

Achieving Zero Net Deforestation In British Columbia

Discussion Paper

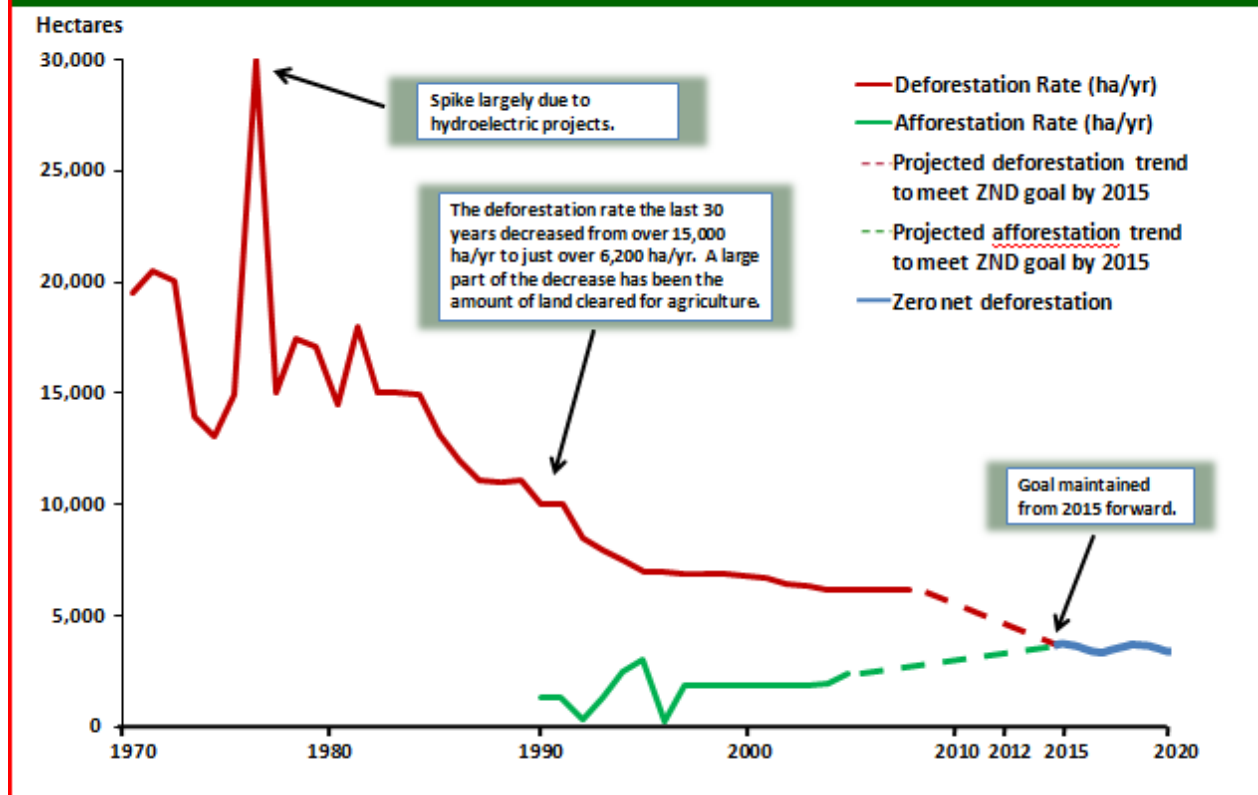


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Ministry of Forests and Range



Zero Net Deforestation Timeline



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Cover photograph: Land clearing for suburban housing, Prince George
Source: Canadian Forest Service http://carbon.cfs.nrcan.gc.ca/TrackingLandUse_e.html

