

Nova Scotia Cap and Trade Program Design Options



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Introduction

Nova Scotia is already experiencing the impacts of climate change. Coastal erosion, sea level rise, changes in precipitation patterns, flooding, and drought are affecting our communities, homes, and businesses. Scientists agree: human activities are the cause of these changes and we need to respond, otherwise human health, the environment, and the economy are all at serious risk.

Nova Scotia's approach to climate change is guided by two main goals:

1. To play a role in global efforts on climate change by reducing greenhouse gas (GHG) emissions
2. To ensure Nova Scotia is prepared for, and resilient to, climate change

In 2007, we legislated the Environmental Goals and Sustainable Prosperity Act, which aims to make our province cleaner, greener, and more economically sustainable. The Act requires that, by 2020, Nova Scotia reduce GHG emissions by 10 per cent below the levels they were in 1990. Nova Scotia's 2009 Climate Change Action Plan also includes a longer-term goal to reduce GHGs by 80 per cent by 2050.

Nova Scotia is committed to taking long-term action on climate change. We are reducing GHG emissions, building a clean and innovative economy, and adapting to new realities. We are making gradual shifts so we rely less on fossil fuels. In this way, we will prevent the high cost of having to transition abruptly.

To date, Nova Scotia's approach has focused primarily on the electricity sector, our largest source of emissions. On December 9, 2016, Nova Scotia endorsed the Pan-Canadian Framework on Clean Growth and Climate Change. The framework builds on the actions of the provinces and territories to grow the economy, reduce emissions, and adapt to a changing climate. As part of the framework, Nova Scotia committed to establishing a cap and trade program to comply with the federal carbon pricing benchmark: <http://news.gc/web/article-en.do?nid=1132169>.

With the introduction of the cap and trade program, Nova Scotia will address additional sources of GHG emissions. We will regulate approximately 90 per cent of Nova Scotia's GHG emissions. While we develop the program, it is critical that we take a thoughtful, transparent, and open approach that respects the diverse nature of our province. The purpose of this paper is to seek feedback from stakeholders on the key design elements of the cap and trade program.

Nova Scotia's Greenhouse Gas Emissions: Progress to Date

Most of Nova Scotia's GHG emissions, about 44 per cent, come from the electricity sector. Transportation is the second largest contributor followed by heat for residential buildings (Figure 1).

Since 2005, Nova Scotia's GHG emissions have been declining and we are the provincial leader in reducing emissions. According to the most recent data, Nova Scotia's GHG emissions were 16.6 million tonnes of carbon dioxide equivalent (Mt CO₂e) in 2014 (Figure 2). This means that we are already 17 per cent below 1990 levels and 29 per cent below 2005 levels and projected to continue our successful record of reducing GHG emissions.

Figure 1. Nova Scotia GHG Emissions 2014

(Source: National Inventory Report 1990–2014: Greenhouse Gas Sources and Sinks in Canada)

