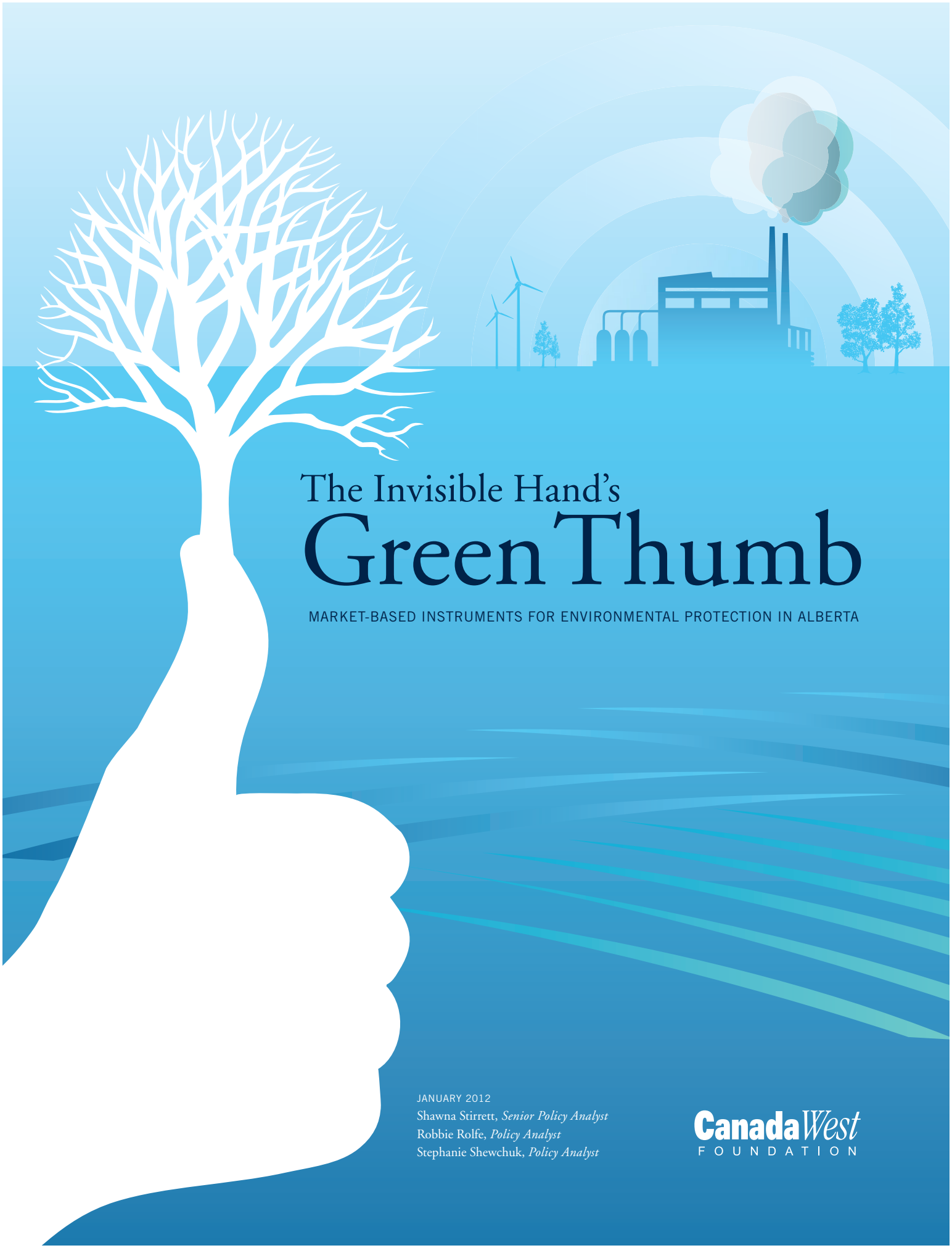

The Invisible Hand's Green Thumb

MARKET-BASED INSTRUMENTS FOR ENVIRONMENTAL PROTECTION IN ALBERTA

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TABLE OF CONTENTS

Executive Summary

The need to protect Alberta's environment has never been more critical. In acknowledgement of the challenges to come, the Alberta Government released the *Land Use Framework* (LUF) in 2008 and subsequently passed the *Alberta Land Stewardship Act* (ALSA) in 2009.

Both of these policy developments make room for increased use of market-based instruments (MBIs), which have been identified as a potentially more efficient (in the sense that they may be a cheaper and more equitable) means of achieving environmental protection than strict command and control regulations.

Market-based instruments strive to marry the use of government regulations with the power of the market by incorporating the price of positive and negative externalities. They can be broadly defined as policy tools designed to encourage greater investment in natural capital through motivation and reward rather than top-down government compulsion.

There are three broad categories of market-based instruments: price-based, rights-based and market friction. Price-based instruments apply financial mechanisms (taxes, charges, subsidies) for use of a resource. A price instrument does not limit or specify the amount resource that can be used, relying instead on the incentive provided by appropriately set prices to keep resource use efficient. Rights-based instruments set a limit on the desired quantity of a resource to be used. Rather than altering the price of a good or service to change behaviour, rights-based instruments adjust the *amount* of a good or service. Finally, market friction instruments seek to alter how an existing market functions or to create a new market. Common examples of this include reporting on environmental performance, eco-certification or labelling in order to change the information available to the consumer in an existing market.

Alberta has a long history of land use planning and is one of the few provinces in Canada to experiment—and make legislative room for—market-based instruments. This raises two questions of interest to the policy community: 1) to what extent have these policy developments influenced the use of market-based solutions in Alberta; and 2) what can be learned from these efforts to introduce market-based instruments in the province?

In order to answer these questions, three case studies of market-based instruments in Alberta were examined: a Transfer of Development Credits (TDC) program in the Beaver Hills area, located just east of Edmonton; an emissions trading program that operates province-wide; and a program that pays farmers in the County of Vermilion River to restore and/or preserve ecologically important areas on their farmland. Each of these case studies provides critical lessons about implementing MBIs and the role of supportive public policy.

Overall, these case studies revealed a number of important lessons about MBIs, including the need for a desired environmental outcome, a balance between command and control regulations and market forces and transparency around cost and environmental outcomes. A number of potential public policy landmines were also identified including questions regarding which level of government should be involved, the tolerance level for failure and the implications of providing financial incentives for moral behaviour.

Notwithstanding these landmines, the market—when operating within a framework of government regulations based on clear scientific evidence—can be a very useful tool for protecting the environment because it enables flexibility and equity in ways that government command and control sometimes do not.

With the passing of the ALSA, the provincial government has signalled that it is in favour of using market-based instruments to achieve positive environmental outcomes. This can be facilitated in the following ways:

1) Create an effective policy framework for MBIs
   a) commit to additional environmental research
   b) engage in greater intra- and intergovernmental cooperation around land use management
   c) promote the awareness of MBIs through a general education campaign and by embedding MBI experts in the land use planning process
   d) integrate conservation planning into all aspects of land management
   e) conduct regular program monitoring and evaluation

2) Promote the use of market-based instruments in Alberta
   a) invest in pilot projects so that best practices, governance models and design templates can be developed
   b) incent buyers for environmental goods and services or energy efficient products through the tax code.

On the whole, the current use of MBIs in Alberta is much more theoretical than practical. It is too soon to tell what the impact of Alberta's recent policy developments will be, but it is clear that the *Land Use Framework* and the *Alberta Land Stewardship Act* have legitimized the use of MBIs in the province and by doing so have encouraged broader uses and applications of these instruments. Based on the lessons learned so far, and given a slightly stronger commitment on the part of government to encourage the use of MBIs, it is possible that MBIs could become important policy tools for the province due to their unique ability to balance economic growth and environmental protection.

Introduction

The need to protect Alberta's environment has never been more critical. In the last 40 years the population of the province has increased greatly, there have been massive infrastructure and resource development investments, cities have expanded in size and new technology has altered many aspects of daily life. While there has been unprecedented growth in the province according to almost any demographic, technologic or economic indicator, the physical size of the province has not changed. This means it is increasingly important that the land use in the province is balanced between development, wilderness and living spaces.

In acknowledgement of the challenges to come, the Alberta Government released the *Land Use Framework* in 2008. The opening sentences of the Framework say this about the competing interests over land use:

> Industrial activity, municipal development, infrastructure, recreation and conservation interests often are competing to use the same piece of land. There are more and more people doing more and more activities on the same piece of land. The competition between user groups creates conflict, and often puts stress on the finite capacity of our land, air, water and habitat.
>
> What worked for us when our population was only one or two million will not get the job done with four, and soon five million. We have reached a tipping point, where sticking with the old rules will not produce the quality of life we have come to expect (Government of Alberta *Land Use Framework* 2008).

While it is relatively easy to get agreement about the *need* to improve Alberta's environmental performance, it is considerably harder to find consensus on *how* to improve our environmental performance. Environmental protection is often portrayed as the opposite of economic growth and development. This polarization of the environment and the economy not only makes progress more difficult—because few people are willing to give up their jobs and economic security to protect environmentally sensitive areas—but it is also something of a false dichotomy. The challenge going forward is not deciding whether to prioritize the environment or the economy, rather it is figuring out how to align our economic aspirations with our environmental goals.

