

Polytechnics Canada's recommendations to the Standing Committee on Natural Resources

Please see below for Polytechnics Canada's insights with regards to the following study being undertaken by the Standing Committee on Natural Resources:

1. That, pursuant to Standing Order 108(2), the committee devote up to twelve meetings to undertake a study of the conditions required to ensure an effective plan (just transition) for all Canadians in transforming to a low-carbon future, including, but not limited to, an examination of; the definition of the term "just transition"; a preliminary estimate of the impacts of a Paris aligned climate plan on jobs, both direct and indirect; the principles that should guide a "just transition"; concrete, people-centered "just transition" actions that puts workers and communities at the centre of government policy and decision making process on climate change initiatives; the role and mechanisms for the federal government to adequately fund just transition plans across the country; the federal government's commitment to economic transformation in impacted Indigenous communities; similar historic and social transformations that have occurred both domestically and internationally; and, the current state of the clean tech industry and their role in shaping the anticipated energy transformation; and any other matters deemed necessary by the committee, that experts and stakeholders be invited to appear, including, but not limited to, those that represent organized Labour, Indigenous leadership, municipal representatives from affected regions, and, those with knowledge of the current and future clean tech industry in Canada, and that; that the Minister of Natural Resources and officials, the Minister of Labour and officials, be invited to appear; and that the committee report its findings to the House prior to June 17, 2022.

Introduction

It is our shared planetary responsibility to preserve the environment for those who come after us. As the Brundtland Report, *Our Common Future*, noted in 1987, "[sustainable development . . . meets the needs of the present without compromising the ability of future generations to meet their own needs.](#)" The government's primary objective for a net-zero transition – around which policies, programs and supports must be centred – should seek to create that balance.

One element for consideration is employment. While some regions are well-prepared to be economically dynamic, with a variety of career options to offer those displaced from traditional fossil fuel-based sectors, others will struggle. Some occupations are at higher risk, particularly in industries where the barrier to entry has been historically low and opportunities for lifelong learning minimal. Older workers may face additional obstacles, too young to retire but too close to retirement to invest in retraining.

There are also industry-specific challenges. Carbon-intensive industries and companies are unlikely to be able to transform their operations quickly and doing so will require extensive investment. The transportation sector, for example, has a long way to go before current technology and infrastructure allow for an effective transition. Few construction firms currently have the expertise, equipment or access to materials that enable them to build or retrofit to net-zero standards. Both sectors are of vital importance to Canadian consumers, who will inevitably carry the brunt of transition costs.

As the [Canadian Centre for Policy Alternatives](#) explains, a proactive just transition will focus investments on education, green infrastructure and labour market forecasting that contemplates and addresses these complexities. The overarching goal must be to mitigate costs and reduce harm in those areas most affected, while maximizing benefits for all Canadians. For net-zero transition to occur without widespread disruption, the government must act on a variety of levels – nationally and locally, sector-wide and in consultation with small business, at the population level and with individual Canadians.

When it comes to just transition, polytechnic institutions are well-positioned to help. They are developing the green talent pipeline across sectors, including [in Canada's skilled trades](#). Acknowledged leaders in retraining and upskilling, polytechnics are able to support career transition for displaced workers. Net-zero and zero-waste initiatives on campus help students participate in pragmatic climate action and provide community-based examples for others to follow. Polytechnics are also engaging in applied research with the business sector, helping identify and implement innovative green solutions with companies and non-profits of all sizes.

When facing disruption and change, polytechnic institutions have the wherewithal to accompany and support both workers and businesses. As providers of mid-career retraining and applied research services, polytechnics stand to make an important contribution to just transition. Throughout this submission, we have framed our responses through the lens of this expertise.

People-centred just transition principles

How important is it for the federal government to assess potential impacts on workers and communities when considering climate change action?

Assessing the impact of climate change action and policies on workers and communities is fundamental from a social justice and equity perspective. The transition away from a carbon-intensive economy is likely to disproportionately impact workers and businesses in specific industries and regions of the country. At the same time, new economic opportunities will arise in nascent industries that are taking advantage of new and innovative technologies. This means people will have to reskill or upskill to be employable in the new sectors, while businesses will have to implement emerging technologies.