Key Points

- The purpose of this discussion paper is inform readers about the B.C. government's policy of achieving Zero Net Deforestation (ZND) by 2015, and to encourage discussion and feedback about how this goal can best be achieved.
- Deforestation is human-induced land-use change from forest to non-forest uses.
- Deforestation is a source of greenhouse gas emissions, and results in the loss of forests that absorb and store carbon and provide other ecosystem services, such as clean water, wildlife habitat and recreation opportunities.
- Deforestation, as reported in the B.C. and national inventory reports, occurs at a rate of about 6,200 hectares per year in B.C. An estimated 60% occurs on Crown land and 40% on private land. The main activities involved are agriculture, urban expansion and settlement, oil and gas, forestry, industry, and transportation.
- Pursuing ZND supports the B.C. government's [Climate Action Plan](#), under which government and industry are working collaboratively to act in all sectors of the economy and transition B.C. to a low-carbon economy.
- The *Zero Net Deforestation Act* sets the goal in legislation, defines the key terms and sets out the reporting requirements for government. Further definitions and requirements may be described in regulations that would be developed during the public engagement period following the introduction of the Act. Implementation and reporting details will also be developed and refined during the engagement period and over time.
- The approach of the ZND policy is to use existing incentives and awareness activities to promote voluntary action, encouraging businesses and individuals to help achieve zero net deforestation.
- The general objective is to **avoid** and **minimize** deforestation and, where this is not feasible, to **mitigate** impacts by planting trees in non-forest areas (afforestation). When deforestation occurs, an equal area is expected to be afforested to mitigate the loss of forest land.
- There is no requirement that those who deforest have to be the ones who afforest, only that in the province as a whole the area of deforestation is offset by an equal area of afforestation.
- Government is committed to working with First Nations, industry and communities to achieve ZND. Innovative solutions and partnerships will help us achieve this goal. Please provide your feedback about how to best achieve ZND in British Columbia. Feedback can be made **until July 9, 2010** at www.for.gov.bc.ca/hfp/znd

Introduction

Each year, new developments, urbanization, agricultural conversions, new power lines and other utility corridors contribute to deforestation. That releases greenhouse gases into the atmosphere and removes millions of trees that are absorbing and storing carbon. To reverse this problem, your government will pursue a goal of zero net deforestation. It will work with First Nations, industry and communities to put that goal into law by 2010 and establish a viable strategy for realizing that vision by 2015.

— 2008 Speech from the Throne

Climate action is one of the BC government's top priorities. The Climate Action Plan presents an integrated package of initiatives to significantly reduce greenhouse gas emissions in B.C.¹ Government, First Nation, communities and industry are working collaboratively to take action in all sectors of the economy, and transition B.C. to a low carbon economy. Zero Net Deforestation is a key part of the climate action policy framework.

The goal of ZND policy is to support British Columbia's greenhouse gas reduction goals by **avoiding** and **minimizing** deforestation and, where this is not reasonably practicable, **mitigating** impacts by planting trees in appropriate non-forest areas.

Deforestation is defined for this policy as permanent human-induced land-use change from forest to non-forest uses. Approximately 6,200 hectares of land are deforested annually in British Columbia. Forests cover about two-thirds of the province, so community and economic development that creates jobs and serves other social purposes often results in deforestation.

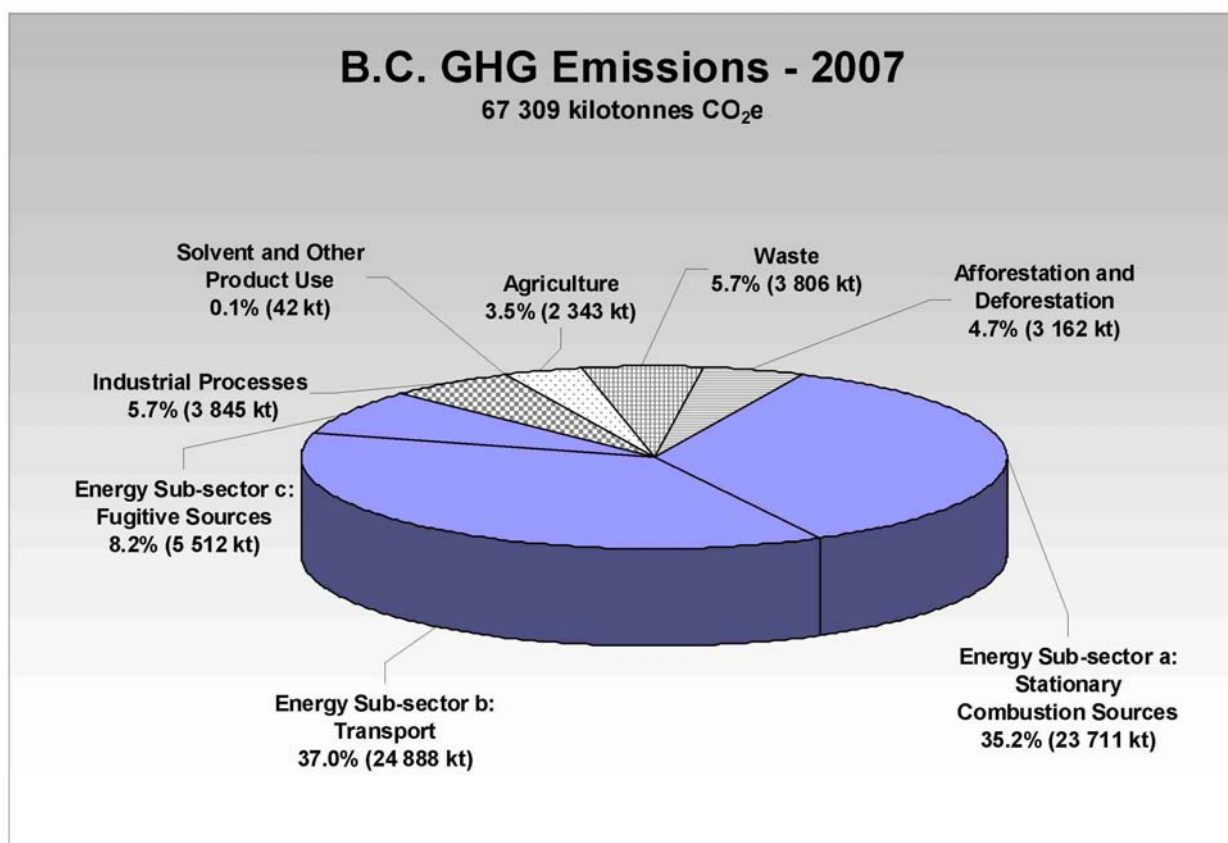
Deforestation results in greenhouse gas emissions and reduces the land's capacity to sequester carbon. In addition, deforestation can result in the loss of long-term timber supplies for the forest industry and ecosystem services such as water, habitat and recreation opportunities.