The question we need to be asking is how both environmental protection and economic growth can be accomplished. One part of the answer is through the use of market-based instruments (MBIs). That is, using the market to incent individuals and organizations to protect the environment while protecting their bottom line.

Market-based instruments are an increasingly popular means of encouraging environmental performance, partially because there has been a realization that traditional regulatory approaches are expensive for some environmental improvements (e.g., reducing water pollution) and can stifle creativity. In today's complex world, it is difficult for governments to effectively anticipate potential environmental consequences, mandate appropriate measures against them, and monitor and enforce compliance when it is lacking in a timely and cost effective manner.

As such, market-based instruments have been identified as a potentially more efficient (in the sense that they may be a cheaper and more equitable) means of achieving environmental protection.

The reason they are identified as *potentially* more efficient is that market-based instruments are relatively new, particularly to Canada. While there are a number of international examples of the use of different market-based instruments, the Canadian experience and understanding of them is comparatively limited.

That being said, recent policy developments in Alberta have made room for increased use of market-based instruments. Since 2005, Alberta has emerged as a potential laboratory for experimenting with these tools. This is a combination of the interest in market-based solutions in the province and of the effort to update the provincial approach to land use planning that resulted in the *Land Use Framework* (LUF) and the *Alberta Land Stewardship Act* (ALSA).

The growing interest in market-based instruments in combination with recent policy changes in Alberta raises two questions of interest to the policy community: 1) to what extent have these policy developments influenced the use of market-based solutions in Alberta; and 2) what can be learned from these efforts to introduce market-based instruments in the province?

The purpose of this report is not to go into details on how to set up, plan or implement market-based instruments. Rather it is to examine the connection, or lack thereof, between government policies in Alberta that enable the use of market-based instruments and the actual, on-the-ground experience with them. This will be done by examining the theory behind different kinds of MBIs, the policy environment in Alberta that enables their use and a review of some select examples in Alberta of market-based efforts to improve environmental performance. The goal is to understand how the policy framework in Alberta affects the use of market-based instruments and what policy changes could be made to encourage greater deployment of market-based solutions to improve environmental performance.

Methodology

A variety of research techniques were used to gather, organize and make sense of the information available on the use and the history of market-based instruments in Alberta. Government documents were analyzed to understand the historical development of policies related to MBIs in Alberta and relevant literature was examined (e.g., academic studies, evaluation reports and newspaper articles). Interviews were conducted with individuals familiar with the implementation of market-based instruments in Alberta and with experts in the field of MBIs.

What are Market-Based Instruments?

While it was suggested above that market-based instruments may provide a more effective means of protecting the environment than command and control regulations, this is not to imply that those are the only two options. Rather, market-based instruments and regulations are part of a spectrum of instruments that can be used to protect and enhance natural capital.

From an economic perspective, market-based instruments "price-in" (i.e., provide information about) what would otherwise be excluded costs or benefits. In a pure *laissez-faire* market, for example, a firm that releases pollutants as part of its manufacturing process may not pay for the pollution produced; yet the pollution has a negative effect on the environment and can be seen as an environmental cost. The failure to capture this cost in the price of the good makes it a "negative externality:" it is a cost borne by neither the manufacturer nor the purchaser of the good.

Moreover, the failure to capture this cost can lead to environmental deterioration. Because the cost of the pollution is not borne by an individual polluter, but the benefits of the pollution—a more cheaply produced good than would otherwise be the case—accrue to an individual polluter, it makes bottom-line sense for producers to manufacture goods without caring about the environmental costs. Left unchecked, this "market failure" leads to the common property—in this case, the land, air or water—deteriorating in both quality and/or quantity.

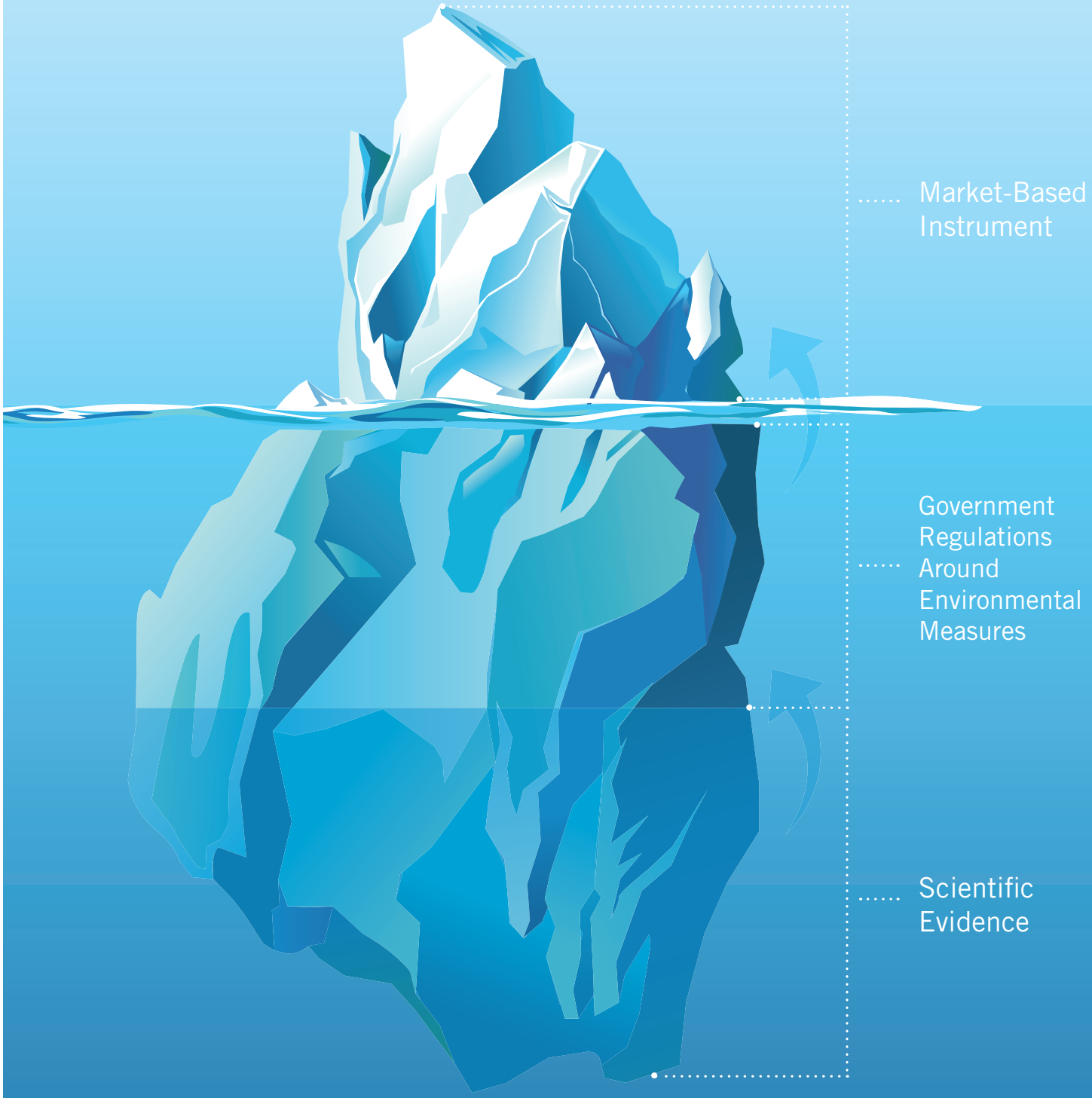
This market failure can be dealt with in a number of different ways. The conventional approach is to use command and control regulations that place restrictions around the types, quantities and rates of pollutants that can be released. Market-based instruments, by contrast, strive to marry the use of government regulations with the power of the market by incorporating the price of negative and positive externalities into the bottom line of the actors involved.

Market-based instruments can be broadly defined as policy tools designed to encourage greater investment in natural capital through motivation and reward rather than a set of prescribed corrective actions by government. Market-based instruments operate through market processes or other financial instruments to motivate desired types of behaviour and decision-making. They are broadly defined as "instruments or regulations that encourage behaviour through market signals rather than through explicit directives" (Stavins 2000: 1). The central idea behind them is to harness market forces and encourage individuals and companies to improve their environmental performance while also protecting their own economic self-interest.

The Australian government, which has considerable experience with market-based instruments, describes the instruments as policy tools that apply "the economic principles of supply and demand to the management of the natural resources such as water, biodiversity, habitat, water quality and forests. MBIs rely on market signals to positively influence behaviour" (Designer Carrots).

Figure 1:

THE MBI ICEBERG



Market-based instruments are increasingly considered a favourable alternative to strict command and control regulations for achieving environmental goals. It is argued that the societal costs of regulatory compliance and enforcement are substantial and it is challenging for governments to implement and enforce environmental regulations. As such, market-based instruments are a positive alternative because of the potential societal cost savings (though they may be more expensive for governments to operate), increased effectiveness in addressing a variety of environmental issues, greater flexibility afforded to organizations in setting and achieving targets and objectives and increased adaptability in responding to a changing environmental climate.

Overall, market-based incentives may be designed to either encourage desired levels of environmental performance or discourage unwanted environmental behaviours and practices. Positive incentives can include tax breaks, low interest loans and recognition and reward programs. Negative incentives can include taxes, fines or penalties, legal liabilities and negative publicity.