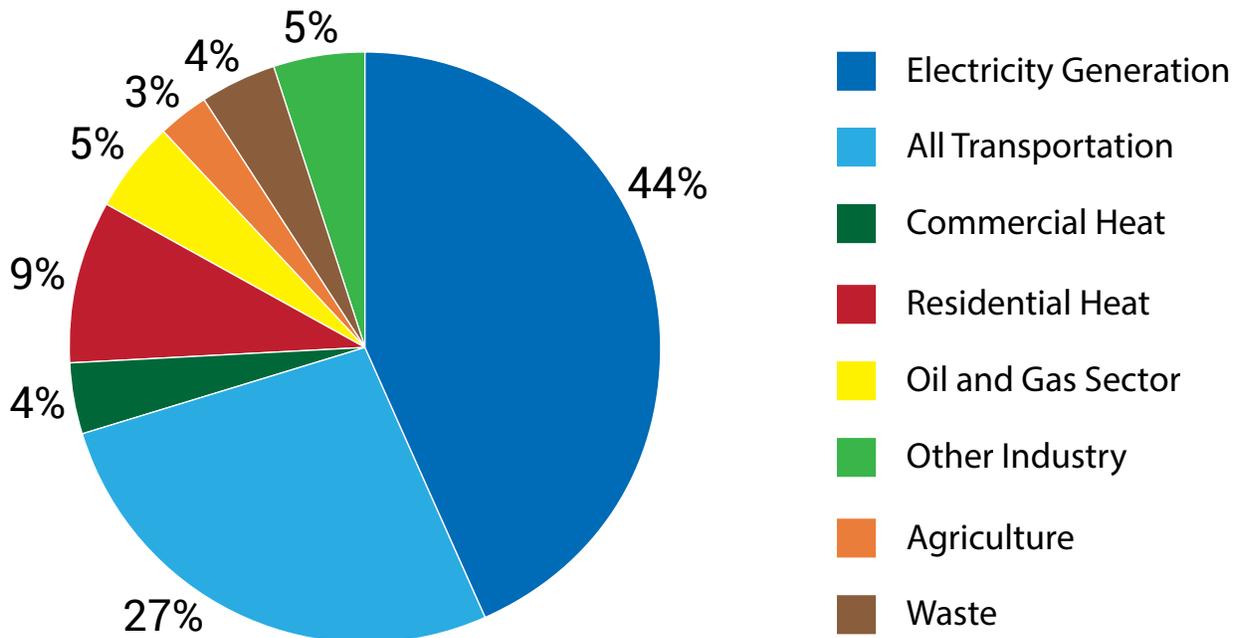
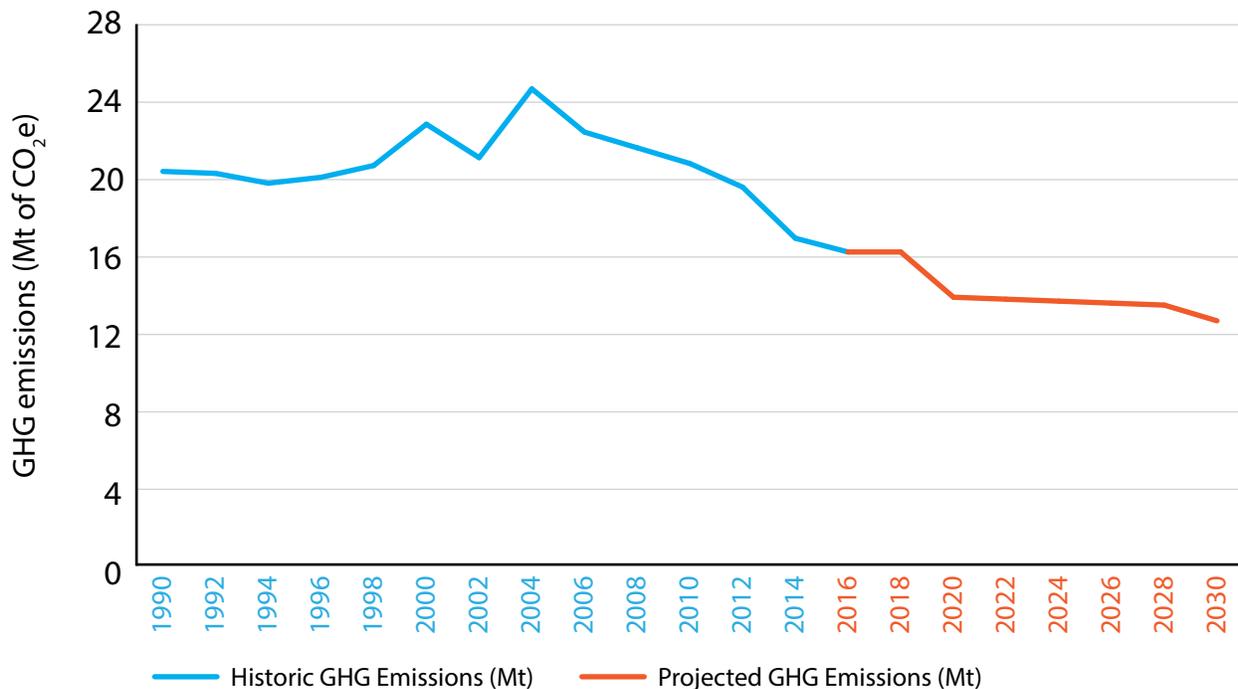


Figure 2. Nova Scotia's GHG Emissions, Historical and Projected

(Sources: National Inventory Report 1990–2014: Greenhouse Gas Sources and Sinks in Canada; Canada's 2016 Greenhouse Gas Emissions Reference Case)



The progress we have made in reducing GHG emissions is partly due to the action Nova Scotia has taken in the electricity sector. In 2006, about 80 per cent of the province's electricity was generated from coal. This dependence on coal for electricity compromised our air quality, contributes to climate change, and makes the province vulnerable to volatile world prices and supply. In 2015, coal accounted for 56 per cent of total generation, a steep decline due to the regulatory measures outlined below.

