



Canada's BECCS Paradox: World-class potential, real-world barriers

BECCS Leadership Summit Proceedings:
What We Heard | November 2025

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This report was written by Margi Pandya, Policy Analyst at the Canada West Foundation.

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Canada needs decisive action to realize its BECCS potential, but charting that path forward requires collaboration among industry, government, Indigenous organizations, financial institutions and technology providers. Conversations like the one at the BECCS Leadership Summit 2025 play a key role in identifying shared barriers, aligning priorities across sectors, and determining the coordinated steps necessary to translate Canada's world-class potential into deployed projects that can revitalize forestry communities, reduce wildfire risks and contribute meaningfully to Canada's climate goals.

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Introduction

In November 2025, the Canada West Foundation and Natural Resources Canada, alongside founding partners TorchLight Bioresources, Emission Reduction Alberta, Alberta Forest Products Association and Alberta Innovates, brought together leaders from across the forestry industry, government, Indigenous organizations and businesses, finance and technology sectors for the second annual BioEnergy with Carbon Capture and Storage (BECCS) Leadership Summit. Building on momentum from the successful inaugural summit in October 2024, this year's summit focused on a pressing question:



What are the foundational elements needed to support a sustainable BECCS industry in Western Canada?

Over a day and a half of plenary sessions and focused discussions on policy and project development, participants examined the real-world barriers and opportunities facing BECCS. The conversations focused on the promise of BECCS as a technology pathway that simultaneously removes carbon from the atmosphere, generates renewable energy and supports forestry sector resilience, while also highlighting the barriers preventing deployment at scale and achievement of these desirable outcomes.

This report distills what was heard – the recurring themes, concerns and calls to action that emerged from a group of diverse voices united by a common understanding: BECCS could play a critical role in Canada's climate future, contingent on decisive and co-ordinated action. Five interconnected themes emerged, revealing both the opportunity BECCS presents for Canada and the obstacles preventing its deployment:

Why BECCS matters for Canada:

- The forestry-wildfire crisis nexus
- Canada's world-class potential

What's holding Canada back:

- Policy fragmentation and the need for coherence
- Market concentration and offtake risk
- Communication challenges and public understanding

What is BECCS?

BioEnergy with Carbon Capture and Storage (BECCS) is a technology pathway that turns biomass, wood residuals, such as sawdust from sawmills, logging residues from forestry operations or black liquor from pulp mills, into energy, while permanently removing carbon dioxide from the atmosphere.

HERE'S HOW IT WORKS:

Trees absorb carbon dioxide (CO₂) as they grow. Throughout their lives, trees pull CO₂ from the air and store it in the form of wood, while simultaneously capturing and storing solar energy, all at no cost.

That stored carbon becomes energy. When biomass is burned to generate electricity or heat (often at pulp mills or power plants), it releases the CO₂ that trees captured from the air during their growth. This combustion process releases solar energy in the form of heat; this is the “bioenergy” part.

CO₂ is captured and stored underground – permanently. Instead of letting CO₂ go back into the atmosphere, BECCS facilities capture and store the gas deep underground in geological formations.

The result? BECCS is the only energy technology that removes carbon from the atmosphere while simultaneously generating energy.

BECCS doesn't fight wildfires directly, rather, it creates an economic incentive for active forest management. By providing a market for biomass residuals, small trees and forest debris, BECCS makes fuel reduction treatments economically viable. Material that would otherwise accumulate in forests as wildfire fuel, like dead trees, undergrowth and thinnings, instead becomes feedstock for energy generation and carbon removal.

Unlike carbon offsets, which can be temporary and hard to verify (like planting trees that might burn in a wildfire), BECCS delivers permanent, measurable carbon removal using proven technology that's already operating commercially around the world.

For Canada, with its vast forests and declining conventional forest products sector, participants suggested BECCS offers a way to revitalize forestry communities, generate clean energy, reduce the risk of wildfires through active forest management and help meet our climate goals, all at the same time. While this multi-benefit potential may seem too good to be true, these benefits are real, but they're not automatic. As summit participants emphasized, BECCS can only deliver on this promise when implemented with sustainable feedstocks, robust carbon capture technology, appropriate geological storage and supportive policy frameworks. The gap between potential and reality is what this report aims to address.

Key Themes

The five key themes that consistently emerged throughout the discussions highlight both the substantial opportunity BECCS presents for Canada and the obstacles that must be overcome to realize its full potential. These themes collectively paint a picture of a nation with world-class potential that grapples with the challenge of translating its advantages into tangible action.