The spectrum of natural capital instruments ranges from command and control regulations to voluntary incentives, with market-based instruments sitting roughly in the middle. That is not to suggest that MBIs can be used instead of regulation or that there is some conflict between them—a more accurate representation is that regulations provide the framework within which market forces can be deployed. Figure 1 captures this relationship by emphasizing that MBIs are informed by government regulation, which is in turn informed by scientific research and environmental objectives. This relationship is not static either, as new scientific evidence must continually inform regulation, which continually informs the use of market-based instruments.

Although economic incentives, including market-based instruments, are well documented in the literature, there is yet to be a standardized classification system developed. Nor is there consistency on the names for different kinds of programs, which can lead to some confusion. For the purposes of this report, three main categories of market-based instruments will be referred to: price-based, rights-based and market friction (see Figure 2).

Price-Based Instruments

Price-based instruments "alter the prices of goods and services to reflect their relative impact" (Whitten et al. 2003). What that means is that the cost of goods and services are altered so that the effects on the environment are accounted for in the price. This is done by changing taxes, introducing levies or giving subsidies. Altering the price of something to account for environmental impact has the advantage of providing certainty to industry and individuals regarding the compliance costs of achieving an outcome. When an individual or an industry knows exactly what the cost of something will be up front, they can easily build that into their cost structures. The downside of price-based instruments is that the environmental outcome for the broader community is uncertain, particularly if the money raised goes into general government revenues instead of directly into environmental programming. Common types of price-based instruments include: charge systems, deposit-refund systems and positive financial instruments.

Figure 2: Market-Based Instruments Overview

CATEGORY	PURPOSE	TYPE
Price-based	Lever behavioural change by changing prices in existing markets	Charge systems; deposit refund systems; positive financial instruments
Rights-based	Lever behavioural change by specifying the new rights/obligations (either amount or type)	Cap and trade, tradable resource rights
Market Friction	Lever behavioural change by making existing markets work better	Environmental reporting; labelling and certification

CHARGE SYSTEMS

Charge systems are based on the polluter or user pays principle. This type of instrument can be applied to pollution, products, ecosystem degradation, road access, agricultural land leases and waste disposal. The most prevalent forms of these currently applied are taxes, charges and fees. A common example is paying for entrance to a wilderness park or protected area in the province. The fees collected are not designed to deter park visits, rather, the fees are used to maintain services, develop infrastructure and protect the ecology of the park. Insofar as park fees are used to conserve the park, they can be considered a market-based way to pay for ecological goods and services.

While the use of charge systems is fairly widespread, their effectiveness at improving environmental performance has been mixed. In some cases, there are concerns that fees may not be high enough to motivate change. If the penalty cost is lower than the cost of behavioural change, for example, there may be a tendency to simply pay the penalty and not change processes or actions. This does little to help the environment and may lead to a perception that polluters are just paying their way out of their environmental responsibilities. On the other hand, pricing does build awareness and even a small charge can lead to large changes in behaviour.

The primary advantage of charge systems is that explicit, concrete costs are directly attached to activities that negatively affect natural capital. In these systems, users and/or producers of specific products or activities are required to pay a fee for each unit of pollution or negative effect. This means the costs for environmental degradation are borne by the individuals and companies responsible for the damage rather than society as a whole. Charge systems rely on a negative incentive to either discourage certain behaviours or to recover the hidden environmental costs associated with certain actions effectively assigning responsibility to the producer or the user for environmental costs that would otherwise be unaccounted for.

There is a concern over the fairness of charge systems as some individuals and companies may be in a better position than others to cover new fees or taxes and still remain competitive. This may disadvantage small business owners and individuals with less available means.

Overall, charge systems can help place the cost burden of environmental degradation on those who are actually doing the damage. In order to be effective, however, these systems require transparency around where and how the revenues are used, as there is likely more support for using these revenues for environmental initiatives rather than as general revenue for the government.

DEPOSIT REFUND SYSTEMS

Deposit refund systems involve the collection of a monetary deposit at the time of sale that is given back once the product has been used and returned for recycling and/or safe disposal. The most common application of this type of instrument is for beverage containers. Consumers pay a deposit on every beverage container, often between $0.05-$0.25, that is refunded when the empty container is returned for recycling. The core purpose of this program is waste management, keeping recyclable materials from entering the landfill and ensuring that their base materials can be reused.

Another common use of these systems is to ensure that products with dangerous components are disposed of properly. This includes deposit refund systems for lead-acid batteries, pesticide containers, tires, automobile bodies and used oil.

Performance bonds are another type of deposit refund system. In this case, a company involved in the extraction of a natural resource, such as oil and gas, pays a fee to the government as part of their approval process. This fee is held as a bond and is returned if the company meets specific performance objectives like land reclamation. This gives companies an economic incentive to carry out an activity benefiting the environment because penalties for doing otherwise are: 1) not getting their money back from the approval process; and 2) possibly jeopardizing future operations if they do not meet the requirements of the bonds. This type of deposit refund has been used in countries like China, Indonesia and the Philippines and could be used in Canada as well.

The advantage of deposit refund systems is that they do not have to rely entirely on governments to implement or administer the program. It is possible for the private sector to set up independent programs, although some government support is required. One of the downsides of this system is that it does not necessarily reduce consumption or limit the amount of waste that is produced; it merely manages it once it is produced.

POSITIVE FINANCIAL INSTRUMENTS

Positive financial instruments are widely used by governments at all levels, as well as some private philanthropic organizations, to enhance investment in natural capital. The two most common instruments used by governments are tax differentiation and tax breaks.

Tax differentiation determines tax rates based on the level of negative environmental effect that is produced. This means that a good or service that causes environmental damage will be taxed at a higher rate than a product or service with no negative effect on the environment. In 2008, for example, Ireland began taxing private vehicles based on carbon emissions. Car owners with the least emissions pay only €104 a year while the highest emitters pay €2,100 a year. There are seven different emission categories and the tax is designed to encourage people to buy more efficient vehicles.

Tax breaks, or tax relief, also offer opportunities to encourage greater investment in natural capital. This works by giving tax relief to an individual or an organization when they meet specific performance criteria, implement energy or water efficiency technology, conserve natural capital assets or for ecological donations. An example of this would be allowing individuals to deduct energy saving improvements, such as the use of a solar panel on their home, from their taxable income.

Figure 3: New Home Rebates in Alberta

Albertans taking possession of a new home have the opportunity to receive a rebate depending on the energy efficiency rating of the building. As of January 1, 2009, the provincial government (working with C3) has provided a $1,500-$10,000 rebate to all eligible Albertans moving into EnerGuide labelled single-family or multi-family row homes that meet the following efficiency standards:

- $1,500 for new homes receiving an EnerGuide rating of 80 or 81;
- $3,000 for new homes receiving an EnerGuide rating of 82 to 85; and
- $10,000 for new homes that meet or exceed a rating of 86.

City of Medicine Hat residents have also been eligible since April 1, 2011 for the HAT Smart rebate, provided that the following efficiency standards are met:

- $1,500 for new homes receiving an EnerGuide rating of 80 or 81 (total of $3,000 when combined with the provincial rebate;
- $3,000 for new homes receiving an EnerGuide rating of 82 to 85 (total of $6,000); and
- $10,000 for new homes that meet or exceed a rating of 86 (total of $20,000).

Other kinds of positive financial instruments such as grants, subsidies and low interest-loans are used to encourage greater investment in natural capital and to motivate consumers to purchase a more environmentally friendly product or service (see Figure 3). They are found in a variety of forms including tax incentives, grants, subsidies and low-interest loans to encourage the development of new technologies, transform market demands, minimize pollution, conserve water and land assets, clean up contaminated sites, run pilot programs and improve management of waste and wastewater.

The advantage of these kinds of programs is that they can positively influence people to make environmentally conscious choices, rather than punishing them for failing to comply with efficiency standards. These types of programs tend to be time-limited with the intention that the desired behaviour eventually becomes the norm and the government stops subsidizing the choice. In order to be effective, these kinds of programs need to be substantial enough to make a difference for individuals and organizations and they need to be coordinated at all levels of government and the supply chain.

As an example, if a rebate program to get people to buy energy efficient furnaces is put in place, it is imperative that the furnace manufacturers have enough stock, the distributors have the capacity to meet the demand, the installers and repair people know how to work with the new furnaces and there must be a recycling program for disposing of the old furnaces. This systems integration eventually leads to the point where it is no longer possible to buy a low-efficiency furnace and high-efficiency becomes the new norm. If any one of these steps is out of sync with the others, however, the whole program could falter.

Rights-Based Instruments

Rights-based instruments work by setting a limit or adjusting the quantity of an environmental good or service to the socially desired level. Rather than altering the price of a good or service directly to change behaviour, rights-based instruments adjust the *amount* of a good or service, which subsequently impacts the price. These types of instruments provide certainty as to the environmental outcome, but not to the cost of achieving that outcome.

CAP AND TRADE

The intention behind cap and trade market systems is to set a cap on the total maximum amount and/or intensity of a pollutant that can be released. This is accomplished when a government sets a cap and then grants pollution permits to emitters. An emitter then has the choice to adopt new processes to stay within the cap or to purchase additional credits from emitters that do not need them. Those who benefit the most from this system are emitters that can reduce their pollution at a relatively low cost and then sell their unused permits to companies that would otherwise exceed the cap.