To support the transition away from coal as the dominant energy source, Nova Scotia placed hard caps or emission limits on GHGs from the electricity sector. In 2009, Nova Scotia's regulated GHG caps required a 25 per cent reduction in GHGs by 2020. In 2014, those regulations were strengthened and extended when the Canada–Nova Scotia equivalency agreement for coal-fired electricity generation was signed. This agreement requires electricity sector emissions be reduced by 55 per cent by 2030 in the most cost-effective way for ratepayers.

Equivalency agreement on coal-fired electricity: Nova Scotia acted early to reduce GHGs from the electricity sector. That put us in a good position to negotiate an important agreement with the federal government that will save Nova Scotians hundreds of millions of dollars.

The 2014 equivalency agreement between the Government of Canada and the Government of Nova Scotia on coal-fired electricity ensures that Nova Scotia's GHG regulations apply in Nova Scotia instead of Canada's coal-fired electricity regulations. Nova Scotia will achieve the same reductions in GHG emissions at a much lower cost to ratepayers.

The agreement meets the needs of both governments by avoiding duplication of efforts to control GHG emissions and ensuring the electricity sector has only one set of regulations to follow. It allows Nova Scotia the flexibility to reduce the province's electricity-sector GHG emissions in a manner that produces the greatest benefit to the environment over the long term, and has the least effect on provincial power rates.

The GHG caps on electricity work together with the requirement for 25 per cent of our electricity to come from renewable sources by 2015 and 40 per cent by 2020. In 2007 our renewable sources were 9 per cent of total electricity. Currently, almost 27 per cent of the generated electricity comes from renewable sources. Investments in the Maritime Link, an overland and subsea transmission cable, will give Nova Scotia access to hydroelectric power from the Lower Churchill Hydroelectric project and will help us meet our 2020 target.

We have also invested in energy efficiency. Nova Scotia has Canada's first energy efficiency utility, Efficiency Nova Scotia. This independent organization has achieved an annual reduction in electricity demand of over 1 per cent since its creation. It also administers comprehensive energy efficiency programs for low income and First Nations Nova Scotians. These efforts reduce GHG emissions while supporting the growth of the low carbon economy.

This integrated and flexible approach to addressing GHG emissions helps the utility plan an affordable transition away from coal toward more renewable electricity and improved energy performance while encouraging innovation as a means of keeping costs down.

We are already well on our way to cleaning up the electricity sector and will continue to support the shift in our electricity system away from coal and toward more renewable sources and efficiency. We now need to address GHG emissions from other sectors, such as industry, transportation, and buildings. The cap and trade program will help build on existing programs and structures, reduce GHG emissions in other sectors, and support the decarbonization of our energy needs.

Nova Scotia's Cap and Trade Program

As part of the Pan-Canadian Framework on Clean Growth and Climate Change, Nova Scotia committed to establish the cap and trade program to comply with the federal carbon pricing benchmark.

Nova Scotia's cap and trade program approach balances economic prosperity with environmental effectiveness. We will monitor how well the cap and trade program functions and delivers results, and adjust as needed. To comply with the federal carbon pricing benchmark, the program will

- have an emission limit (cap) based on the federal government's carbon pricing benchmark of \$10/tonne CO₂e in 2018, rising to \$50/tonne in 2022
- at a minimum have a 2030 target of 30 per cent below 2005 levels
- include at a minimum, the emissions from the combustion of fossil fuels

Nova Scotia is also proposing that there be no transfers of emissions in or out of the province; therefore, we do not plan to link with a cap and trade program in another jurisdiction at this time.

This discussion paper introduces the concepts, mechanisms, and design features being considered for the cap and trade program. Some options are yet to be decided and require input and feedback from stakeholders.

