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November 2011

Regulating Carbon Emissions in Canada

Offsets and Canada's GHG Regulations: Reducing costs, improving competitiveness and lowering emissions

Policy Brief for the Industry Provincial Offsets Group (IPOG)

IISD's Climate Change and Energy Program

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Summary

Canada's federal government is moving to regulate carbon through sector-by-sector greenhouse gas (GHG) performance regulations. This action complements provincial initiatives that are already underway or planned. In IISD's recent paper *Mind the Gap*, current and planned federal and provincial mitigation actions were estimated to likely deliver about 46 per cent of the 2020 national target, or about 103 million tonnes (Mt) of the 225 Mt needed.[1] While there is uncertainty about the type of GHG policy to close this gap or its stringency to reduce emissions, if additional mitigation is to occur, there will be a need for a cost-effective mitigation policy to keep costs down and minimize adverse competiveness impacts.

Globally and within Canada offsets have been used to cost-effectively complement mitigation actions. These offset systems provide additional compliance flexibility for regulated emitters

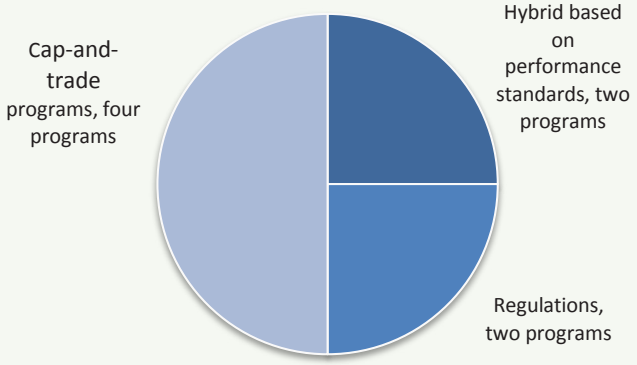

FIGURE 1: OFFSETS SYSTEMS CURRENTLY COMPLEMENT BOTH REGULATIONS AND CAP-AND-TRADE

[1] Sawyer, Dave, 2011. *Mind the Gap: The State-of-Play in GHG Mitigation in Canada*. IISD, Winnipeg.

as well as through stand-alone carbon funds. Offsets are particularly attractive in the absence of economy-wide carbon pricing, largely considered the first-best or most economically efficient policy to reduce emissions. There is substantial evidence from existing offset programs that targeting emitters outside of the regulated community can significantly reduce mitigation costs. Simply put, more reductions are possible at lower costs when offsets are enabled. Of course, there are concerns over whether these reductions are additional, with governance structures needed to ensure reduction effectiveness.

IISD completed research and conducted modelling to determine how offsets might complement sector-by-sector GHG performance regulations in Canada and the likely cost and emission impacts to be expected.

Research on international and Canadian offsets systems reveals that offsets are an integral component of operational GHG policies, complement sector-based regulations in multiple jurisdictions, and deliver significant cost savings across the economy. More specifically:

- **Offset systems complement both regulatory and market-based systems.** Offsets are not the exclusive domain of cap-and-trade systems. The New South Wales Greenhouse Gas Reduction scheme and State Power Plant rules in Oregon and Washington are examples of carbon regulations that combine performance standards with offset systems. Alberta's *Specified Gas Emitter Regulation* adopts elements of both performance standards and emission trading.
- **Offset systems extend coverage outside of the regulated emitters.** By enabling broad participation in sectors uncovered by the regulation, offsets systems have demonstrated an ability to obtain significant GHG reductions from uncovered sectors. These sectors tend to be difficult to regulate, with agriculture and forestry being great examples. Both of these sectors hold significant carbon sequestration and reduction opportunities in Canada.
- **Offsets can significantly reduce costs in existing carbon policies.** The overall societal cost of carbon policies can be significantly reduced with the use of offsets as a compliance mechanism. Average offset prices of existing systems reviewed were found to be in the range of 40 per cent to 90 per cent less expensive than other compliance options. Not only are compliance costs and transaction costs reduced for the regulated community, but all consumers benefit as lower costs are passed on to consumers.
- **Offsets help promote Canadian competiveness.** Offset project hosts often realize efficiency improvements that improve competitiveness. For regulated emitters, offsets can help avoid the premature retirement of assets through compliance flexibility thereby reducing competitiveness impacts.
- **U.S. carbon policy has tended towards the use of generous offset limits.** The U.S. Environmental Protection Agency (EPA) has announced its intention to roll out performance standards for American industries starting with power generation and refineries. It is likely that the U.S. EPA will be seeking compliance flexibility to control costs and they have considerable experience with offset systems.
- **Additionality is a concern, requiring a strong governance framework.** Offset system rules must balance the desire to achieving real, permanent and quantifiable emissions reductions with the creation of an efficient system that generates offsets that are reasonably priced. Best practice requires clear monitoring and verification rules be developed.