The cap and trade system works to achieve a specific environmental target, provides certainty that this target will be met by way of the cap and uses price signals to incent the adoption of new technology or processes. The advantage of the cap and trade system is that it enables innovation by focusing on the end goal of reduced pollution rather than by trying to determine how the pollution reduction is achieved. This gives companies flexibility in finding ways to reduce the amounts of pollution they produce. The disadvantage is that the administration can be complicated and it can be difficult for companies or governments to be transparent. Moreover, depending on how the permits are allocated, the perception that companies have been given a "license to pollute" may arise.

If permits are not auctioned, but are given away freely, then the public may perceive that emitters are just being given permission to pollute. In cases where permits are freely awarded, designing the system so that the caps shrink over compliance periods may mitigate this perception.

TRADABLE RESOURCE RIGHTS

Tradable resource rights rely on the creation of a market in which the right to use water or land can, in whole or in part, be bought and sold. There are two different kinds of tradable resource rights: resource allocation trading and Transfer of Development Credits.[1]

Resource allocation trading is the buying and selling of natural resource entitlements or allocations. This allows regulated entities to access resources from sites that that other entities do not need. A common example of this is water allocation transfers (see Figure 4). The benefit of this tool is that the traded resource is allocated to where it has the greatest value at the same time as it provides financial compensation to those sharing their allocation.

Figure 4: Water Allocation Transfers in Alberta

Water allocation transfers, which are permitted by Alberta's Water Act, allow the transfer of the right to divert a volume of water from a source of water supply. Government-issued licences are required for the diversion of water while the transfer activity is voluntary, involving willing buyers and sellers. No physical transfer of water from the land occurs during trading.

Water rights management in the province works on a first come, first served basis, called First-In-Time and First-In-Right (FITFIR). This system gives priority to senior licences, meaning that senior licence holders get first priority to take as much water as they want in their water allocation, with priority going to the next oldest licence after that and so on.

In August 2006, the provincial government closed the majority of the South Saskatchewan River Basin to new water licence applications (with exceptions made in a number of cases, including First Nations applications). This moratorium created Canada's first market-based system for trading water licences. A review of the current water allocation management system is a stated priority of the provincial government in order to address the province's growing population and increased demand for water.

One of the disadvantages is that the aggregate impacts of allocating resources are not always built into the system. For example, fishing quotas are often given out based on the total allowable catch per fisherman, but the aggregate harvest allowable under the quota may exceed the fishery's

[1] There is some debate about whether Transfer of Development Credits (TDCs) should be considered a tradable resource right because development credits are not natural resource entitlements. As such, some experts classify TDCs as a market friction tool instead.

ability to replenish itself, which leads to a decline in the fish population over time. In order to avoid over-consumption, this system requires an audit, or a baseline study, of the natural resource prior to allocation.

Transfer of Development Credits (TDC) programs are relatively new in Canada, but they have been widely used in the United States for much of the latter half of the twentieth century.[2] The guiding principle behind a TDC program is to direct development away from areas that are deemed worthy of conservation for any number of reasons (agricultural, ecological, recreational or cultural/historical value, for instance) to areas seen as more suitable for increased development (usually proximate to existing infrastructure and development pressures).

TDC programs need a few key elements in place to operate. First, credit "sending" and "receiving" areas need to be designated in consultation with the community. In the sending area, land parcels are assigned a certain number of TDC program credits. These credits can be sold in exchange for restrictions on the land title to the parcel (usually a conservation easement) that will limit its future development. Developers in the receiving area purchase these credits to enable them to develop land at higher densities than allowed by the baseline zoning for the area. Generally speaking, sending areas have low real estate prices with increasing development pressures, where the economic benefits of development may outweigh the benefits of conservation for the individual landowners. Receiving areas, on the other hand, tend to be selected for their development suitability and their ability to absorb the extra cost imposed by the TDC program to increase density. There is a set ratio for how many credits are needed to trigger higher density zoning (Greenaway and Good 2008: 12, 13).

The advantage of tradable allocations and credits is that they have the potential to create a win-win solution where both the buyers and the sellers have the opportunity to benefit. The challenge, however, is that in order for these to work, markets must be established to not only have an accurate audit of the natural capital in a particular region but also to balance questions of fairness and equity for the buyers and sellers. In addition, they can only be used in certain situations and they must be carefully designed. For example, as of 2005, there were approximately 142 TDC programs in the US, the vast majority of which were inactive and only eight programs have conserved more than 1,000 acres each (Kopits, McConnell and Walls 2006: 2). That being said, program activity may not be the best measure of a TDC program's success. Even if the program is inactive, or conserves relatively few acres, the best measure of a program's success is if land use patterns change as a result of the program.

Market Friction

Market friction instruments seek to alter how an existing market functions or to create a new market. Common examples of this include reporting on environmental performance, eco-certification or labelling in order to change the consumer *information* available in an existing market. The purpose of these instruments is to stimulate a market to produce a desired environmental outcome by improving information flows.

[2] In the US, they are often referred to as transfer of development rights (TDR) programs. Since property rights are not enshrined in the Canadian constitution, the accepted vernacular in Canada is credits rather than rights.

The premise of market friction is not the change in the price or the amount of any particular good or service in the market; rather, it is to change the *information* about different goods and services in the market in order to impact consumer choices. Because there is no change to the quantity or the price of things, market friction systems are relatively easy to implement, but the benefit to the environment is difficult to ascertain.

ENVIRONMENTAL REPORTING

Environmental reporting is becoming more common and is used to communicate the environmental effects of an organization's actions. Environmental information can be disseminated in a variety of formats including combining it with social and economic reports (i.e., triple bottom line reporting), with social information (corporate social responsibility reporting), or in a stand-alone document (environmental reporting). While some environmental reporting is mandatory, such as regulation-specific reporting, it remains largely voluntary.

While environmental reporting is becoming more prevalent, the challenge is that there are no standards on how information should be reported. Inconsistencies in format, reporting periods, measurement units and technical calculations make it difficult to compare the environmental impact of one organization to another. There are some steps toward standardization. For example, in 2004, Suncor Energy Inc. was one of the first large western Canadian organizations to produce a sustainability report in accordance with guidelines prepared by the Global Reporting Initiative, which aims to standardize international reporting measures for social, economic and environmental information. Today, over 90 Canadian organizations participate in this initiative by submitting at least one sustainability report.

An additional challenge with environmental reporting is the lack of third party verification. Mandating this in the form of an environmental or sustainability audit would enhance the credibility and reliability of the information being reported. It could also provide a means of translating technical data into information that is understandable and relevant for a broader public audience.

LABELLING AND CERTIFICATION

Labelling and certification provide information to consumers on the environmental attributes of products or practices. Eco-labels should standardize environmental claims and provide consumers with credible and reliable information. In some industries, labelling has been a success. An example of this is LEED certifications for buildings practices. Using this standard, buildings can be designated as Certified, Silver, Gold or Platinum based on a points system. This labelling gives consumers confidence that the building has met or exceeded the environmental criteria required for LEED certification and may make it a more desirable home or office location. Initially, environmental labels were only applied to products but they have now expanded to include services and entire businesses.

A key component of labelling as an environmental tool is the need for standardized environmental information and effective monitoring and evaluation of goods and services. These are needed to avoid the problem of "greenwashing" where a business or organization claims it is being environmentally sensitive but in fact has not changed its behaviour or practices in a meaningful way.

The advantage of labelling for businesses and other organizations is that it provides a market advantage. Companies that can demonstrate that they are environmentally sensitive can charge higher prices, capitalize on a niche market and differentiate themselves from their competitors. Other underlying drivers can include the cost savings associated with improved efficiency and supply chain demand. Large retailers are increasingly demanding environmental performance measures from their suppliers. An example of this is Home Depot Canada announcing in 2001 that it would only buy and sell wood products that are certified and meet the Forest Stewardship Council's (FSC) sustainability standards, a policy that was subsequently followed by RONA in 2008. Similarly, Sears is working to reduce the PVC content of the products it sells because of the environmental and health concerns related to the manufacture, use and disposal of products containing PVC.

The critical component required for labelling to be an effective instrument for improving environmental performance is consumer demand and awareness. Without greater awareness and demand for environmentally certified goods and services, the environmental impact of this instrument will be limited.

While the categorizations of price-based, rights-based and market friction are useful for understanding market-based instruments, it is important to keep in mind that this does not cover every possible type of MBI and an individual MBI may fall into more than one category.

In general, economic incentives can provide a more cost-effective and efficient approach to enhance investments in natural capital than strict command and control regulation. They have the additional benefit of working within the existing free-market system and do not require people to make sweeping ideological adjustments to understand their use and implementation. If designed properly, MBIs have the potential to be a tool that allows for an economic and environmental win-win because they provide adaptive choice, internalize externalities and incent positive environmental behaviour. This has the promise of leading to continual, ongoing improvement to overall environmental performance.

Market-based instruments are valuable environmental and economic tools, but that does not mean they should be used indiscriminately. They are not a panacea and it would be incorrect to believe market forces can manage all facets of environmental protection. The reality is that market-based instruments are one tool in a full environmental toolbox and they must be deployed in coordination with government oversight and regulations.