The feedback we receive will be used to develop Nova Scotia's cap and trade program and the regulatory framework that supports implementation. There will be additional opportunities for stakeholders to participate and provide feedback throughout 2017.

Principles for Nova Scotia's Cap and Trade Program

Nova Scotia's cap and trade program will be developed with the following principles in mind. We will work to achieve the most appropriate balance through stakeholder feedback.

- Environmental effectiveness—support an absolute reduction of GHG emissions
- Economic growth—support low carbon growth and investment in new and existing industries
- Competitiveness—support a competitive economy and prevent carbon leakage
- Administrative efficiency—use simple, consistent, and effective administrative systems
- Fairness—treat households, sectors, and facilities consistently and fairly
- Accountability—ensure accurate and measurable emissions data, and effective enforcement and compliance
- Transparency and predictability—share information and data to support regulatory certainty
- Flexible and adaptable—be flexible to adapt to current and future conditions

Questions:

1. Are there additional key principles that should be considered?
2. How would you prioritize the proposed principles? Why?
3. Should the Nova Scotia cap and trade program link with an external cap and trade program in the future?

Basic Elements of a Cap and Trade Program

Cap and trade systems have been used by several jurisdictions around the world as an efficient tool for pricing and reducing GHG emissions. In North America, several New England states participate in the Regional Greenhouse Gas Initiative (RGGI), while Quebec and California have established a regional cap and trade program, known as the Western Climate Initiative (WCI). Ontario is expected to join WCI in 2018. While Alberta does not have a cap and trade program, they allow emission trading between large industrial facilities. Nova Scotia has the benefit of learning from the experiences of these programs, as well as from others internationally, to develop a system that is robust and works for Nova Scotia.

Under a cap and trade program, the government establishes a limit (cap) for the total GHG emissions that can be released in one or more sectors of the economy. Tradeable emissions allowances are issued to program participants in an amount that does not exceed the level of the cap. Each allowance is equal to one metric tonne of GHG emissions, measured in carbon dioxide equivalent (CO₂e).

If a program participant reduces emissions below their allocation, they can choose to sell excess allowances or bank them for future use. If a program participant's emissions exceed their allocation, they will need to obtain allowances from other sources, such as from another program participant that has excess allowances. If available, they may also purchase offset credits from sectors outside the cap.

The cap on emissions and the ability to trade allowances establishes value for each allowance and an incentive to reduce GHG emissions. Establishing a cap means that an absolute GHG emissions reduction will occur. To ensure GHG emissions are truly reduced and valued fairly, the cap and trade program requires GHG emissions monitoring, reporting, verification (MRV), compliance enforcement, and penalties.

Cap and Trade Program Design Options

Nova Scotia's cap and trade program will include the basic elements and principles described above. We are seeking feedback and input on several design options and details, which are:

1. Program scope, who is covered by the program
2. The cap, or the limit on emissions
3. Allowance distribution, how the allocations will be distributed to program participants
4. Program design features, the main elements guiding implementation
5. Compliance flexibility mechanisms that shape how program participants can comply with requirements
6. Use of offsets from industries not participating in the program that will contribute to Nova Scotia's GHG reductions
7. Compliance and enforcement requirements include how government will ensure the program is delivering as envisioned

For each of these, there is an outline of the proposed approaches below, as well as questions to support discussion and feedback.

1. Program Scope

The scope of the cap and trade program identifies who is required to participate and the types of GHG emissions included in the program. If the program has a broader scope that includes more GHG emissions sources, it will include a greater portion of Nova Scotia's GHG emissions. This helps lower compliance costs for individual sectors, provides incentives for broad behaviour change, and gives more certainty that targets and goals can be achieved.

This section outlines mandatory participants, point of regulation, emissions coverage, new entrants, and voluntary participants.

a. Mandatory Participants

Provincial carbon pricing programs need broad and consistent coverage of GHG emissions. At a minimum, Nova Scotia's cap and trade program will include GHG emissions associated with the use of fossil fuels, such as gasoline, diesel, natural gas, heating oil, propane, coal, and petroleum coke.

The point of regulation identifies what entities are required to participate in the program, or the mandatory participants. Mandatory participants need to have enough allowances to match the amount of GHG emissions they report. GHG emissions need to be attributed to mandatory participants in a clear and simple way.