[1] The forestry-wildfire crisis nexus

Participants consistently framed BECCS as a solution that addresses multiple crises simultaneously: declining pulp mill viability, catastrophic wildfire risks and climate change mitigation (via carbon removal). The summit emphasized active forest management as essential for wildfire prevention (“if we don’t use it, it’s going to burn”). BECCS reduces wildfire risk by creating a market for the very materials (forest biomass: small trees, thinnings and debris) that fuel fires. With seven per cent of Canada’s forests having burned in just the last three years, the wildfire crisis once concentrated in British Columbia and Alberta is now spreading to regions unaccustomed to such risks, including Newfoundland and Nova Scotia. A 2025 update to Canada’s national wildfire analysis confirms that while the total number of fires has declined since the 1980s, largely due to improved fire prevention, the average area burned annually has increased markedly, with very large fires (over 20,000 hectares) accounting for a growing share of destruction. The economic and social costs are mounting with insurance premiums rising in addition to the increased risk of serious wildfire. Wildfires also have major health and economic impacts, with Health Canada estimating the health costs of wildfires in billions of dollars annually.

The forest industry’s interconnected nature means BECCS has cascading benefits. Participants noted the interdependence of forest industries – saving pulp mills means saving sawmills, entire regional economies and the jobs they support. Ontario’s decline from at least 16 pulp mills to just three, with one on life support, illustrates what’s at stake. These closures weren’t sudden: mills aged, companies chose not to reinvest and when newsprint demand collapsed (down 40 per cent since 2022), the end came swiftly. But the crisis extends far beyond pulp mill workers. When those 16 mills operated in 2005, they consumed 18 million cubic metres of fibre, providing an essential market for sawmill residuals such as bark, sawdust and chips. The integration of wildfire risk, insurance costs and climate adaptation created a compelling co-benefits narrative beyond just carbon removal.

For many at the summit, BECCS wasn't just about meeting climate targets; it was about protecting communities, economies and ecosystems from an escalating crisis. The sale of carbon dioxide removal (CDR) credits provided a revenue stream to support the operations required to accomplish these local objectives.

Canadian Forests: Key facts

- **Canada has nine per cent of the world's forests.** Only Russia and Brazil have more.
- Canada has **166 million hectares of forest** land that is independently certified as sustainably managed¹. That's 40 per cent of the world's certified forests – far more than any other country in the world.
- About **75 per cent of Canada's forests are boreal forests**, which stretch across the northern region of the country. Boreal forests behave differently from tropical forests. In Canada, wildfires are the largest drivers of carbon loss. 2023 was the worst wildfire season ever, burning over 18 million hectares (an area larger than Nova Scotia, New Brunswick and Prince Edward Island combined).
- Around **94 per cent of Canada's forests are owned by the public ("Crown land")** and managed by federal, provincial and territorial governments.

¹ Certification demonstrates sustainable forest management by providing independent third-party assurance that management practices meet a strict set of biological, environmental and social criteria.



[2] Policy fragmentation and the need for coherence

While Canada has the right building blocks, with 50 per cent investment tax credits, established carbon markets, world-class sequestration capacity and engineering expertise, those at the summit repeatedly cited policy incoherence as the primary barrier preventing BECCS deployment at scale.

The frustration was palpable. Participants noted the disconnect in policymaking: “you may set up some really good policy over here, then you may at the same time be saying something completely opposite.” Changes to Alberta’s Technology Innovation and Emissions Reduction (TIER) system were highlighted as a case in point: modifications introduced shortly after positive signals undercut the opportunity and eroded trust among potential investors. For greenfield (new) BECCS facilities built specifically for carbon removal, navigating compliance markets becomes especially complicated since these markets were designed for existing industrial emitters offsetting their own emissions, not for standalone carbon removal projects.

Regulatory timelines compound the uncertainty. While BECCS projects in the U.S. state of Louisiana face five-plus years in regulatory approval process for storage, Canada has regulatory processes in place and tremendous CO₂ storage capacity but lacks the clarity and consistency needed to inspire confidence. Constitutional complexity with environmental jurisdiction split between federal and provincial governments creates additional layers of confusion.



if we don’t close the gap, the money moves to the U.S.