Policy Developments in Alberta Relating to MBIs

Alberta has a long history of land use planning and is one of the few provinces in Canada to experiment—and make legislative room for—market-based instruments. Understanding how land use planning has evolved and changed in the province, as well as the unique pressures of a resource-reliant, boom-bust economy on the land, gives insight into why MBIs have been adopted in Alberta and how current legislation could impact the use of MBIs in the province.

History of Land Use Planning in Alberta

Alberta's abundant land and natural resources have provided great opportunity for growth and development. Since the creation of the province in 1905, Albertans have witnessed extensive changes to the environment as a result of settlement, resource development and urban expansion. As growth has increased, so have competing demands for land.

The need for a comprehensive planning system was realized early on, with the provincial government first adopting a Town Planning Act in 1913. The Act was reviewed again in 1929 to provide authority for the municipal adoption of master plans and zoning bylaws, the establishment of local planning commissions and, in the case of two or more municipalities, permitted the establishment of district (or regional) planning commissions (Gordon and Hulchanski 1985: 3). The Act (called the Planning Act after 1963) has been updated over the years to respond to the demands of growth (particularly in municipal regions) in 1950, 1963 and 1977.

After World War II, economic growth and urbanization increased steadily in Alberta with little respite until 1981. In particular, rapid development after the oil strike at Leduc in 1947 brought new people and business interests to the province. Responding to these development pressures, Premier Ernest Manning created a land classification system to guide planning decisions. The concept of White Areas and Green Areas was introduced in 1948.

White Areas, covering 39% of the province, were areas identified primarily for agriculture and settlement. Green Areas, the remaining 61% of land, were comprised of forested land located mainly in northern Alberta and the Eastern Slopes of the Rockies.[3] Green Areas were to be used predominantly for forest management planning and for the protection of important watershed zones. Currently, approximately three-quarters of the White Area is privately owned, while nearly all of the Green Area is publicly owned. On private land in White Areas, the authority to make decisions rests mostly with municipal governments and with the provincial government on public land. The provincial government is responsible for decision-making in the designated Green Areas.

[3] The Federal Government controls about 10% of the total land base in the White and Green areas. This federal land is primarily comprised of national parks, Indian Reserves and military bases and installations. Alberta's land use planning and decision-making authority does not ordinarily apply to federal land (LUF: 11).

Sustaining development while protecting and conserving natural resources has continued to be an important consideration in provincial land use planning decisions. Alberta has had to deal with competing demands for land in the context of pronounced boom and bust cycles. The 1977 Planning Act was aimed at providing effective machinery to deal with the development boom taking place at the time (Gordon and Hulchanski: 1). In the 1980s, the economy slowed and land use pressures lessened accordingly. Since that time, however, the province has added millions of new residents, with the population projected to reach 5.0-7.5 million by 2050 (Government of Alberta 2011a).

Renewed activity and prosperity has also materialized in the last decade although the economic recession in the late-2000s hampered growth, slowed the development of housing and other infrastructure and impeded consumer confidence. While the future economic outlook appears positive, with healthy growth projected over the 2011-2014 period (Government of Alberta 2011c) these fluctuations significantly impact the way land and resources are valued in Alberta. With economic growth in the province strongly linked with the price of oil and natural gas, land use policy must endeavor to balance varying development pressures while protecting the environment. In order to effectively oversee these changes and to manage new challenges, the provincial government once again sought to update its planning legislation.

Development of the Land Use Framework

The *Land Use Framework* (LUF) was intended to improve land use decision-making in Alberta in light of current and future challenges and opportunities. Released in 2008 after considerable consultation with a variety of stakeholders that began in May 2006, the LUF established seven key strategies to lay the groundwork for future development:

1) develop regional plans based on seven new land use regions;

2) create a Land Use Secretariat and establish a Regional Advisory Council for each region;

3) use a cumulative effects management approach at the regional level to manage the impact of development on air, land and water;

4) develop a strategy for conservation and stewardship on private and public lands (including the use of new policy instruments to encourage stewardship and conservation on public and private lands);

5) promote efficient use of land to reduce the footprint of human activities on Alberta's landscape;

6) establish an information, monitoring and knowledge system to contribute to continuous improvement of land use planning and decision-making; and

7) include Aboriginal peoples in land use planning (Government of Alberta 2008).

These strategies were aimed at strengthening regional planning in the province since no formal regionalized land use planning previously existed, nor was there formalized coordination between Government of Alberta land use decisions on Crown lands and municipal land use decisions (Government of Alberta 2008: 3). The LUF concentrates on the development of seven regional plans, which are based on seven new land use regions: Lower Athabasca, Lower Peace, North Saskatchewan, Red Deer, South Saskatchewan, Upper Athabasca and Upper Peace Regions. These land use regions are based on the province's major watersheds, roughly aligning with existing municipal boundaries and natural regions. For each region, a Regional Advisory Council advises on the area's plan, addresses land use trade-offs and sets thresholds to deal with cumulative effects.

A Land Use Secretariat was created to support provincial cabinet decision-making and is responsible for leading the development of regional plans in conjunction with other departments concerned with land use (regional planning teams) and with the Regional Advisory Councils. The Framework recognizes that municipalities, other local authorities and provincial government departments will be required to comply with each regional plan.

Prior to the release of the LUF, the province typically assessed the environmental impacts of new developments on a project-by-project basis. Since both the population and development activity in the province has steadily increased, and is projected to keep increasing, a modification of this approach was deemed necessary to better measure the overall impact of development. Cumulative effects management takes the overall combined impact of past, present and projected future activity into account, using the regional context as a guide. This approach is designed not to limit new economic development, but to encourage industry to innovate in order to maximize economic opportunity while limiting the effects of development on the region's air, land, water and biodiversity (Government of Alberta 2008: 31).

Likewise, the policy instruments considered in the LUF were created to maximize the role of the market in achieving better environmental outcomes. These instruments are intended to further encourage environmental stewardship without replacing traditional command and control regulation. As aforementioned, MBIs are designed to be used in conjunction with traditional approaches, not instead of them. The LUF names several specific instruments for consideration. Tools targeted to increase stewardship on private lands include Transfer of Development Credits (TDCs), land trusts and conservation easements (Government of Alberta 2008: 20). On public lands, development will be managed through a regulatory framework with further encouragement provided by appropriate MBIs such as tradable disturbance rights (TDRs). Still other MBIs, such as land conservation offsets and lease swapping, were marked for further evaluation to determine their appropriateness for improving environmental goods and services on both private and public lands. The promotion of environmental stewardship through the use of MBIs, as cemented by legislation, is relatively new within the province.

While the explicit legislation may be new, there are a number of market-based systems that have been in operation for some time such as the water allocation transfer system mentioned earlier (in Figure 4) and the carbon emissions baseline and credit system, which will be explored in the case study section. Prior to the development of the LUF, other initiatives in the province had begun to incorporate market-based instruments into the policy-making process. For example, *Water for Life: Alberta's Sustainability Strategy*, published in 2003, recommends "implementing economic instruments as necessary to meet water conservation and productivity objectives" (22). The potential of MBIs to effect future change is substantial and will likely be explored further as a result of supportive legislation. The passage of the *Alberta Land Stewardship Act*, the piece of legislation supporting the LUF, secured their presence on the policy landscape.

Alberta Land Stewardship Act

The *Alberta Land Stewardship Act* (ALSA) was passed into law in October 2009, amending 27 provincial acts. The ALSA provides for, and emphasizes the role of, MBIs in attaining the environmental and economic objectives of each regional plan:

> The Lieutenant Governor in Council may:
>
> a) support or advance research and development into the creation, application and implementation of instruments, including market-based instruments, to support, enhance and implement the purposes of this Act and objectives and policies in or proposed for a regional plan;
>
> b) establish, support or encourage pilot projects to investigate or test instruments, including market-based instruments, to advance or implement the purposes of this Act and objectives and policies in or proposed for a regional plan (Government of Alberta 2009: Part 3, Conservation and Stewardship Tools).

The ALSA supports the use of several specific MBIs to promote conservation and advance the objectives of the regional plans. Not all of the MBIs mentioned in the LUF are recognized in the ALSA. The tools explicitly mentioned in the ALSA include conservation easements, conservation offsets, conservation directives and Transfer of Development Credits (see Figure 5). The province must approve the use of any MBI or conservation tool except for voluntary offsets. While the ALSA does not legislate against the use of MBIs not mentioned in the act, other tax-based measures, initiatives, programs, mechanisms, projects or instruments, including market-based instruments may not be implemented without the approval of the Minister of Finance and Enterprise (Part 3, 27). In other words, the use of MBIs other than those mentioned in the ALSA may be permitted but the provincial Minister of Finance and Enterprise must explicitly authorize them first.

Figure 5: Overview of Market-Based Instruments Promoted in the *Alberta Land Stewardship Act*

MBI	DESCRIPTION	NOTES
Conservation offset	Land conservation offsets are compensatory actions that address biodiversity or natural value loss arising from development on both public and private lands.	Some conservation offsets are voluntary and some are regulatory.
Conservation directive	Conservation directives, as expressed within regional plans, permanently protect, conserve, manage and enhance the environmental, natural, scenic, aesthetic or agricultural values of an area.	These directives are not voluntary, with compensation paid to landowners for reductions in market value.
Transfer of Development Credits (TDCs)	Transfer of development credits schemes are intended to divert new development away from specific areas requiring conservation to areas more suitable for development.	Transfer of development credits schemes are applicable to the municipal/local level of land use planning.