Further details around the monitoring, reporting, and verification rules will be developed and implemented to support GHG accounting, attribution, and tracking.

Proposed Approach

Nova Scotia's cap and trade program proposes to include the following mandatory participants:

- Industrial facilities with annual GHG emissions equal to or greater than 100,000 tonnes CO₂e, covered at the point of emission.
- The electricity sector covered at the point of emission.
- Petroleum product suppliers that place more than 200 L of fuel per year are covered at the point where fuels are first placed into the Nova Scotia market for local consumption.
- Natural gas distributors covered where gas is transferred from pipeline into the distribution network for local consumption.
- Households will not be responsible for compliance, but will indirectly interact with the program through the fuel they purchase.

It is anticipated that there will be fewer than 20 mandatory participants in Nova Scotia's cap and trade program.

Other Options

- Cover all industry at the fuel supplier/distributor level.
- Cover all industry with a threshold lower than 100,000 tonnes CO₂e.

Questions

1. Should identified mandatory participants have a different point of regulation than what is proposed? If so, why?
2. What are the implications of the identified points of regulation?
3. Should Nova Scotia consider a different GHG emissions threshold for industrial facilities?

b. Emissions Coverage

GHG emissions can be generated from different sources, activities, and processes. For example, emissions are typically, and most commonly, generated from the combustion of fossil fuels, but they can also be generated from fixed processes associated with the chemical or physical reactions in industrial operations. Process emissions can vary by sector.

Proposed Approach

Nova Scotia's cap and trade program proposes to include both combustion emissions and fixed process emissions.

Including fixed process emissions means a broader scope of emissions are included for program participants. A broader scope for emissions can also reduce the cost of the policy, if it accesses low cost opportunities for reducing non-combustion GHG emissions. This supports long-term emissions reductions and incentivizes innovation to reduce process emissions and implement novel technology.

Other options

- Include only combustion-related emissions.

Questions

1. Should only combustion emissions be included? Why?
2. Should the treatment of fixed process and combustion emissions differ?
If so, how?

c. New and Expanding Facilities

New facilities, or expansions of existing facilities, are important to Nova Scotia's economic growth. Nova Scotia intends to treat these facilities in a manner that fosters growth while maintaining a stable cap and trade program.

Nova Scotia's economy-wide GHG emissions are relatively small. It is possible that a large new industrial facility that goes into operation in the province could significantly increase GHG emissions and therefore change the conditions under which the cap and trade program is operating. Program design must therefore foresee this possible impact, balancing environmental effectiveness with economic development while supporting a competitive economy and preventing carbon leakage. Carbon leakage can occur if a facility relocates to other jurisdictions and produces carbon emissions identical to what existed in the home jurisdiction. Jurisdictions risk bearing the economic costs of lost production or investment with no net change in global GHG emissions.

Question

1. How should Nova Scotia design GHG policy to address new large and expanding facilities that compete in global markets?

d. Opting In

In some cap and trade programs voluntary participation is possible for covered sectors that do not meet the threshold for requiring a compliance obligation (e.g., 100,000 tonnes CO₂e). For example, a facility that emits 30,000 t CO₂e in a year falls below the threshold but may want to participate in reducing emissions to sell allowances in the cap and trade program.

Proposed Approach

- No voluntary participation is allowed; this will be evaluated in 2020.

Other Options

- Voluntary participation for emitters above a minimum threshold is allowed and subject to monitoring, reporting, and verification.

Questions

1. Is having no voluntary participation an option that is supported by stakeholders? If not, why?
2. Are there benefits or problems that should be considered?
3. If voluntary participation is allowed what should the minimum GHG emission threshold be?

2. The Cap

The cap and trade program will include a cap, or emissions limit, that applies to mandatory participants. The cap is equal to the total number of allowances available each year. An allowance, which is supplied by the government, allows the holder to emit one tonne CO₂e. A tighter, more ambitious cap means fewer emission allowances are available for compliance and trading.

Nova Scotia will set a cap on GHG emissions in three-year compliance periods. The first compliance period will be 2018–2020 followed by the second compliance period of 2021–2023. The cap will decline at a predictable rate and will correspond to the reductions projected to result from the application of the federal carbon benchmark price of \$10/metric tonne of CO₂e emissions in 2018 and rising by \$10/year to \$50/metric tonne of CO₂e emissions in 2022.