- **Effective offsets systems have high start-up administrative costs, but lower costs in operation.** Offset systems can be complex but do not necessarily require significant resources to operate once established. A limited number of staff at Alberta Environment operate the Alberta offset system that oversees the creation and use of over 3.8 Mt of offsets annually. While considerable effort has been expended by the government to put the program in place and approve quantification protocols, day-to-day operations do not impose significant costs to the program.

Original modelling estimates that significant cost savings and additional emissions reductions are available if offsets complement Canada's emerging sector GHG performance regulations (Table 1). More specifically:

- **Offsets designed to allow for flexibility can reduce costs to industrial emitters under federal regulations.** A future regulatory scenario targeting Canada's largest industrial emitters could have costs lowered by as much as 40 per cent with unlimited access to domestic offsets. Adding offsets as a compliance mechanism becomes more important as more reductions are sought.
- **Offsets that expand the coverage of the industrial regulations could almost double total reductions at similar costs.** Including offsets as a complement to regulatory action could nearly double available emissions reductions and lower costs. In addition, industries such as agriculture and forestry, where it can be difficult to regulate GHG reductions, can be net beneficiaries under an offset system receiving substantial investment while contributing emissions reductions that could not otherwise be easily achieved.

TABLE 1: IMPACT ON COSTS AND EMISSION REDUCTIONS IF OFFSETS COMPLEMENT GHG REGULATIONS

#	SCENARIO DESCRIPTION	INDUSTRIAL EMISSION REDUCTIONS (MT)	OFFSET EMISSION REDUCTIONS (MT)	TOTAL EMISSION REDUCTIONS (MT)	AVERAGE CARBON COST ($ /TONNE)*	TOTAL COST (MILLIONS)
Offsets for Emitter Flexibility						
1	Industry alone, no offsets: Industry Regulation equivalent to $25 average carbon cost with no access to offsets	35.4	-	35.4	$25.00	$886
2	Industry alone unlimited offsets: Industry Regulation with unlimited offsets, optimization to achieve Scenario 1—35.4 Mt reduction	20.5	14.9	35.4	$14.47	$513

3	Industry alone 25 per cent offset limit: Industry Regulation with limited offsets of 25 per cent of total emission reductions to achieve Scenario 1—35.4 Mt reduction	26.6	8.9	35.4	$16.21	$574
4	Industry alone at $60, no offsets: Industry Regulation equivalent to $60 average carbon cost with no access to offsets	85.0	-	85.0	$60.00	$5,101
5	Industry alone at $60 plus unlimited offsets: Industry Regulation with unlimited offsets, optimization to achieve Scenario 4—85 Mt reduction	49.2	35.8	85.0	$34.73	$2,953
Offsets to Expand Coverage						
6	Industry regulations equivalent to $25 average carbon price with unlimited access to offsets	35.4	25.8	61.2	$25.00	$1,530
7	Industry regulations equivalent to $60 average carbon price with unlimited access to offsets	85.0	61.8	146.9	$60.00	$8,812

** Unless otherwise indicated, all dollar amounts are in Canadian dollars.*

Two alternative offset systems have the potential to complement Canada's sector GHG performance regulations under development i) for compliance by sector and ii) an independent and stand-alone carbon management fund. Each is discussed below.