While ALSA commonly discusses conservation easements alongside market-based initiatives, they are not technically MBIs as there is no market component associated with their operation. Conservation easements have the ability to be important supporting devices for other MBIs, such as TDCs and offsets, but are better described as a conservation stewardship tool.

Conservation directives are declared by regional plans to protect ecologically sensitive areas. While conservation directives are similar to a conservation easement in character, they are not voluntary and can be administered on public and private land. Transfer of development credit schemes allow private landowners to sell the development potential of their land through established "sending" and "receiving" areas. Those located in sending areas are able to sell credits to be used in the receiving areas, having the effect of diverting development away from areas requiring conservation to those more suitable for development.

The role of the Land Use Secretariat developed in the LUF has also been brought forward in the ALSA. At least once every ten years, the Secretariat must review each regional plan and report to the Stewardship Minister. (The Stewardship Minister is responsible for the execution of the ALSA and its ongoing relevancy and effectiveness.)

The ALSA also supports the implementation and utilization of MBIs through a Conservation Exchange and through the use of Stewardship Units. The Conservation Exchange is a body that supports and monitors market-based conservation in the province and facilitates the trade of Stewardship Units. Stewardship Units act as a means of valuation for environmental goods and services. These units can be traded and exchanged amongst stakeholders. The units associated with the various tools are considered to be different classes of Stewardship Units, and are not interchangeable with one another.

In 2011, the Alberta Land Stewardship Amendment Act was tabled, and subsequently passed that same year, in response to concerns over property rights raised by private landowners. Some landowners felt that certain passages in the ALSA could be interpreted in such a way to give government the unequivocal ability to rescind land development rights if the ownership of these lands conflicted with the objectives set out in any of the regional plans. Other criticisms of the ALSA included a limited appeal mechanism for landowners involved in a dispute with the government and a lack of appropriate compensation in the event of government acquisition of private land. Some also denounced the ALSA for creating a centrally-planned land use planning system with insufficient opportunity for stakeholder input at lower levels.

Through the introduction of the amendment, the Alberta Government clarified that the intent of the ALSA was not to increase the level of official influence and discretion over land use proceedings, but rather to protect sensitive lands for conservation purposes with due consultation and compensation granted for those with modified land rights.

The conversation about exactly what the ALSA permits the provincial government to do and not do is unlikely to disappear anytime soon. The ALSA featured heavily in the 2011 Progressive Conservative leadership race with almost all of the frontrunners, including now-Premier Alison Redford, promising to review it if elected. This could lead to further discussion and additional amendments of the Act, particularly if stakeholders are not satisfied in practice with the amendments made thus far. This is important to note because it contributes to the political uncertainty around the market-based instruments contained in the Act and may discourage municipalities or local groups from exploring market solutions to their environmental problems.

The tools included in the ALSA to promote and protect the province's ecological goods and services permit a range of relevant stakeholders to engage in new ways with the land use planning process. The application of market-based instruments in Alberta requires further investigation and evaluation to better identify their potential in influencing positive environmental behaviour. To this end, case studies of MBIs in Alberta were examined in order to explore the central questions of this report: 1) to what extent have these policy developments influenced the use of market-based solutions in Alberta; and 2) what can be learned from these efforts to introduce market-based instruments in the province?

Case Studies

There are some market-based instruments with which Albertans are already very comfortable. The province has used a deposit-refund system for drinking containers as a waste management tool for decades, for example. This system is uncontroversial and widely accepted by the public. Other types of MBIs, however, such as the Transfer of Development Credits and trading schemes and payment for ecological goods and services are relatively new and have a long way to go before they gain broad acceptance in the province.

The following section looks at three case studies of experiments with market-based instruments in Alberta. The purpose of this section is to find out what is happening "on the ground" with MBIs that are less common in the province; to see what impact, if any, provincial policy changes have had; and to extract lessons and possible policy recommendations from the lived experience of those working with MBIs on a daily basis.

These case studies were selected because they are diverse, showing MBIs of different types, at various stages of development and are aimed at solving a variety of environmental problems. This is not meant to be an exhaustive list of what is happening in Alberta, but is merely an illustrative sample. The three case studies examined include a Transfer of Development Credits program in the Beaver Hills Area, located just east of Edmonton; an emissions trading program that operates province-wide; and a program that pays farmers in the County of Vermilion River to restore and/or preserve ecologically important areas on their farmland.

Managing Development and Conservation in the Beaver Hills Area

The Beaver Hills area, located just east of Edmonton, covers 1,600 square kilometers and is characterized by rolling hills, glacial till-like soils, small lakes and wetlands. Its topography supports a wide variety of flora and fauna. It is a unique and ecologically valuable area home to several provincial and federal protected areas, including Elk Island National Park and Miquelon Lake Provincial Park. The Beaver Hills area boundary crosses five different municipalities. Over 50% of Strathcona County land base is in the Beaver Hills. The counties of Lamont, Beaver, Leduc and Camrose also have jurisdiction over smaller parts of the area.

These municipalities and other stakeholders are exploring ways to ensure that the unique area is conserved while considering social, economic, environmental, cultural and heritage factors. In the past, demand for land in the area was limited because of its remoteness and tree- and wetland-filled landscape. As trends shift, however, studies have shown that people value living closer to nature as part of their quality of life. The fast growth of the Capital Region—the fastest growing metropolitan area in the country—is increasing industrial, recreational, rural and urban residential land use demand. Potential risks for increased development of Beaver Hills impacting the ecological health of the landscape are real concerns (Beaver Hills Initiative 2011).

The Beaver Hills Initiative (BHI), founded in 2002, is a voluntary organization working toward conservation in the area and currently is developing a Transfer of Development Credits program pilot to this end. Stakeholders include all levels of government, academia, industry, local environmental groups and land trusts. Overall, there are more than 30 different organizations involved in some aspect of the Initiative's activities.

The BHI is primarily concerned with the conservation of this sensitive area. The municipalities driving the process are not interested in compulsion, however, but inclined towards voluntary approaches to achieve conservation goals. A TDC program can provide a voluntary conservation solution insofar as it is optional for developers and landowners to take part.

The idea behind a TDC program is relatively simple. TDC programs are designed to direct development and provide compensation, transferring development from one area to another. The landowner in a conservation area is compensated for conserving his or her land by the developer in a development area. Higher densities in the development area may be one of the rewards to the developer for purchasing the conservation area credit(s). The idea is to redirect development from areas better suited for conservation (e.g., sensitive or unique ecosystems) to areas better suited to development (e.g., near existing infrastructure). Compared to command and control regulation that imposes most of the costs of conservation on the landowner, a TDC program permits the cost of conservation to be shared between landowner and developer.

The reality of a TDC program, however, can be complicated. The TDC program under consideration in the Beaver Hills area is atypically complicated, mainly because of its inter-jurisdictional nature. In 2007, the BHI commissioned a feasibility study on a TDC program in the area. Overall, the study found that a TDC could be an effective way to achieve the goals that were established in the BHI's Land Management Framework. The authors found that there was a need for an inter-jurisdictional TDC (otherwise, development might leapfrog the receiving areas chosen for a single-jurisdiction TDC). They also noted that a preliminary evaluation suggested that a TDC program would be economically feasible (there are the appropriate developmental pressures and the value of property varies appropriately within and across counties [Weber and Arnot 2007: 28, 29]).

Following the feasibility study, the BHI decided to carry out a pilot project. According to interview participants, this is a "desktop" pilot. In other words, no transactions are currently occurring, but scenarios are being modeled to develop recommendations for a TDC program. The counties will ultimately decide whether a TDC program will be established in the Beaver Hills area.

The Beaver Hills Initiative's work around developing a TDC program to manage conservation and development highlights a number of key challenges for MBIs in the province.

One challenge is the uncertain policy environment. Although the ALSA has passed into law, not all of the pieces have yet fallen into place. In particular, the regional plans for the seven regions are still in the process of being developed. Regional plans need to be developed and then approved by the provincial Cabinet, which is a slow process. Contained within these plans will be the conservation

goals and cumulative impact guidelines for the region. This is a challenge for some planners because they do not want to be out of alignment with the regional plans. There is an incentive, therefore, for municipalities, counties and others looking at MBIs to wait until the regional plans come down, something that could take years. Despite this uncertainty, municipalities are not required to wait for the regional plans and they may move forward with TDC programs now and align them with regional plans later.

An additional area of policy uncertainty for the Beaver Hills Initiative is the involvement of the multiple levels of government with overlapping jurisdictions. In addition to trying to manage the complex realities of five different municipalities and the provincial government, there is also the Capital Region Board. This board includes several of the municipalities that are involved with the BHI. In 2009, the Board released a growth plan and, according to one interview participant, the base densities recommended in this plan were quite high. This Board's plan has significantly impacted the way counties look at development planning in the area. These high densities, if adopted, reduce the incentive to the developer to use a TDC program. If base densities are higher than projected growth, then there is no benefit to developers to pay for higher density zoning, which is a key part of any TDC program. This does not prevent a TDC program, but this has added a layer of complexity.