To ensure polytechnic institutions can maximize their capacity as solutions providers, a thorough understanding of the impact on workers is needed to inform training supports and approaches. Polytechnics are providing training for green economy jobs, but it will be important to adapt programs to meet the requirements of mid-career workers and understand where skills gaps exist. Quite simply, the provision of industry-aligned training depends on timely labour market information and continuous communication with the private sector.

Algonquin's one-year [Energy Management Graduate Certificate](#) focuses on energy, innovation, entrepreneurship and the development of efficient energy technologies. Learners build an understanding of energy solutions, efficiency, conservation and sustainability. In-class learning is complemented by laboratory work and contributions to real-world projects. Learners collaborate with peers and industry partners to create an energy strategy for a commercial building, with an option to gain experience through a paid work term.

Further, a comprehensive understanding of the impact on businesses – by sector, region and size – will inform the innovation supports offered by polytechnics and ensure government is making smart funding allocation decisions at the national, regional and local levels. As critical contributors to climate action in Canada, small- and mid-sized businesses are likely to need specialized and highly individual solutions. The broad capabilities at polytechnic institutions touch every aspect of clean technology, from manufacturing to energy consumption to agriculture. Additional data will enable institutions to undertake proactive outreach to prospective clients and partners.

The Southern Alberta Institute of Technology's [Centre for Innovation and Research in Advanced Manufacturing and Materials](#) assists industry partners looking to make their manufacturing and materials systems smarter and cleaner.

Communities will benefit from data-driven policies that ensure workers are prepared to transition into good and satisfying jobs at healthy and productive businesses.

Fanshawe's [Centre for Research and Innovation](#) focuses on research in renewable energy technologies including energy management, energy-efficient building design and retrofitting, transportation and sustainable communities. Many such applied research endeavours leverage funding from the federal government.

Are the draft just transition principles meaningful to you?

While Canada's polytechnics have explicit commitments to sustainability within their strategic plans, their role in supporting a just transition extends well beyond reducing the ecological footprint of their institutions. Canada's polytechnics engage in collaborative activities that support green transitions and sustainability efforts in communities across the country, while also encouraging the conversations and research that both increase awareness and solve current challenges. This focus and commitment are aligned with the draft just transition principles.

Principle 1: Polytechnics are an ideal forum for *adequate, informed and ongoing dialogue on a people-centred, just transition that engages all relevant stakeholders to build strong social consensus on the goal and pathways to net zero:*

- [George Brown's](#) 2020 Labour Fair focused on unions, workers and climate change, with a dedicated discussion on just transition. One of the goals of the institution's three-pronged sustainability plan is to promote awareness and behaviour within the community to support sustainability goals.
- [Algonquin's](#) sustainability framework *Caring Today, For Tomorrow* focuses on reducing the institution's ecological footprint but, also, on facilitating debate on environmental issues and restoring and regenerating environments. Algonquin has been encouraging debate around environmental issues and solutions through events such as *The Sustainability Champions Speakers Series* and *The Annual Community and Corporate Social Responsibility Conferences*.

Principle 2: *Policies and programs in support of a people-centred, just transition must create decent, fair and high-value work designed in line with regional circumstances and recognizing the differing needs, strengths and potential of communities and workers* – is particularly meaningful. Polytechnic institutions are deeply embedded in their communities, serving local learners, collaborating with local businesses and acting as community social hubs:

- [Humber's](#) Office of Sustainability fosters a culture of sustainability and oversees the institution's *Sustainability Plan 2019 - 2024*. Among Humber's identified projects is the building of the [Humber Cultural Hub](#), which will act as a "living laboratory" for instruction on sustainable construction, but also benefit the community with arts and culture facilities. The building will include green space and is targeting Net Zero Carbon and LEED Platinum certification.
- The Northern Alberta Institute of Technology, located in a region currently economically dependent on fossil fuel extraction, is preparing the green talent pipeline through its [Alternative Energy Technology](#) diploma. Its [Sustainable Environment and Green Culture Series](#) also offers sustainability courses to local residents.

