

Decoding Carbon

#DECODINGCARBON

Backgrounder: What role can policy play in building a low carbon future?



Market Failures and Government Intervention: Need for Climate Policy

Climate change is a **negative externality** resulting from **greenhouse gas (GHG) emissions** released into the atmosphere. This in turn has led to many negative impacts across the globe, and many more impacts predicted to cause severe negative harm to Earth. In the event that a market activity causes negative externalities, **government intervention** is required to ensure the overall optimal outcome of that market activity. Government intervention for regulating climate change can take many forms, but ultimately it is dictated by the climate policy set by the government. As such, the climate policy will outline the overall goals of the government in regard to tackling climate change. Consequently, this policy drives the creation of various laws and regulations that enforces certain behaviour across various markets.

Examples of government intervention in the context of climate change include various options, such as putting a price on pollution from greenhouse gas emissions through carbon tax or a cap-and-trade system, putting in place performance standards, investing in research and innovation for developing clean technology, supporting energy efficiency standards and so on. These climate policy options are explored in detail under the Climate Policy Options topic below.

Impact Assessments

Considering climate change is a negative externality, should the costs associated with the onset of climate change be taken into consideration when planning a new project? The answer is yes, through a process called impact assessment.

The discipline of **impact assessment** has been around for decades, which includes studying all possible impacts of undertaking a project, including economic, social, human-health and environmental impacts. The answer is yes, they are through a process called impact assessment.

When planning a project, it is important to assess all impacts of implementing that project. This analysis is typically conducted as part of an impact assessment exercise, legally required in most jurisdictions, including Canada. The *Impact Assessment Act* sets the legal requirements for conducting impact assessments of proposed projects, including environmental, social, health and gender impacts. Energy projects are no different and require going through impact assessments prior to receiving approval for implementation.

The *Impact Assessment Act* created the *Impact Assessment Agency of Canada* which is responsible for leading and managing the impact assessment process for all projects that require it. This is a holistic and thorough process, including an in-depth review of positive and negative environmental, economic,

various proponents. The input received from the emissions (such as reduction in the use of fossil fuels) or increase carbon sinks that absorb the emissions (such as adding more forest cover) (NASA, 2020).

Internalizing Externalities

The reason why an impact assessment is legally mandated in most jurisdictions is because of the underlying principle of internalizing externalities. When a voluntary transaction between two parties in a competitive market has a negative impact on an external non-party, then it is called a negative externality.

As such, the price at which the transaction took place does not reflect the true costs of that transaction—in the case of an energy infrastructure project such as a coal-fired power plant, the impact assessment would include economic as well as environmental and social costs such as climate change. If left to the market, there will never be a mechanism to incorporate the negative externalities into the transaction to reflect the true cost or benefit of a transaction. Therefore, in certain markets government intervention through setting policies, laws and regulations is required to ensure overall fairness in the market.

More resources can be found here:

1. Canada's impact assessment process: <https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/impact-assessment-process-overview.html>
2. Internalizing externalities: <https://www.coursera.org/lecture/economic-growth-part-1/1-8-internalizing-externalities-BBkxM>

Introduction to Climate Policy – Mitigation vs. Adaptation

Climate policy typically includes focusing on two aspects – mitigation and adaptation. Climate change mitigation is a strategic measure that helps eliminate the causes of climate change. This is done either by eliminating the factors that add greenhouse gas

social and health impacts of projects proposed by various proponents. The input received from the emissions (such as reduction in the use of fossil fuels) or increase carbon sinks that absorb the emissions (such as adding more forest cover) (NASA, 2020).

Adaptation strategies include actions that help adapt to the expected future changes as a result of climate change. While this contains many aspects, some examples include disaster management to prepare for coping with extreme weather events, dealing with decreased food security, poverty, and loss of biodiversity (NASA, 2020). Policies that reinforce adaptation efforts include building more sustainable and resilient communities that enable us to prepare for the predictable and unforeseen impacts of climate change to the best of our abilities. While there are policies that act towards mitigating the causes of climate change, there are many others that achieve both goals of mitigation and adaptation. This includes spreading awareness and education about climate change to inspire behaviour change towards mitigation and adaptation actions—for additional examples see figure below.

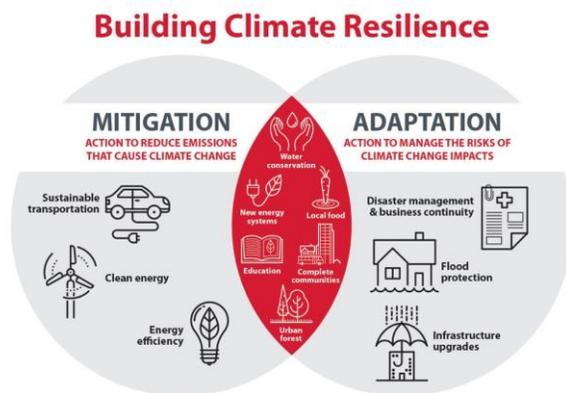


Image Source: (City of Calgary, 2018)

More resources to read:

1. [City of Calgary's climate resilience strategy](#)
2. [NASA – Responding to Climate Change](#)
3. [WWF – What's the difference between climate change mitigation and adaptation?](#)

Bibliography

City of Calgary. (2018). *Calgary's Climate Program* . Retrieved from City of Calgary:

<https://www.calgary.ca/UEP/ESM/Pages/Energy-Savings/Climate-Change.aspx?redirect=/climateprogram>

Impact Assessment Agency of Canada. (2020). *Mandate*. Retrieved from Government of Canada:

<https://www.canada.ca/en/impact-assessment-agency/corporate/mandate.html>

NASA. (2020, March). *Responding to Climate Change* . Retrieved from NASA:

<https://climate.nasa.gov/solutions/adaptation-mitigation/>