1. **Allow offsets to be used for compliance in sector-by-sector GHG regulations.** Government could allow firms in regulated sectors to comply using offsets from specific un-regulated sectors. That is, rather than complying with the performance regulation exclusively through emission reductions, firms could comply with a mixture of emission reductions and offset purchases. Including offsets in a regulatory regime in this fashion improves the overall performance of the climate policy strategy in the following ways:

    - **Improves compliance flexibility.** In cases where achieving a performance standard is particularly expensive given a firm's unique circumstances, offsets would provide an alternative compliance method.
    - **Ensure proportionate costs are borne across industrial emitters.** Even if stringency of the sector GHG regulations was not matched across different sectors, if all regulated sectors have access to offsets, carbon costs will be aligned between regulated sectors. Sectors with higher marginal costs of abatement will purchase more offsets, sectors with lower abatement costs fewer. As a result, the offset market price

should serve to balance compliance costs, improving cost-effectiveness. This indirect linking between sectors and smoothing of abatement costs though offsets addresses a key weakness inherent in rigid sector GHG regulations.

- **Serve to broaden the coverage of the overall climate policy.** By ensuring GHG policy seeks emission reductions throughout the economy, the cost-effectiveness of the overall strategy is again improved as abatement is obtained at lower cost.
- **Help facilitate a transition to carbon pricing.** Introducing a market mechanism would ensure firms closely examine their abatement costs in order to minimize their compliance costs. An eventual transition away from a regulated performance standard to a tradable permit system would only add one additional compliance option: firms would also be able trade amongst themselves.

2. **A separate, independent offset regime to complement regulations.** Government could implement a separate, independent offset system to complement sector-by-sector GHG regulations. The system would cover sectors not covered by regulations such as buildings, transport, agriculture and waste. Operationally, this could take the form of a carbon management fund, funded through compliance payments as in Alberta or from government revenue as in B.C.'s Pacific Carbon Trust. Including this kind of an offset mechanism as part of a regulatory strategy improves the policy in multiple ways:

    - **Allow a greater number of sectors and overall broader covered emissions.** Sectors like agriculture or forestry that would be difficult to regulate through performance-based standards would be covered under the policy, improving the cost-effectiveness of the overall approach.
    - **Greater flexibility to achieve emission reductions. Regulations requiring specific tilling practices,** for example, are likely impractical, but an offset regime that included agriculture could incent these kinds of emissions reducing practices where they are appropriate (and cost-effective).
    - **The stringency of a separate offset system would have to be aligned to the stringency of the sector-by-sector regulations.** To accomplish this government would have to set a price target that aligned with the stringency of proposed sector regulations. Ideally, the government would move from adopting quantity targets to setting price targets that then reduce the risk of misaligned costs across emitters.
    - **Facilitate a later transition to a market-based carbon pricing approach.** The existence of the offset regime would spur growth and learning in market and emissions trading institutions that would position the economy for a smooth transition to a cap-and-trade system or intensity-based emissions trading system down the road.

We conclude that offsets need to be considered an integral element of a forward-looking climate policy that includes cost-effective reductions from a broad spectrum of the economy. Given the fact that offset systems take time to develop, as do offset projects, there is a need to start policy development sooner rather than later to ensure emission reductions can be obtained at reasonable costs. As Canada moves forward on climate policy, and greater reductions are sought, the case for offsets increases. With a clear case for offsets established, the government should consider whether offsets are a compliance mechanism for industrial emitters or a standalone and independent source of reductions, or both.

Summary of Carbon Regulations with Offset Compliance Mechanism

CARBON REGULATION WITH OFFSET COMPLIANCE MECHANISM	SYSTEM TYPE	JURISDICTION(S)	STATUS	SYSTEM TYPE AND COVERAGE	OFFSET APPLICABILITY / COVERAGE
Operational Programs					
British Columbia Greenhouse Gas Reductions Targets Act (B.C. GGRTA)	Regulatory (Public Service Requirement)	British Columbia	Active (2008)	Provincial compliance program for B.C. public sector with offsets as compliance mechanism. Other buyers are voluntary.	Unlimited domestic offset.
Certified Emission Reduction Purchases by the Government of Canada	Kyoto Market Mechanism	Government of Canada	Active (2010)	IIn 2010, and for the first time, Canada took possession of 216,750 Certified Emission Reductions (CERs) from various countries. These CERs are from an investment of $22.5 million dollars from Budget 2000 and Action Plan 2000 that the Government of Canada made to three World Bank Carbon funds: the Prototype Carbon Fund, the Community Development Carbon Fund and the Biocarbon Fund. In return for this investment, the Government of Canada receives a share of the credits generated by the funds.	Brazil, China, Columbia, Guatemala, Honduras, Indonesia, India, Peru and the Philippines.
Alberta Specified Gas Emitter Regulation (SGER)	Hybrid (Market, emission intensity, carbon tax)	Alberta	Active (2007)	Provincial regulation of emission intensity with offsets as compliance mechanism. Regulated entities include facilities emitting >100 Kt of CO_2e per year. Compliance options include purchase of emission performance credits from other regulated entities that are able to do better than their emission reduction target (i.e., trading), purchase Alberta-based offsets or contribute to management fund at $15/tonne of CO_2e.	Unlimited Alberta-based offset credits.
European Union Emissions Trading Scheme (EU ETS)	Market (Cap-and-trade)	27 EU member states, plus Norway, Iceland and Lichtenstein	Active (2005)	Cap-and-trade program with offsets as a limited compliance mechanism. Currently over 12,000 downstream emission sources from a number of industrial sectors that account for 50 per cent of EU emissions are included. More sectors to join in 2012 and 2013.	CDM/JI offset credits are allowed.[2] Limitations on the use of CDM/JI credits for compliance vary by member state; from 0 per cent to 22 per cent and are set by National allocation plans. Credits will be limited to 50 per cent of the EU-wide reductions between 2008–2020 (1.6 billion credits).