Principle 3: Many polytechnic institutions also align on the diversity dimension, agreeing that *the just transition must be inclusive by design, addressing barriers and creating opportunities for groups including gender, persons with disabilities, Indigenous Peoples, Black and other racialized individuals, LGBTQ2S+ and other marginalized people*:

- [Kwantlen Polytechnic University](#) is exploring the intersections between food systems, anti-racism, decolonization and environmental justice, highlighting the breadth of concerns that should be addressed by a just transition and drawing on the institution's applied research strengths.
- At the [British Columbia Institute of Technology](#), a sustainability vision has been incorporated into the institution's strategic plan, which includes activities such as fostering conversations through Diversity Circles that engage students, faculty and staff, as well as collaborating with BC municipalities on sustainability projects.

Are the draft just transition principles broad enough to be flexible to unique and differing needs, but specific enough to be effective?

The principles are broadly useful in guiding a just transition that addresses the diverse needs of communities and distinct groups across the country. However, they should be accompanied by concrete and measurable outcomes. It is important to define what “people-centred” means in the context of individual Canadians, including how their quality of life – both personal and professional – are likely to be impacted. Canadians need to understand both the costs and benefits of net-zero transition.

When defining outcomes, we recommend a focus on regional and sectoral impacts, and a better understanding of the intersection of economic, environmental and labour-related factors. To the extent possible, each of these factors must be kept in equilibrium, understanding that trade-offs and compromise are likely to be required. As new technologies are developed, and the economy adapts, new weighting of these priorities and targets might be considered.

In the education sector, particularly with regard to skilled trades training, curricula development will be driven by a combination of these overarching objectives and the speed at which industry can adapt. High-quality labour market information and detailed progress reporting mechanisms will be critical to ensuring training programs keep up.

Are there other actors who need to commit to such principles?

Given the global nature of the challenge, all Canadians need to commit to and be broadly aware of their role when it comes to a just transition to net zero. This is why it is so critical to build on existing initiatives and adopt progress being made at the community and individual levels. In the education sector, many post-secondary institutions have already made commitments to a green transition on campus, including raising awareness among learners, faculty, staff and community partners. Broadly speaking, this is the kind of commitment needed in every home and every business, requiring a public awareness campaign and pragmatic programs and tools that enable and support individual action.

As examples of action on which government can build:

- [Conestoga](#) has committed to sustainability as part of its strategic plan and is reducing its ecological footprint with initiatives related to infrastructure, landscape and architecture, biodiversity, energy management, recycling, waste management and emissions reports.
- The Southern Alberta Institute of Technology's [sustainability framework](#) incorporates social, financial and environmental dimensions into green campus initiatives, as well as applied research and institutional strategies.

Applied research at the institution's [Green Buildings Technologies \(GBT\) and Demonstration Centre](#) focuses on integrating construction, green technologies and renewable energy.

Just transition advisory body

Who should be on the advisory body?

We recommend a broad group be asked to contribute to the advisory body, with representation from sectors most impacted, non-profit organizations, various levels of government and environmental experts. Given the importance of training and business innovation to a just transition, it is critical that the education sector be at the table. Educational institutions are important stakeholders in their communities and they will be essential to training the green-collar workers of the future.

Distinct among Canada's post-secondary institutions, polytechnics focus on applied, industry-aligned programming, with real-world experience built in. Institutions offer a breadth and diversity of credentials, including four-year degrees, diplomas, advanced diplomas, graduate certificates and apprenticeships in the skilled trades. Polytechnics also have a longstanding commitment to lifelong learning, continuing education, professional development and corporate training.

They offer pathways for all learners, whether employed and looking to upskill or temporarily displaced and looking for a new start. Programs are industry-responsive, contributing a talent pipeline in new and emerging industries or in response to changes in traditional sectors.

[Saskatchewan Polytechnic](#) provides training, research and work-integrated learning experiences for students in areas such as power generation, clean water and shoreline health.

Polytechnic contributors to the advisory body will offer insights into:

- The ways in which applied research can enable companies to implement and commercialize clean solutions and new technologies
- The training, upskilling and reskilling necessary for worker transition
- On-the-ground insights about what is working in areas such as diversity and inclusion, community environmental initiatives, training and reskilling, and sector-specific challenges/solutions

What should be the mandate of the advisory body?

