



# Apples to Apples

## Making Valid Cost-Benefit Comparisons in Climate Policy

by Ross McKittrick

Climate change represents a major policy challenge and the measures being considered or enacted in Canada and around the world are potentially very costly. A basic principle in public policy analysis is that the benefits of a proposed action should exceed the costs. Ensuring that this condition holds requires that the things being evaluated are truly comparable.

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The tools of cost-benefit analysis help ensure that such comparisons are valid. For example, discounting is a way to ensure that a stream of benefits in the future can be meaningfully compared to up-front costs today. Unfortunately, there are two basic errors in discussions of costs and benefits that arise regularly and bias the discussion in favour of overly stringent emission-reduction policies. This publication explains what the errors are and how they can be remedied.

### Total-versus-marginal error

The first error discussed is the total-versus-marginal error, which arises when someone compares the total benefit of eliminating all effects of climate change past and future to the marginal cost of a small emissions-reduction policy. For example, if one person comments on the high cost of a proposed policy and someone retorts that it is a small amount compared to the costs of climate change, this is a fallacy because the two are not alternatives. We cannot trade off the marginal cost of

a policy against the benefit of eliminating the total costs of all climate change because the policy will not achieve anything on that scale. The proper comparison is between the cost of the policy and the benefits attributable only to that policy.

### Social-versus-private error

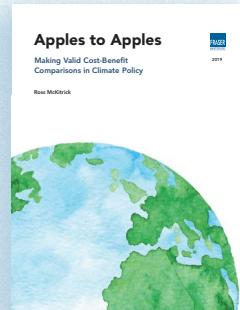
The social-versus-private error arises when a policy target is proposed based on equating the private marginal costs of compliance to the social marginal benefits. Instead, the correct target would be the point where the marginal social cost of emission reduction equals the marginal social benefits. As a practical matter, this implies that the correct price to charge emitters of greenhouse gases is not the so-called **Social Cost of Carbon** (or marginal social damages of emissions); instead it is the Social Cost of Carbon deflated by the Marginal Cost of Public Funds (a measure of the excess burden of the tax system). In some parts of Canada, this means scaling down the Social Cost of Carbon by at least half.

## EXECUTIVE SUMMARY

Apples to Apples: Making Valid Cost-Benefit Comparisons in Climate Policy

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Both of these errors are common in discussions of climate policy. This publication explains how both arise and how they can be remedied by careful application of economic concepts in cost-benefit analysis.



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by Ross McKittrick

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## False comparisons derail proper cost-benefit analysis of climate policy

Carbon tax does not =  
stopping climate change

Carbon tax should =  
benefit of just that carbon tax