The repeated call for a national forest sector strategy reflects the desire for coherent direction. Participants argued that patchwork policies, however well-intentioned individually, cannot substitute for an integrated approach that aligns federal and provincial objectives, co-ordinates carbon pricing mechanisms and creates clear pathways for CDR projects to secure financing and move forward. Without policy coherence, Canada risks squandering its natural advantages. Summit participants expressed a shared concern: “if we don’t close the gap, the money moves to the U.S.” Since many of the new and emerging potential products, including CDRs, from forest resources require valuation of carbon to be economically competitive, uncertainty on the future value of carbon, if any, inhibits project development and investment.

[3] Market concentration and offtake risk

BECCS projects generate revenue by selling carbon removal credits in what is known as the CDR (carbon dioxide removal) market. There are multiple CDR markets, such as voluntary markets, compliance markets, government procurement and public offtake agreements. In the voluntary market, companies purchase carbon removal credits to offset their emissions and meet climate commitments, essentially paying BECCS facilities for each tonne of CO₂ they permanently remove from the atmosphere. To secure financing, BECCS projects typically need offtake agreements – contracts where buyers commit in advance to purchasing a certain volume of carbon removal credits at an agreed price, providing the revenue certainty that banks require before approving loans.

A striking revelation from the summit was the extreme concentration of the CDR market. Ninety-three per cent of voluntary, private sector BECCS CDR purchases are attributed to a single buyer: Microsoft. This creates profound vulnerability for Canadian BECCS projects relying exclusively on voluntary market demand. However, participants emphasized that risk is substantially mitigated where projects secure bankable offtakers through legally binding, long-term commitments. Importantly, the discussion highlighted the need to distinguish between project-level risk, development risk and the broader risk associated with the emergence of a new CDR industry, which should not be conflated when assessing the viability of Canadian BECCS projects.



it shouldn't be up to Microsoft to dictate what projects move forward in our country

Projects stuck in feasibility stages cannot secure financing without guaranteed offtakes. Banks require confirmed buyers before approving loans, but with one company dominating global CDR purchases, Canadian projects are effectively waiting for Microsoft's approval to proceed. As one frustrated participant put it: "it shouldn't be up to Microsoft to dictate what projects move forward in our country."

This buyer concentration creates a chicken-and-egg problem. BECCS projects need buyer certainty to attract investment, but government policy seems to want to wait until more buyers enter the voluntary market. Voluntary carbon markets, once hoped to fill this gap, have not materialized at the scale needed. With the U.S. withdrawal from the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC), combined with President Trump's stated position on climate change, voluntary purchase of CDRs by U.S. corporations is challenged by the legal fiduciary responsibility of company Board of Directors. Allocating shareholder income to purchase CDRs on a voluntary basis could be viewed as non-compliance with responsibilities to represent the financial interests of shareholders.

Participants pointed to alternative models, particularly Norway’s approach of government underwriting to de-risk early projects and enable private sector participation. They called for mechanisms that make “market price not the determinant of the project,” whether through federal offtake agreements, provincial direct investment programs, or mandatory compliance with market participation for CDR. The Government of Sweden’s allocation of C\$5 billion to purchases of BECCS CDRs by the national treasury was also highlighted as a successful approach to reach project Final Investment Decision (FID).

As the global CDR sector experiences what industry observers describe as a period of “slowed-down, gradual normalization,” Canada has an opportunity to differentiate itself by breaking the buyer concentration problem. By introducing mechanisms for stable and reliable demand, such as government offtake agreements or mandatory compliance market participation, combined with a carbon contract for difference (CCfD) on price, Canada can move BECCS projects from feasibility to financing. Without such intervention, Canadian projects risk remaining perpetually stuck at the starting line while competitors, such as the U.S., Nordic nations and Japan move ahead. Given Western Canada’s enviable technical fundamental advantages and wildfire risk reduction as an important motivator, this would be highly unfortunate.



[4] The Paradox: World-class potential, execution gap

CANADA'S ADVANTAGES ARE SUBSTANTIAL:

- **Storage capacity:** While the global capacity for storing CO₂ is vast, many regions lack suitable geological formations to permanently store captured carbon underground or face permitting delays. Western Canada has a competitive advantage in the scale, regulatory structure and human resources expertise for CO₂ storage. Nordic projects rely on offshore CO₂ storage, which comes at a substantially higher cost than Western Canada's onshore CO₂ storage. Decades of oil and gas development have created extensive geological knowledge, existing CO₂ pipeline infrastructure and regulatory frameworks already in place to manage underground storage safely.
- **Strong financial incentives:** The 50 per cent investment tax credit (ITC) significantly reduces project risk compared to the U.S., where vendors must carry operational risk for 10 years. Canadian programs like Alberta carbon Capture and Incentive Program (ACCIP) and federal Canada Infrastructure Bank (CIB) financing provide additional support.
- **Sustainable feedstock:** Canada has abundant, sustainably managed forest biomass from sawmill residuals and forest management operations.
- **Engineering capacity:** Western Canada has proven ability to build and operate large-scale energy and industrial projects.