Globally, deforestation is a major concern, accounting for an estimated 15-20% of the worldwide greenhouse gas emissions. In British Columbia, the deforestation that occurred in 2007 will result in an estimated 2.8 million tonnes of greenhouse gas emissions over the next 20 years. This is approximately 4.7% of the 2007 greenhouse gas emissions in British Columbia.

Government has committed to putting a ZND policy into law by 2010 and must achieve a goal of ZND by 2015.

There are initiatives currently underway which complement ZND. For example, local governments have signed the Climate Action Charter with the Province and are participating in a variety of programs designed to increase the amount of forest cover in communities.

¹ www.livesmartbc.ca/attachments/climateaction_plan_web.pdf



Source: BC Ministry of Environment, 2009

Deforestation in B.C. results in approximately 2.8 million tonnes of carbon dioxide equivalent (CO₂e) annually. Reduction in area deforested could result in an immediate reduction of annual greenhouse gas emissions. A reduction in area deforested will help achieve government's legislated target to reduce greenhouse gas emissions by 33% by 2020. In addition, as one of the first jurisdictions to implement a ZND policy, B.C. is in a position to provide global leadership on this issue.

Background

Deforestation in B.C. is measured periodically using remote sensing and other sampling. The area deforested is measured in hectares. Afforestation is also measured in hectares. Afforestation is more difficult to monitor from remote sensing and will require ground based information to fully report afforestation activities. The greenhouse gas emissions and removals associated with deforestation and afforestation are calculated for emissions reporting. It takes time, while young trees grow, for afforestation to partially offset the emissions associated with deforestation. Therefore, it is desirable to avoid and/or minimize reduce the area deforested wherever possible. A reduction in the annual rate of deforestation will result in an immediate reduction in the annual greenhouse gas emissions associated with deforestation.

An estimated 60% of the deforestation in B.C. occurs on Crown land and 40% on private land. As noted in the table below, recent estimates show that public and private land in BC is currently being deforested at a rate of 6,200 hectares per year. This amounts to 0.01% of the 59 million hectares of forested area in B.C. The main categories for deforestation in 2007 were agriculture, urban expansion, forest roads, mining, and oil and gas development. Hydroelectric development has been a significant source of deforestation in past decades, but is currently not a major contributor. It could be a significant contributor again if new hydroelectric projects proceed. Timber harvesting is not considered deforestation when the land is sustainably managed and followed by reforestation.