Finally, while the ALSA does explicitly authorize the use of TDC programs, that authorization comes with some conditions. Notably, the provincial Cabinet must approve any TDC program (either on its own or as part of a regional plan). According to interview participants, municipalities are still waiting on regulations outlining the requirements for approval. It is expected to be a relatively simple procedure.

A second challenge that the BHI underscores is how complex TDC programs are. There is sometimes a misperception that MBIs are easier to implement than other regulations. While MBIs do make compliance more flexible, they are not necessarily easier to implement.

In this case, the level of flexibility in a TDC program is higher than with traditional zoning approaches. TDC programs allow conservation in sending areas and development in receiving areas, but only if landowners and developers consent. Setting up the program, however, is a complicated process. There are several key administrative decisions that determine the success or failure of the program. Which areas are sending and which are receiving? Should there be mixed sending/receiving areas? How many credits are needed to authorize higher density development? Do credits transfer between counties? Should counties or land trusts intervene to stabilize the price of and demand for credits? These and many more questions need to be answered before an effective market-based instrument can be put in place. Creating a market from scratch is no easy task.

The third challenge that the Beaver Hills case study highlights is the fact that market instruments are subject to market pressures and therefore can ebb and flow with economic shifts. One of the key conditions for a TDC program is development pressure. Recently, development pressure has lessened in the BHI area because of slower economic growth in the wake of the recent recession.

This could adversely affect the prospect of a TDC program being used because if developers do not believe there is sufficient demand for increased density, then there will be little interest in purchasing the credits. Interview participants stressed, however, that this lull gives them time to develop and implement a program for when development pressure ramps up. If the municipalities wait until development pressure gets to where it was during the pre-recession boom, then it will be too late to implement a program. It would be better to have a program in place at present to prepare for increases in development pressure as economic growth resumes. After all, areas that were attractive during the last boom are likely to be attractive in the next boom.

A final barrier facing successful implementation of a TDC program is education and buy-in. A TDC program is not exactly fodder for an intriguing dinner table discussion. Both within the counties and around Alberta, landowners and planners remain generally unaware that this option is on the table. Part of the process is educating planners and the broader public about this policy option. Indeed, the pilot project is seen as a means of proving the concept to municipal planners and councils. It is likely not enough, though, just to tell people about the policy option. Buy-in is also needed for successful program development.

While it is clear that there are challenges ahead for the Beaver Hills Initiative, it is also important to point out that progress has been made. One aspect our interviewees pointed out in particular is that while there is still some uncertainty around how the regional plans and the implementation of the ALSA will unfold, ALSA has legitimized and explicitly enabled programs like TDCs in the province. While it was generally understood that municipalities could implement TDC programs before the legislation (see, for example, Kwasniak 2004), there was no clear authorization.[4] Some municipalities were cautious in this environment, worried about being the first ones to implement without the commitment of the provincial government. ALSA has not only assuaged this concern, but has also put the tool on the table as an approved policy response to environmental planning problems.

In summary, the Beaver Hills Initiative pilot project has several important lessons for other TDC programs and MBIs in Alberta. Most notably, MBIs need to be carefully designed, flexible and case-specific in nature or they will be ineffective. Additionally, the example of the Beaver Hills Initiative demonstrates how important it is for municipalities and local areas to be designing and planning for future growth so that when significant development pressure returns the programs are in place and can be pulled off the shelf. Finally, the Beaver Hills Initiative suggests that there is a role for market-based instruments in the province and they can be used to find an equitable balance between development and conservation.

[4] It is clear that municipalities did not require ALSA to implement TDCs as they were implemented and developed prior to the legislative approval of ALSA. The MD of Bighorn was one of the first to develop a TDC program in Alberta and their right to do so in the absence of legislative permission was upheld in the courts.

Alberta's Emissions Management Market

In early 2007, Alberta became the first jurisdiction in North America to establish a compliance emissions offset system. Amendments were made to the Climate Change and Emissions Management Act (CCEMA) and the Specified Gas Emitters Regulation (SGER) came into force. This policy requires emitters of 100,000 tonnes of greenhouse gas emissions or more to reduce their emissions intensity to or beyond a set target on an annual basis (Goetz et al. 2009: 395, 396).

This focus on emissions started back in 2002 when Alberta's Energy and Utility Board permitted the expansion of two coal-fired power plants. A condition of the environmental approval was that the new plants had to be the emissions-equivalent of an efficient natural gas facility.

Concurrently, the Alberta government set a goal to reduce greenhouse gas emissions intensity by 50% below 1990 levels by 2020. This type of target was chosen because it is less onerous from an economic standpoint than an absolute target. An intensity target also means, however, that emissions may continue to rise so long as economic output outpaces growth in emissions.

There was a clear reason for Alberta to take this step. The province's greenhouse gas emissions are very high. In 2009, Alberta was responsible for 34% of Canada's greenhouse gas emissions, a per capita rate of around 64 tonnes per person compared to the national average of about 21 tonnes per person. While these emissions are inclusive of all sources (personal automobiles, home heating, electricity generation, etc.), the emissions management market is only aimed at curbing the emissions of heavy emitters (those with greater than 100,000 tonnes) a group that is highly concentrated with 30 companies, mostly from the power generation and oil and natural gas sectors, responsible for 87% of reported emissions in 2006 (Goddard, Haugen-Kozyra and Ridge 2008: 1).

In order to combat the growing greenhouse gas problem, the government established an emissions baseline and credit system that requires an annual reduction for heavy emitters of 12% from the baseline for established facilities (in operation before Jan 1, 2000) and a 2% – 10% reduction from the baseline from newer facilities after three years of operation. Credits are generated when an emitter performs better than its target.

These heavy emitters can either invest in facility upgrades and new technology so that their emissions are decreased to below the target rate or they can explore a compliance option if they fail to meet their target.

Emitters have three options if they fail to meet the target. One, the emitter can purchase "Technology Fund" credits. These credits come at a price of $15/tonne of greenhouse gas emissions. Effectively, each credit counts as a tonne of emissions reduction and the emitter can purchase enough credits so that they meet the reduction target. The money collected in the technology fund is given to an arms-length organization whose board applies a rigorous selection project to determine how the money will be spent. Funded projects must reduce greenhouse gas emissions or help Albertans adapt to climate change.

A second option for the emitter is to purchase "Emission Performance Credits." If another emitter more than meets its target, it generates an Emission Performance Credit equal to the difference between its target and the actual emissions intensity. These can be banked for future use or sold to other emitters in any period.

The third option for the emitter is to purchase "Emission Offsets," which are created by non-regulated activities that reduce emissions on or after January 1, 2002. To qualify, the reduction must:

- take place in Alberta;
- not come from a regulated facility and must come from actions not otherwise required by law;
- be real, quantifiable, measurable and demonstrable;
- be counted only once for compliance purposes;
- be verified by a qualified third party;
- have clearly established ownership;
- be implemented according to a Government of Alberta-approved quantification protocol;
- be third party verified by a qualified person(s) meeting the requirements for a third party auditor under section 18 of the *Regulation*; and
- be registered on the Alberta Emissions Offset Registry (Goddard, Haugen-Kozyra and Ridge 2008; Government of Alberta 2011e).

See Figure 6 for an overview of Alberta's greenhouse gas emissions reduction program.

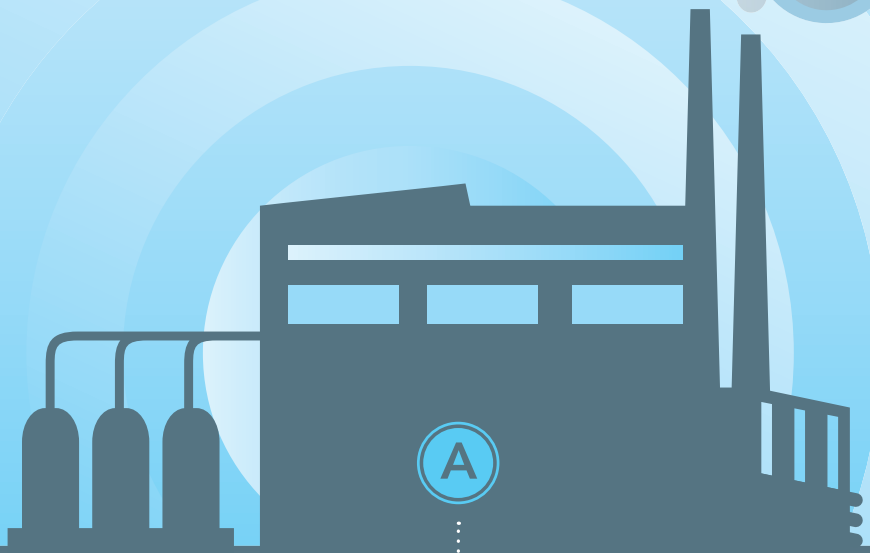
While the whole emissions management system relies on market forces for the purposes of achieving an environmental outcome, the emissions offset market is the most visible (in the sense that it is in the media and people are most likely to see it in action) and transparent (because there is a public registry that lists the projects available for offset) part of the system.

