

Foresight

Smart Policy Series



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INCENTIVIZING LOW CARBON PATHWAYS FOR FORESTRY





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To accelerate the pace of innovation to meet low carbon economy requirements, Foresight, Western Canada's first clean technology accelerator supports the growth of SME's with solutions to meet the sustainability challenges of today.

Foresight has identified 12 sectors where technology innovation can make transformative impact. We will delve into each of these sectors to share future trends, their potential impact on reducing carbon emissions and how policy and regulation can play a role in creating a supportive market for technology to scale with reference to real-life examples. We start the the series with the Forestry sector.

THE LINK BETWEEN FORESTRY AND CLEAN TECHNOLOGY

Earlier this week the [UN Intergovernmental Panel on Climate Change](#) (IPCC) released a special report stating we need to act now to lower carbon dioxide emissions by 45% from 2010 levels by 2030 and reach net-zero by 2050 to keep global warming to 1.5 degrees. Lowering emissions to this degree requires rapid decarbonization in energy, industry, buildings, transportation and cities.

Forests play a significant role in mitigating CO₂ emissions, by their carbon sequestration capability as well as contributing to the substitution of fossil-based materials in downstream industries. Significant new clean technology opportunities are emerging to convert

wood-based biomass into everything from electricity and heat to transportation fuels, bio-chemicals, plastics and next generation bio-materials and building products.

Insights from Foresight



Drones can plant up to 100,000 trees a day using smart technology.

This varied new forest “bio-economy” has the potential to become an important segment of Canada's forest economy as recently mentioned in [Policy Magazine](#) as well as ensuring a more environmentally sustainable forest industry for many generations to come.

HOW IS REGULATION SUPPORTING INDUSTRY?

Technology innovation is one part of the solution. Navigating and incentivizing markets for these new clean technology products and services is required to transform the forestry industry.

Markets are framed by regulation and policy and supported by standards on a international, national, city and local level. We reviewed instances of international standards and where national governments have embedded policy to shift from business-as-usual to create supply and demand.

CERTIFICATION SUPPORTING SUPPLY OF SUSTAINABLE FORESTRY PRODUCTS

There are global standards certifying the sustainability of forest management such as the Forest Stewardship Council (FSC), the Program for the Endorsement of Forest Certification schemes and the Sustainable Forestry Initiative (SFI). They offer forest certificates and wood product labels for furniture, paper and other types of wood based materials.

Canada is an international leader in 3rd party forest certification including FSC. Within the province of British Columbia alone, there are 52 million hectares of certified forests, accounting for approximately [14% of the world's certified forests](#). These certifications are significant as they provide reasonable assurance that long-term harvests are sustainable and authorized, wildlife habitat is preserved, and soil quality is maintained whilst also creating supply of sustainable wood products.

WHICH SECTORS IS POLICY CREATING DEMAND FOR SUSTAINABLE FORESTRY AND BIO-ECONOMY PRODUCTS?

Construction Industry

Building codes in Canada are evolving and carry significant weight to influence the material used for construction of new buildings. It's been identified that wood-based materials use less energy and emit fewer greenhouse gases (GHG) and pollutants over their life cycle than traditional, energy-intensive construction materials.

Natural Resources Canada (NRCan) are paving a path to further the agenda for wood construction in building codes

and are supporting development of code revisions to permit construction of buildings up to 12 stories high. The federal government is also looking to upgrade the 2020 National Building Code (NBC) [to permit tall wood buildings](#) and establish performance based buildings codes for the 2025 edition of the NBC and beyond. Performance based codes are more outcome based, eliminating the distinction between construction materials but rather rely on scientific evidence of resilience and stability of any given material, including wood. This gives architects and developers more freedom of choice in their materials.

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Vancouver is home to the world's tallest hybrid wood building, called Brock Commons, an 18 storey hybrid mass timber student residence built at the University of British Columbia.

Nationally, in China, up to [19 national and provincial codes have been updated](#) and completed by Government, covering topics such as fire safety, structural design, inspection, seismic safety, engineered wood products prefabricated wood construction, and tall-wood. Specifically in 2016 and 2017, the Chinese Government included wood construction in their 13th Five-Year Plan for Construction, Energy Efficiency and Building Development as well introducing a tall-wood building code at the national level.

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The Chinese city of Liuzhou has commissioned the world's first forest city to mitigate smog and pollution in response to rapid urbanization.

In South Korea, the Government adopted a building energy standard in 2004 and they have continued to revise and [update its requirements](#) to integrate energy efficiency. Wood continues to be viewed as a key building material in meeting targets as determined by the standard. As an incentive to the construction industry, the Government provided financial incentives and low-interest loans to encourage builders to meet energy efficiency targets. In addition, the Low Carbon and Green Growth Act supports the use of sustainable, environmentally friendly forestry products.

Energy Industry

How does forestry relate to clean technology and energy? The feedstocks that support biomass energy generation are either grown for their bioenergy content as 'energy crops' or are waste products sourced from industries such as agriculture or timber production. In the

case of timber, products can come in the form of pellets and wood chips that can be burned in furnances or boilers. This heat can warm homes and businesses or be used for electricity generation. The Wood Pellet Association of Canada highlights that the majority of their members [wood pellets are made from residues](#) sourced from sawmills, pulp mills or low grade timber from forest industry harvest sites.

In Europe, a number of entities are working towards diversifying sources of power for electricity and heat to achieve renewable energy targets as set out by the [EU's Climate and Energy 2020 strategy](#). Bioenergy, the energy stored in biomass, is set to make a significant contribution to this target, already it represents 6% of overall EU generation. This number is expected to grow, particularly as renewable energy in the form of wind and solar generation are intermittent and biomass can play a role as a back-up and dispatchable energy source. What's important to note here is that the wood product used is from a sustainable and well-managed source.

WHAT'S NEXT?

Clearly the markets for innovation in forestry and bio-economy products exist. Support provision for solution providers from launch to scale is crucial to meet market demand.

At Foresight, we do exactly that. For instance, we are supporting emerging Canadian bio-economy innovators such as [BC Biocarbon](#), a bio-refining technology company with a pilot scale bio-refinery to process biomass or biomass derived materials into high grade biocoal, biochar, biogas and other biogenic carbon products.