As one participant noted, Canada has “all these things in our favour and yet it seems like it's not enough.” Political uncertainty around U.S. climate policy under changing administrations was cited as an opportunity for Canada to attract “money leaving the U.S.,” but only if Canada acts decisively to capitalize on this moment. Canada needs to look to its domestic market for CDRs, but also to Europe and Asia (e.g., Japan, Korea) for international purchase. Canada has significant cost competitiveness relative to these jurisdictions.



all these things in our favour and yet it seems like it's not enough

Participants emphasized that Canada's storage advantage must be communicated clearly to investors, vendors and international buyers (particularly Japan and South Korea, who are actively seeking Canadian CDRs). Canada's existing Kraft (chemical) pulp mills can serve as a large foundation for development of a significant BECCS industry.

[5] Communication failure and public understanding

Participants expressed significant frustration about the forest and carbon capture industries' collective failure to communicate their value to the Canadian public and policymakers.

"The general public does not know what BECCS stands for," one participant stated plainly. The complexity of carbon markets, policy mechanisms and the technology itself was acknowledged as "too heavy for the public to follow along." Participants emphasized that this communication failure has tangible consequences.

Protests against pulp mills "cutting trees to make tissue" were cited as an example of a communication breakdown. Participants noted that a lot of tissue production uses sawmill residuals rather than standing forests, illustrating what they described as fundamental public misunderstandings about how the industry operates. The importance of establishing a large, viable market for low-grade and low-value timber is also important for sustainable forest management. The forestry sector's historical messaging ("foresters were environmentalists before environmentalists were cool") was acknowledged as having failed to resonate with modern audiences or effectively counter misconceptions.

Both the carbon capture and storage (CCS) industry and the forestry sector were criticized for insular communication strategies that fail to engage beyond their own circles. Pulp mill conferences and technical forums don't translate into public understanding or political support, participants noted. One participant observed the irony: "we have two industries coming together: forestry and CCS, both present in Western Canada. We need to figure out how to get the packaging correct." Bundling BECCS CDRs with conventional energy exports was noted as one option to lower the life cycle carbon intensity of these exports.

