capture and store carbon are reduced (for example, by climate-induced events such as hurricanes, rising temperatures, invasive species, forest fires, floods, and droughts), the province could become a net-emitter.

Despite the importance of natural emissions sinks in meeting the province's 2050 net-zero target, Bill 57 failed to include a clause on natural sinks. Based on our work this summer, we recommended legislation to require the biannual assessments of the sinks, the identification of sink threats and vulnerabilities, the verification of the sinks, and the introduction of tax incentives for landowners to maintain their sinks.

Since Nova Scotia also has significant offshore sedimentary basins which appear to have excellent potential for carbon sequestration, we also recommended supporting the research and possible development of these sites for storing carbon extracted from the atmosphere.

The minister and his government, through Bill 57, say that they see climate change as a "global emergency requiring urgent action". This claim is belied by their failure to include any amendments to Bill 57 which recognize the importance of maintaining the province's existing emissions sinks and developing geological storage to help achieve a net-zero emissions future.

Just like the gap between the rhetoric and actions at COP26 in Glasgow.