Before Canada can move forward with its just transition goals, there are a number of important decisions to be made in areas where an advisory body would be well-positioned to provide guidance, including the development of a clear vision for Canada's social, economic and environmental future. Once the framework for just transition is established, the advisory panel can weigh in on how progress can be achieved, measured and reported.

Ultimately, a transition to net zero implies that certain economic sectors will wind down or undergo substantive change, while new ones will ramp up. This will have significant implications on regions, sectors, businesses and individual workers. A role of the advisory body should be an ongoing evaluation of labour market information and emerging trends, allowing the group to provide well-informed advice to government over time. Consider, as well, a public reporting mandate to ensure ongoing transparency as we inevitably make progress in some areas and fall short in others.

Our understanding of the interplay between economic activity and the environment is undergoing a constant evolution. New technologies may become available to speed progress or political will might shift, delaying it. The advisory body should

also have a role when it comes to monitoring disruption and guiding adjustments to Canada's strategy, recognizing the long-term nature of our net-zero ambitions makes a straight path to achieving it unlikely.

We recommend the advisory body be tasked with:

- Being an open forum that enables Canadians to have a voice in achieving just transition
- Sharing, discussing and tracking progress using a data-driven approach
- Identifying data gaps and taking steps to address them
- Recognizing best practices (regional, national, international) to be scaled and supported
- Guiding the evolution of the overarching strategy based on new information and progress
- Reporting progress to all stakeholders

Whom should the advisory body's recommendations be aimed at?

An all-of-government approach and action plan is required in order to implement a just transition. It is important to recognize that the success of the just transition requires inter-departmental collaboration beyond the environmentally focused departments and is outside the purview of NRCan alone.

Government, at every level, has a significant role in ensuring a successful just transition by implementing labour market regulations, business and environmental regulations, and providing supports to both individuals and industry. The advisory body should have input regarding policy, regulation and assistance that could be offered to support those most impacted by the transition.

There are also opportunities to speak directly to the business community and individual Canadians. Small actions will be as important as large ones in achieving net zero. This means helping all Canadians see a role for themselves in achieving the country's net-zero ambitions. Maintaining the political will for a long-term undertaking like this one requires ongoing public support for the pathway to environmental sustainability.

What role should the federal government play in supporting the work of the advisory body?

The federal government should:

- Identify a balanced supply of experts across regions, sectors and stakeholder groups to sit on the advisory body and replenish members as required over time
- Provide sufficient financial and human resources support to ensure the advisory panel is able to conduct its work, including the capacity to undertake research, review labour market information and conduct conversations with Canadians
- Support ongoing monitoring and measurement of progress, including annual reporting to Parliament and all Canadians
- Share opportunities and outcomes with all federal departments, and identify opportunities to work in areas of overlapping jurisdiction with provinces and municipalities
- Align draft principles for just transition with measurable goals toward which all stakeholders can work

Other questions

What do you see as the main economic opportunities and challenges associated with the transition to a low-carbon economy?

Depending on the rate of transition and its effect on carbon-intensive sectors, labour market disruption may be considerable. Though jobs may be created in other sectors or regions, Canadians seeking work are likely to require significant retraining and upskilling. This need not involve sending mid-career workers back to post-secondary institutions full-time, something that stands to cause further disruption and financial stress to those already displaced from the labour market. Instead, we see opportunities to engage polytechnic institutions and other colleges in efforts to validate existing skillsets, provide credit for experience and prior learning, undertake career counselling to identify employment opportunities and link workers with upgrading to fill identified skills gaps. The experience of polytechnic institutions in these areas should be activated to reconnect Canadians with the job market in the shortest possible time.

This approach has benefits that extend beyond just transition. Realistically, the job market is changing at an ever-increasing pace, with new technology causing widespread disruption across sectors and occupations. To keep up, all Canadians are likely to require some form of upskilling and reskilling in the course of their careers. Establishing clear pathways back to education as part of the just transition process will have spill-over benefits for the larger population.