[2] Clean Development Mechanism and Joint-Implementation are two international project-based offset mechanisms established under the Kyoto Protocol where the EU ETS is the principal buyer.

CARBON REGULATION WITH OFFSET COMPLIANCE MECHANISM	SYSTEM TYPE	JURISDICTION(S)	STATUS	SYSTEM TYPE AND COVERAGE	OFFSET APPLICABILITY / COVERAGE
New South Wales Greenhouse Gas Reduction Scheme (NSW GGAS)	Regulatory (Performance Standard)	New South Wales, Australia	Active (2003)	Regional trading program where regulated entities can reduce their emission intensity, purchase offsets or pay penalty for failing to meet target ($15 per tonne CO_2e in 2011). Electricity retailers larger than 100 GWh are included. Other buyers are voluntary.	Unlimited offsets from Renewable Energy Credits anywhere in Australia. Tradable abatement certificates from demand-side abatement, large-user abatement and carbon sequestration projects only within NSW.
Regional Greenhouse Gas Initiative (RGGI)	Market (Cap-and-trade)	10 U.S. states	Active (2009)	Regional cap-and-trade program with offsets as compliance mechanism. Electricity generating units greater than 25 Mw are included.	Offsets up to 50 per cent of the projected avoided emissions to comply with emissions cap, with price triggers that allow more offsets if price exceeds specific thresholds.
State Power Plant Rules	Regulatory (Performance Standard)	Oregon, Washington	Active (2011)	Mandatory emission standards with offsets as compliance mechanism, electricity generation only.	Unlimited offsets. May be subject to approval.
Proposed Systems					
Western Climate Initiative (WCI)	Market (Cap-and-trade)	11 Jurisdictions (7 States and B.C., Ontario, Quebec and Manitoba)	Planning (start date 2013)	Cap-and-trade with offsets as potential compliance mechanism. Regulated entities include facilities that exceed 25 Kt CO_2e from electricity generation, combustion at industrial and commercial facilities, industrial process and transportation fuel combustion.	No more than 49 per cent of total emission reductions (2012–2020). Each jurisdiction granted flexibility to set lower limits, certify and issue offset credits. Projects allowed in US, Canada and Mexico, and in developing countries at the discretion of partner jurisdictions.
American Clean Energy and Security Act, 2009	Market (Cap-and-trade)	U.S. National	Draft Act	The draft covers 84.5 per cent of total U.S. emissions by 2016.	No more than 15 per cent of a given entity's compliance obligation could be met through domestic and 15 per cent through international offset credits
Australia Carbon Pollution Reduction Scheme (CPRS)	Market (Cap-and-trade)	Australia	Under Development (2015?)	Domestic cap-and-trade scheme with offsets as a compliance mechanism.	Unlimited offsets from domestic and CDM/JI.
Canada's Offset System for Greenhouse Gases[3]	NA	Canada	Under Development	Proposed compliance mechanism for facilities regulated GHG regulations.	Canadian domestic offset projects only.

[3] Note that this is a proposed system that could be linked to federal performance standards for GHG emission reductions targeted at regulated industrial entities.

Published by the International Institute for Sustainable Development.

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