2007 Deforestation Estimates By Sector (hectares)

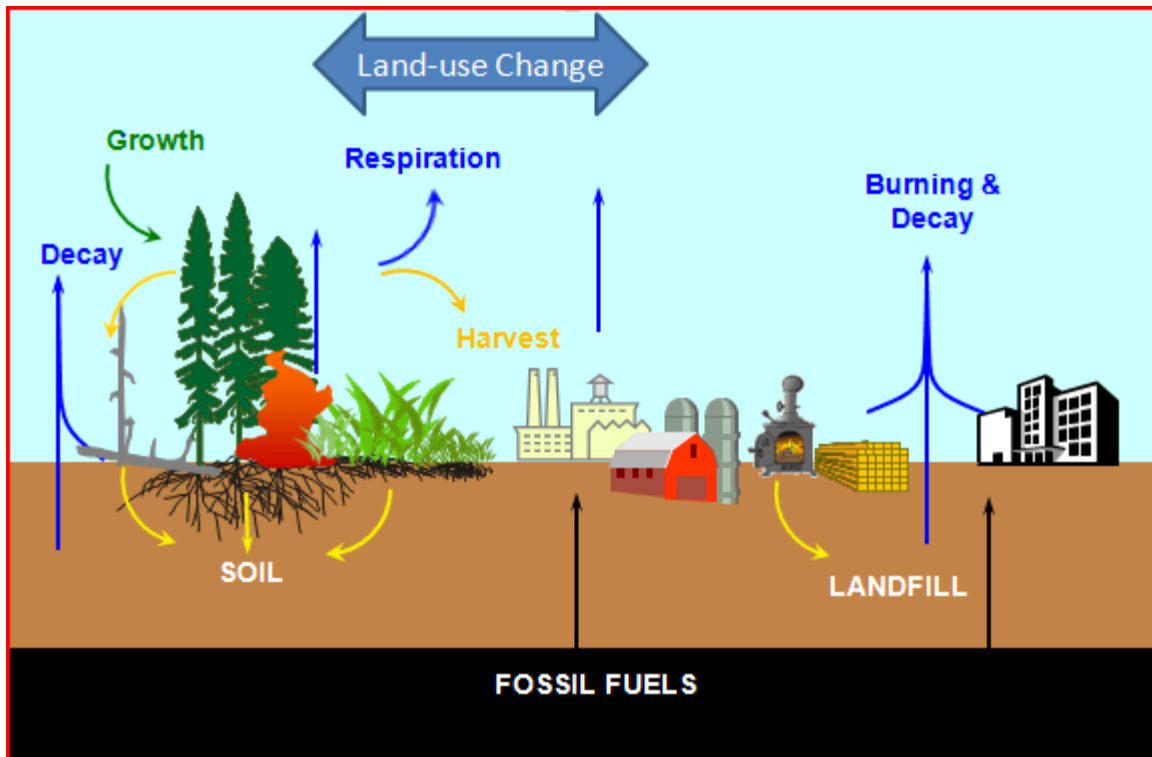
Total	Agriculture	Forestry	Industry	Mining	Settlement	Oil & Gas	Recreation	Transport
6,220	1,780	820	170	620	1,420	1,130	110	150
100%	29%	13%	3%	10%	23%	18%	2%	2%

Source: Canadian Forest Service and Ministry of Environment

Greenhouse Gas Emissions from Deforestation

Greenhouse gas emissions from deforestation are currently calculated by estimating the woody biomass (the mass of living biological organisms in a given area) on a site and the decomposition of that biomass over a period of time (20 years in most cases). The overall emissions are influenced by the site biomass, the way the land is cleared, the type of land-use change, and the use of the wood. Several complexities relate to these factors:

- The amount of biomass on a site is highly variable over time. At an early seral stage (after a forest disturbance such as a landslide) the amount of biomass on a site could be low. However, old forest (especially temperate rainforest) can have very high biomass storage. The deforestation of a hectare of early seral forest therefore results in much lower CO₂e emissions than the deforestation of a hectare of mature temperate rain forest.
- The way that an area of forest is cleared can have a significant impact on emissions. Burning cleared timber can have significantly higher initial greenhouse gas emissions than allowing the biomass to decay.
- The type of new land-use can have a significant effect on the emissions. Clearing an area for agriculture or grassland will have lower emissions than clearing an area to build a parking lot. Cropland or grassland soil, and any trees remaining on the site, will retain some carbon and have ongoing potential to sequester carbon in biomass.
- Current United Nations Framework Convention on Climate Change accounting attributes emissions at the time clearing occurs, which does not consider the long-term storage of carbon in wood products.



In natural systems (left), carbon is removed from the air and stored in trees, plants, and the soil. Greenhouse gases are released by decay and fire. Land use change (middle) may permanently remove trees and plants. Forest products, like furniture and buildings, (right) store carbon until they decay or burn.