The process of setting the caps is still underway and will be completed in partnership with Environment and Climate Change Canada.

Questions

1. What abatement opportunities do you think exist that support achieving GHG emissions in the 2018–2023 period?
2. At what cost can these abatement opportunities be attained (\$ per tonne of CO₂e reduction)?
3. Are three-year compliance periods appropriate? If not, what should they be?

3. Allowance Distribution

There are several different ways that allowances can be distributed to program participants. They could be auctioned, distributed for free, or a combination of both. Since allowances are tradeable, they have value whether they are auctioned or distributed at no cost. With a declining cap, over time allowances will become more scarce.

It is proposed that the majority of allowances will be distributed up to the cap at no cost in Nova Scotia's cap and trade program. This saves participants money in the short-term because they do not have to pay for allowances, thereby reducing the overall cost of the program on the Nova Scotia economy. Distributing allowances at no cost also gives program participants a greater ability to consider making GHG-reducing investments instead of purchasing auctioning allowances. Free allocation also helps protect competitiveness through reducing overall compliance costs, which will avoid Nova Scotia production from moving to another jurisdiction and continuing to emit carbon.

Proposed Approach

Nova Scotia is still in the process of determining the best approach for distributing allowances to program participants. The methodology by which allowances will be distributed may involve one or more of the following approaches:

Distribution based on historical and projected emissions: Allowances are distributed to program participants based on their historical GHG emissions, either as an average of several recent years, or the single most recent year.

Distribution using output-based allocation: An output-based allocation approach provides allowances according to a predefined GHG emissions intensity (emissions over production). The predefined GHG emissions intensity could be based on fixed sector benchmarks or the participant's own historical GHG emissions intensity. Allowances are distributed by multiplying output by the benchmark.

Distribution based on fixed-sector benchmark: This approach establishes a series of GHG emissions intensity benchmarks for different products under the cap. Allowances are then allocated by multiplying the historical output by the benchmark. Once the level of allowances is set, future changes in product output have a limited impact on the amount of allowances received.

Questions

1. What are the benefits and risks associated with choosing one or a combination of the proposed methodologies?
2. What allowance distribution frequency would best support program participants' planning?
3. Are there other methods for distributing allowances that would be supported by program participants? If so, what?
4. Should Nova Scotia consider auctioning allowances?

4. Program Design Features

Generally accepted best practices have been developed to support the continued functioning of a cap and trade program and to help prevent manipulation, reduce administrative costs, support regulatory certainty, and promote transparency. Best practices include establishing specific market and trading rules, such as registration requirements for program participants and establishing a strategic allowance reserve to help promote market stability.

Proposed Approach

Nova Scotia's cap and trade program is proposed to include the following program design features to help ensure an efficiently functioning program:

Registration Requirements: All cap and trade participants will be required to register with a coordinating body to identify the ultimate owner of allowances. Registered entities would have two accounts: a trading account for trading allowances and a compliance account that would be used to satisfy the obligations of carbon limits.

Trade Rules: Some administrative checks are required for trading allowances between participants in the cap and trade program. Trades must be submitted and confirmed by two account representatives from the seller's account and approved by one representative for the receiving account.

Program Rules: Cap and trade program participants will be subject to a holding limit to ensure the program cannot be dominated by a single entity.

Strategic Reserve Sales: A portion of allowances from current and future years will be placed into strategic reserve. Program participants can purchase these allowances directly from the reserve at set prices. This will increase the supply of allowances available in the cap and trade program, and moderate any upward pressure on allowance price while maintaining the integrity of the cap.

In some cap and trade programs, fewer allowances from the annual allowance budget will be placed in the strategic reserve in the early years, while in later years a greater portion of the annual allowance budgets will be set aside. Differentiating in time the quantity of allowances set aside for the strategic reserve will allow participants time to adjust to the new system and not limit the number of allowances that are available for compliance.

- A percentage of total allowances from both compliance periods (2018–2020; 2021–2023) would be set aside for the strategic reserve.
- Allowances from the strategic reserve will be available at specific price tiers, to be determined.