The transition to a low-carbon economy also poses a myriad of opportunities to engage in scientific and technological research and innovation. This is an opportunity to activate the research expertise across the post-secondary sector, including both foundational research largely conducted at universities and, significantly, the applied research expertise resident in the polytechnic and college sector. Applied research is ideally placed to help companies implement new discoveries and adopt new technologies, as well as achieve scale in the Canadian and international markets.

The British Columbia Institute of Technology's [Smart Microgrid Applied Research Team](#) is working on a front-end engineering and design study for a hybrid renewable energy platform for the Lutsel K'e Dene First Nation. Lutsel K'e is a remote Indigenous community, located on the eastern arm of Great Slave Lake in Northwest Territories, and is not connected to the North American electricity grid. The project has potential for replication in 200 other diesel-powered Indigenous communities.

The [Centre for Boreal Research](#) is an innovative applied research facility funded by the Northern Alberta Institute of Technology, Alberta Innovation and Advanced Education, the Canada Foundation for Innovation, Shell Canada and Penn West Petroleum with the aim of advancing research in boreal reclamation and peatland reforestation. Equipped with outdoor growing space and a three-bay greenhouse that features computer-controlled humidity, temperature and lighting, it is also an Approved Seed Testing Facility.

What would a successful transition to net-zero emissions look like for your sector or community?

In the polytechnic sector, a successful transition to net-zero emissions means green campuses that both engage learners in environmental action and act as community exemplars, prompting action by business partners and other local groups. The institutions are already on this path. For example:

- [Seneca](#) engages in a number of sustainable initiatives that range from urban farming and beekeeping to conservation, restoration and waste reduction.
- *Repair Café*, [an initiative in Sheridan's Office for Sustainability](#), promotes the benefits of a circular economy. The project has been so successful that it has been adopted by the Brampton Library and other local municipalities and institutions.

But the role of public post-secondary institutions in transition is even broader. Polytechnics are training the workforce who will contribute to the green economy in the near- and long-term future. Youth are not only aware of environmental issues and interested in being involved, but are demanding action on net-zero transition from their institutions. There is a shared vision and mission to ensure all post-secondary graduates are well-positioned to contribute to a just transition regardless of the sector in which they plan to work. For example:

- At Saskatchewan Polytechnic, [environmental engineering technologists](#) learn to apply science, ecology and engineering to minimize the adverse impacts of human activity. After 32 months and three paid co-operative work terms, graduates pursue careers in pollution monitoring, environmental audits, environmental management, site assessment and remediation.
- Red River College is helping to address the shortage of [Energy Advisors who can support the Government of Canada's Greener Home initiative with a micro-credential](#). In 15 weeks of part-time study, learners can deliver EnerGuide rating services for eligible homes. Individuals can build on their credentials once certified and add other services to their qualification.

Which government policies or programs have been successful in supporting workers and/or businesses in your community/sector?

A number of government programs have supported polytechnics as they engaged in their own green transition and/or provided training and applied research services to assist workers and businesses doing the same.

The Post-Secondary Institutions Strategic Investment Fund (PSI-SIF) has shown that [infrastructure investments are an effective means of improving research and training capacity, enabling student recruitment and facilitating collaboration with industry partners](#). As part of PSI-SIF projects, [every dollar of federal funding was matched by \\$2.50 from other sources](#), highlighting the ability of post-secondary institutions to leverage government monies to bring other funders and partners to the table.

The program allowed both refurbishment projects, such as [Kwantlen Polytechnic University's Spruce Building Renovation](#), and new builds, as was the case with [Red River College's Innovation Centre](#). These investments are essential to enabling polytechnics to contribute to the just transition and ensure their own infrastructure meets environmental standards.

The Strategic Innovation Fund is another excellent way to encourage the private sector to leverage the expertise of institutions to take advantage of the latest innovations. For example, an investment in Inter Pipeline Ltd. has allowed the company to both create student co-op positions and partner with [NAIT](#) on a \$10-million project to research the reuse and recycling of plastic in Canada.