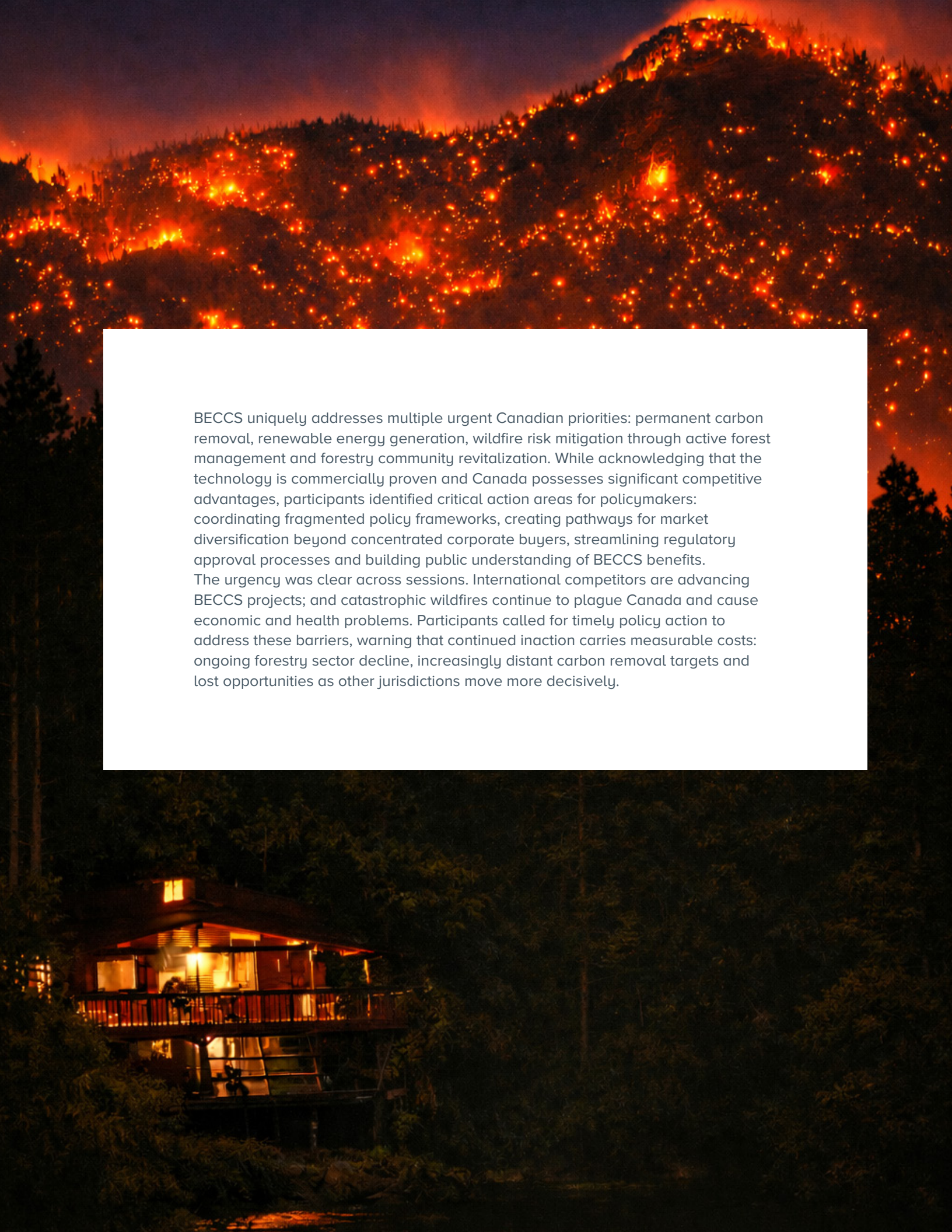
Participants argued the stakes extend beyond public opinion. Without clear communication of BECCS co-benefits (e.g., wildfire mitigation, rural economic revitalization, energy security, permanent carbon removal) policymakers lack the political cover to make bold commitments. Insurance industry engagement was suggested as one underutilized angle: rising premiums due to wildfire risk create a tangible, relatable entry point for public discussion.

Participants called for a co-ordinated national communication strategy that moves beyond technical jargon and carbon accounting to tell a compelling story about community resilience, forest stewardship and Canada's climate leadership. As one participant summarized: "this helps drive the market; it addresses fears." The consistent message was that education was foundational to building the social license BECCS needs to scale.

Conclusion: Translating potential into reality

The 2025 BECCS Leadership Summit brought into focus the gap between Canada's BECCS potential and current reality. While participants acknowledged significant natural advantages, they also identified systemic barriers that must be addressed. Three cross-cutting conclusions emerged from the discussions:

- **Canada has the fundamentals** (i.e., feedstock, engineering capacity, CO2 infrastructure, regulatory frameworks and tax credits) but lacks the policy coherence, market diversity, political championship and public narrative to translate potential into deployment at scale.
- **Urgency is palpable:** With Ontario reduced from 16 pulp mills to three, every mill closure eliminates not just jobs and economic activity, but a potential site for carbon removal deployment. The opportunity to leverage existing pulp production infrastructure and deploy BECCS at scale while revitalizing forestry communities requires immediate action.
- **Integration matters:** BECCS success depends on coordinating federal/provincial policy, forestry/climate objectives, compliance/voluntary carbon markets and public/private investment – no single lever will suffice.

A night photograph of a forest fire on a hillside, with a cabin illuminated in the foreground. The fire is a dense field of bright orange and yellow flames, covering the upper half of the image. The cabin is a two-story structure with a balcony, lit from within, and is situated in a dark forest. The sky is dark, and the overall scene is dramatic and somber.

BECCS uniquely addresses multiple urgent Canadian priorities: permanent carbon removal, renewable energy generation, wildfire risk mitigation through active forest management and forestry community revitalization. While acknowledging that the technology is commercially proven and Canada possesses significant competitive advantages, participants identified critical action areas for policymakers: coordinating fragmented policy frameworks, creating pathways for market diversification beyond concentrated corporate buyers, streamlining regulatory approval processes and building public understanding of BECCS benefits. The urgency was clear across sessions. International competitors are advancing BECCS projects; and catastrophic wildfires continue to plague Canada and cause economic and health problems. Participants called for timely policy action to address these barriers, warning that continued inaction carries measurable costs: ongoing forestry sector decline, increasingly distant carbon removal targets and lost opportunities as other jurisdictions move more decisively.

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