Definitions

The following definitions are used by Environment Canada for international reporting of national greenhouse gas emissions, as required under the [UNFCCC](#). Canada developed these definitions to suit Canadian circumstances, based on somewhat flexible international definitions under the Kyoto Protocol, as described in the [Marrakesh Accords](#). Those definitions are used by the [Intergovernmental Panel on Climate Change](#), which was established to provide decision-makers and others interested in climate change with authoritative and objective information about climate change.

B.C. intends to use these Canadian definitions to ensure credibility through consistency with national reporting. Other definitions and additional reporting may be developed for the purpose of tracking the net deforestation within British Columbia – for example, special terms could be developed for consideration of existing urban forest, urban “green” development, and narrow agricultural riparian plantings, shelterbelts and other buffers.

- **Forest:** A minimum area of one hectare, at least 20 metres wide, with tree crown cover (or equivalent stocking level) of more than 25% with trees having the potential to reach a minimum height of 5 metres at maturity. A forest may consist of closed forest formations (where trees of various storeys and undergrowth cover a high proportion of the ground) or open forest. Young natural stands and all plantations which have yet to reach a crown density of 25% or tree height of 5 metres are considered to be forest. As well, forest includes areas normally forming part of

the forest area that are temporarily unstocked as a result of human intervention (such as harvesting) or natural causes, but which are expected to revert to forest.

- **Deforestation:** Permanent, human-induced land-use change from forest to non-forest land cover. Sustainable forest harvesting, including clearcutting, is not considered deforestation, as the land-use does not change and the land cover is expected to regenerate to forest.
- **Afforestation:** The direct human-induced conversion of land that has not been forested since December 31, 1989 to forested land through planting, seeding and/or the human-induced promotion of natural seed sources. This definition of afforestation differs from the UNFCCC definition as it combines UNFCCC afforestation and reforestation into the one category 'afforestation'. This is done to avoid confusion with the long-term use of a different meaning of the term 'reforestation' in B.C.
- **Zero Net Deforestation:** The aggregate area of lost forest land in B.C. is offset by an equal area of afforested land in B.C. Hectares of deforestation and afforestation are currently reported in the B.C. greenhouse gas inventories. Areas deforested and afforested can be measured on the ground using GPS, or remotely using satellite imagery or aerial photos. Google Earth and other tools make it possible to identify and track area deforested over time, providing transparency for government agencies, industry sectors, First Nations, and the public.



Deforestation for the Hartland Landfill, in the Capital Regional District. Photo credit: Google Earth

A Voluntary and Incentives Based Approach

The approach of the ZND policy is to use existing incentives and raising awareness to promote voluntary action, encouraging businesses and individuals to help achieve zero net deforestation.

There is no mandatory requirement for those who deforest to be the ones who afforest, only that in the province as a whole the area of deforestation is offset by an equal area of afforestation.

Incentives

The following incentives could be used to help fund afforestation that would ensure meeting the goal of zero net deforestation:

- Tax Incentives (Business Expenses) – Afforestation costs can be deducted as a business expense.
- Tax Incentives (Charitable Donations) – Charitable donations by individuals and corporations provide tax credits for tree planting. For example, donations to Tree Canada, a registered charitable organization, can be used to fund tree planting in B.C.
- Fees and Property Tax Incentives – To avoid, minimize, or mitigate deforestation, local permit fees and property tax could be reduced, e.g., by reclassification to Private Managed Forest Land. Communities that have signed the Climate Action Charter will have the incentive to exercise many potential options.
- Carbon Offsets – Afforestation projects can generate offset credits in voluntary and regulated offset markets, including the Pacific Carbon Trust.

Raising Awareness

The ZND policy public engagement process involves providing information about:

- 1) Ways to reduce and minimize deforestation,
- 2) Best practices in smart growth and transportation,
- 3) Ways to afforest and collect funds from offset programs, and
- 4) Linking into the Province's Green Communities initiative.

Another possibility is to develop a public recognition program (similar to certification systems such as LEED), and encourage partnerships and other ways to leverage funding.

Next Steps

Achieving ZND will make a significant contribution to B.C.'s climate action plan by reducing greenhouse gas emissions. Government is committed to working with First Nations, industry and communities to establish a viable strategy for achieving ZND by 2015. Innovative solutions and partnerships will help us achieve this goal. We need your help developing details for how to implement the ZND policy.

A ZND website has been set up to give you an opportunity to provide input **by July 9, 2010**. Please go to www.for.gov.bc.ca/hfp/znd for additional information and to provide feedback.

Thank-you for your interest in zero net deforestation.