Questions

1. Will the proposed program design features enable the effective functioning of the cap and trade program?
2. Are there any other key program design features that should be considered?
3. Is the strategic reserve design features supported by stakeholders?
4. What percentage of allowances should be used for the strategic reserve?
5. What should the price tiers be for the strategic reserve?

5. Compliance Flexibility Mechanisms

Flexibility mechanisms, such as allowance banking, multi-year compliance periods, and offsets, allow program participants to plan and implement the compliance strategies that work best for them.

Proposed Approach

Banking

The ability to save allowances across compliance periods provides flexibility for participants to plan over several years. This “banking” of allowances is intended to limit price variability as participants buy additional allowances during times of relative oversupply and use or sell them when supplies are short and prices are higher.

- Nova Scotia’s cap and trade program proposes to allow for banking of allowances, subject to holding limits.

Multi-year Compliance Periods

Multi-year compliance periods provide capped participants with the flexibility to plan across multiple years. For example, a particularly cold winter may require the generation of additional electricity, and that will produce additional GHG emissions beyond what was expected that year. Participants would only need to “true-up” (ensure the allowances in their compliance account match their compliance obligation) at the end of a multi-year compliance period. Nova Scotia currently uses multi-year compliance periods in the Greenhouse Gas Emissions Regulations.

- Compliance periods are proposed to be established for the 2018–2020 and 2021–2023 years.

Offsets

Offset programming (offsets) is a specific type of compliance flexibility mechanism that is discussed in the next section.

Questions

1. Do these features support the transition to the cap and trade program effectively?
2. Should borrowing be an eligible compliance option? Why or why not?
3. Would program participants consider alternative compliance period designs?
4. Are there other flexibility mechanisms that should be considered?

6. Use of Offset Credits

Offset credits will recognize real, additional, enforceable, verifiable, and permanent reductions of GHG emissions that occur outside the cap and can be used to satisfy compliance obligations for program participants.

Offsets allow additional flexibility to program participants and can reduce their compliance costs. Offsets can also enable sectors that are not covered to participate and generate revenue for investing in low emitting technologies for reducing GHG emissions. WCI members currently limit the use of offsets for compliance obligation to 8 per cent.

Proposed Approach

- Nova Scotia proposes to use Nova Scotia–generated offset credits for compliance in the cap and trade program.
- Nova Scotia will examine opportunities for adopting existing offset protocols acceptable for use in Nova Scotia’s cap and trade program.
- Nova Scotia will examine opportunities for using existing GHG systems to track offset credit generation and use.

Questions

1. What offset opportunities exist in Nova Scotia?
2. Do you know the potential emission reduction it would represent?
3. Should there be a limit to the proportion of offset credits for participants to use to satisfy a compliance obligation?
4. Are there specific offset protocols you would recommend?

7. Compliance and Enforcement Requirements

A cap and trade program needs a rigorous approach to ensure enforcement of participants’ obligations and effective government oversight of the system. Monitoring, reporting and verification of GHG emissions will be required.

Following a compliance period, all program participants with a compliance obligation must surrender compliance units (e.g., allowances, offset credits) equal to their emissions during the period. This process is commonly referred to as a true-up.

Program participants that exceed their GHG emissions allowances, provide fraudulent or misleading information, or do not comply with trading or program rules will be subject to penalties.

Proposed Approach

- Program participants will be required to submit verified GHG emissions reports by June 1st following the year in which GHG emissions were generated.
- Program participants with a compliance obligation will be required to partially true up for 30 per cent of their annual emissions by November 1st each year.
- Program participants with a compliance obligation will be required to true-up for 100 per cent of their emissions by November 1st in the year following the end of the compliance period.
- Further details regarding regulatory contraventions and administrative penalties will be included in the proposed regulatory framework.

Questions

1. Is a 30 per cent partial true up supported by program participants? If not, why?
2. Are there any other compliance and enforcement mechanisms Nova Scotia should consider including?

Feedback

Thank you for taking time to provide feedback on Nova Scotia's Cap and Trade Design Options paper. You can provide your feedback by mail or email.

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All feedback submitted to Nova Scotia Environment will be considered public and, therefore, may be shared through freedom of information requests, under the Nova Scotia Freedom of Information and Protection of Privacy Act.