The same fund contributed \$40 million toward the creation of the Mining Innovation Commercialization Accelerator (MICA) Network, which includes [Saskatchewan Polytechnic](#). The focus of this partnership is accelerating the development and

commercialization of innovative autonomous and clean technologies in the mining sector, creating as many as 900 new jobs and 12 new businesses.

The success of these programs illustrates the important role of government when it comes to supporting innovation and incenting industry to engage on topics that resonate both from a business perspective and in the national interest.

What gaps in government policies and programming exist to adequately prepare workers for future “green” employment opportunities? Which, if any, anticipate and react to potential employment disruptions?

While this question raises a number of possible answers, we will focus our response in areas particular to polytechnic experience.

Over the last decade, the college sector has experienced tremendous growth in the number of international students coming to Canada, many with the hope and intention of staying long-term. Others will return to countries without clear environmental goals. We see an opportunity to ensure future generations actively participate in Canada’s just transition to net zero, becoming ambassadors of environmental sustainability. Because many government programs and policies are restricted to domestic students – one example of which is the Student Work Placement Program – our member institutions have been limited in the extent to which they can provide pragmatic opportunities to engage the entirety of the green talent pipeline.

When it comes to supporting mid-career workers who wish to access training and upskilling, the Canada Training Benefit is a good start. That said, as we outlined earlier in this submission, more can be done to provide wraparound supports for workers undergoing career change. We are also concerned that those who cannot afford the upfront costs of upskilling and reskilling will fail to take advantage of a tax credit intended to support lifelong learning.

Finally, we recommend ongoing investments to improve labour market information and monitor outcomes to ensure both government and post-secondary institutions can be responsive to changing trends over time.

Are there specific groups or communities that may be at greatest risk of being adversely affected on the path to net zero? What steps can be taken to ensure they are in a position to benefit from this transformation?

While reskilling can be difficult at any age, mid-career workers are often disadvantaged by other domestic and financial responsibilities. When older workers are displaced, finding roles in new sectors that build on their experience and seniority can be challenging. There is a significant threat that these individuals will be left behind. Just transition will require extensive efforts to support and enable such workers to maintain high-quality and satisfying jobs.

We are further concerned about learners challenged by the affordability of upskilling and reskilling, who may choose low-skill and low-paid employment when displaced as an alternative to returning to education. Groups particularly disadvantaged include Indigenous peoples, visible minorities and new Canadians.

Finally, Canada’s shift toward a net-zero economy depends on technology adoption and innovation. Small and medium enterprises may have limited resources to make the necessary investments. Here, polytechnic institutions have a major role to play. They support business innovation primarily through applied research, with services such as product development, process design, technology adoption and proof of concept. Though institutions develop areas of specialty based on industry in their region, applied research is responsive by nature. Prospective partners identify a business or societal need, then polytechnics pull in faculty expertise and student support to respond to those requirements.

How do we go about ensuring that just transition policies are nationally cohesive, regionally driven, and locally delivered?

Canada needs a national vision for its net-zero transition, at once tailored to the country's unique economic strengths and its regional economic realities. While just transition should be implemented regionally and locally, it will require national oversight and coordination. Fragmentation is a recipe for failure to achieve the country's targets.

The approach to just transition must be flexible and responsive as technological solutions, economic indicators and the international environment evolve. In order to achieve this flexible approach, Canada needs disaggregated data that is granular enough to inform decisions. While some of this data can be collected by Statistics Canada and other departments and agencies, much will require collaboration and input from those on the ground.

Post-secondary institutions are embedded in their communities, understand their local industry and its challenges, and are at the forefront of cutting-edge research. Canada should take full advantage of this potential to support the just transition.

About Us

Polytechnics Canada is the voice of leading research-intensive, publicly funded polytechnics, colleges and institutes of technology. Our mission is policy advocacy for federal action in innovation and skills.

Polytechnics Canada members play a critical role in enhancing Canada's productivity and innovation. Through their facilities and networks, our members provide meaningful solutions to industry problems and accelerate knowledge transfer. Graduates are job-ready and equipped with the skills employers need across sectors.

At Polytechnics Canada, we are proud promoters of the polytechnic education model—applied, hands-on and technical; industry-focused and industry-driven. Learn more at polytechnicscanada.ca.