The emissions offset market enables companies to meet their emissions reduction targets by purchasing offsets from those not participating in the baseline-credit system in the province. Offsets are created when emissions are reduced, avoided or removed (via a sink or sequestration). The Alberta government initially committed to develop a series of quantification protocols to quantify credits and ensure credits meet offset requirements (Liepa 2002). Since that time, protocols have been privately developed and vetted through a protocol development process.

There are several key players involved with the offset market. The nonprofit organization C3 (formerly Climate Change Central) operates the official emissions offset registry for Alberta-based offsets. Project developers register reports and verification statements as well as serialize their offsets on the registry. Primarily, the registry provides transparency to projects and traceability to the life cycle of an offset credit from creation through transactions and finally retirement (Goddard, Haugen-Kozyra and Ridge 2008: 3). Additionally, the offset registry may reduce transaction costs by making it easier for buyers to find sellers.

Figure 6:

ALBERTA GREENHOUSE GAS REDUCTION PROGRAM



COMPANY A needs to reduce emissions to meet provincial target

1 **COMPANY A** purchases unused emissions credits from **COMPANY B**

2 **COMPANY A** invests in technology fund

3 **COMPANY A** purchases carbon offsets

4 **COMPANY A** invests in facility upgrades and reduces emissions to below target

Key actors within the offset market include project proponents, aggregators, brokers and validators/verifiers. Project proponents carry out offset projects on the ground. Some of the projects are too small to interest companies that need to purchase credits so aggregators bundle projects of the same type together to sell to a buyer thus reducing transaction costs. Brokers try to further reduce transaction costs by helping to bring buyers and sellers together. Finally, validators/verifiers are independent companies that examine individual projects to ensure the claimed offsets are actually taking place.

Emission offset projects take a lot of planning. First, they must adhere to a government approved quantification protocol. These protocols are based on the best available science and designed to ensure the type of project will result in real, measureable, quantifiable and verifiable offsets. If the project type has an approved protocol, then the proponents can begin planning. At this point, proponents can seek "validation," in which the feasibility of their offset plan is assessed. It is not mandatory in the Alberta system, but it can be a valuable risk management tool. Once planned, the project is implemented and the results verified by an independent third party. Once offsets are verified, the proponent can apply to be listed in the registry and have their credits serialized.

At this point, a buyer may approach the proponent directly through posted information on the registry, a broker may bring the project to the buyer or an aggregator may approach the seller about incorporating their project into a bundle of projects. A purchaser may submit the offset credit in its annual compliance report. The Registry tracks the usage and ownership of all serialized offset credits brought forward and thus provides assurance to the government that a credit is counted only once. Alberta Environment and Water can review the offset credit and assess the validity of the claim. The prices paid by companies for offsets vary. The $15/tonne technology credit compliance option effectively sets a price ceiling of $15/tonne for offset and emissions performance credits. Still, offset credits tend to trade at prices lower than the ceiling. In early trading, for example, prices ranged between $6 and $12 per tonne of offsets (Goddard, Haugen-Kozyra and Ridge 2008: 7). The sometimes-significant discount is due to risk; Alberta Environment and Water makes the final decision on whether the offset counts or not (Goetz et al. 2009: 398).

By far, the most common offset type is no- or reduced-till agriculture, with 41% of "retired" credits (those that have been sold and retired for government compliance) coming from that sector. The next most common project types are nitrogen dioxide abatement projects at 11% of retired credits. The wind energy project type rounds out the top three at 9% of retired credits.

According to C3, as of writing, the system has serialized in over 15.6 megatonnes of offsets from 90 projects. Additionally, they estimate there is approximately 12-14 megatonnes of demand in a given year, with only 2-4 megatonnes per year of supply.

Of the 32 approved quantification protocols, however, only about one-third of those have actual projects that have been officially registered on the registry. Our interview participants cited the impact of the technology fund credit on the offset market. Essentially, the $15/tonne acts as a price ceiling in the offset market. Many would-be offset suppliers projects are not viable to bring forward

at such a low price. A higher price would likely incent a greater number and variety of suppliers and help allay concerns that there is not a sufficient incentive to reduce emissions at $15/tonne. This is compatible with the regulations in place, which envision a stepping up of the technology fund price over time, although when and by how much it will increase is unknown at this time.

One of the current shortcomings in the market is the lack of price transparency. The registry only lists projects, it does not assign a price to them, require submission of contracts or record the price paid for them. Price transparency is key for markets to function efficiently. The offset market could be made more transparent, for example, by recording the prices paid for a retired serialized offset in the registry.

Despite these shortcomings, this is an example of a functioning and effective market-based instrument in Alberta. After establishing the ground rules, the government stood back and let the system operate. The rules are being modified as necessary due to experiences on the ground. For example, starting in the next compliance year "historic credits" (those created prior to the registration of the project in the offset registry) will be phased out in favour of "go-forward" crediting offsets. Another example is the recent decision to double the credits earned by carbon capture and storage projects. If other market-based instruments are clearly designed, monitored over time and adaptable to changing circumstances, then the chances of their success improve significantly.

Recent policy developments do not seem to have affected the operation of the carbon offset market. Quantification protocol development involves several steps and review to ensure that the protocol and projects envisioned are not in conflict with other government policy. Additionally, LUF and ALSA are much more focused on the local and regional level and related to land use and management objectives. The greenhouse gas reduction program and its associated emissions offset market are province-wide policies. Given LUF and ALSA's regional focus, it is perhaps unsurprising that they have not had a significant effect on province-wide policy.

Alternative Land Use Services in the County of Vermilion River

In 2010, Delta Waterfowl and the County of Vermilion River set up an Alternative Land Use Services Program (ALUS) pilot project. This program is designed to incent farmers to provide ecological goods and services by paying them to restore and/or preserve ecologically sensitive areas on their land.

The key philosophical principle behind ALUS relates to shared ownership of resources on private land and holds that the public and landowners should share the responsibility of enhancing and maintaining natural capital. To reflect this, the costs need to be shared and farmers should receive payment for their environmental services.

The launch of the program in the County of Vermilion River occurred in January 2010. Shortly thereafter, 11 pilot projects comprising approximately 1,100 acres of land were selected. According to our interview participants, farmers are paid a maximum of $40/acre for cropland and $30/acre for pastureland (average rental rates in the county) that would be used to provide ecological goods and services. The payment is adjusted downwards based on soil productivity and land use (e.g., cattle grazing). The costs of establishing the ecological goods and services areas are shared 50-50 between ALUS and the farmer.

Interview participants emphasized the community-led, farmer-delivered nature of the program. The County and other stakeholders are involved in the decision-making processes and the farmers designed projects in consultation with stakeholders.

The projects within this program reflect a wide variety of ecological goods and services. Some converted annual cropland to native prairie grasslands, a declining resource (only 1% of North America's native prairie grassland remain) that sequesters carbon and provides habitat for native species. Other projects fenced or buffered sensitive riparian areas from grazing. Still others restored, created or enhanced wetlands (Fisher 2010: 5).

The Alberta ALUS project is modeled on other programs across the country that began in the late 1990s. Keystone Agricultural Producers (KAP), a farm lobby, worked with Delta Waterfowl, a waterfowl conservation organization comprised mainly of hunters and conservationists, to germinate the idea. By the mid-2000s, they had the ears of provincial and federal governments. In 2004, an ALUS proposal was presented to a meeting of federal and provincial Ministers of Agriculture in Prince Edward Island (PEI). Delegates at the meeting agreed to create a working group on ecological goods and services policy development, host an international conference on ecological goods and services policy and programs and establish a fund to finance pilot projects (Guerra 2010: 48).

Since then, several pilot projects have been carried out across the country. The first pilot project was announced in 2005 in the Rural Municipality of Blanshard, Manitoba. The pilot project began accepting applicants in 2006. The three-year pilot project wrapped up on time and had a total budget of about $1.8 million (Guerra 2010: 48-50).

A much more ambitious pilot project was planned for Norfolk County, Ontario, which launched in 2007. However, funding did not meet expectations and the project had to be scaled down from 9 to 3 years. Unanticipated increases in funding due to the program's popularity extended the project from 3 to 5 years and expanded the number of participating producers to 100.

ALUS went from pilot to provincial policy very quickly in PEI. In 2007, there were two pilot programs in watersheds. Shortly thereafter, ALUS was announced as a province-wide policy in 2008. This represented a significant change for PEI, which went from having a heavily regulated agricultural policy to one with market-based elements (Guerra 2010: 51).

The ALUS pilot project in the County of Vermilion River provides a number of lessons about the use of market-based instruments in Alberta. Perhaps most importantly, it demonstrates that these kinds of projects can work and that there is an appetite on the part of landowners and local municipalities to enhance and protect ecological goods and services.

This project also reveals a number of challenges that are yet to be worked through. This includes figuring out the relative value of an ecological good or service, finding consistent and secure funding for the program and the need for program monitoring and evaluation.

Determining what is the appropriate amount to pay is a more challenging issue than it first appears. The ALUS program in the County of Vermilion River bases payments on market rental rates in the area. The idea behind this is that farmers will receive an equivalent amount of funding for preservation as they would for renting it out to be farmed. These rates are a good start, but they are insufficient to incent some of the more costly ecological goods and services. For example, they would not compensate a farmer for restoring a wetland on land that is currently annually cropped.

One solution to this problem is what is called a "reverse auction." Economists like reverse auctions in cases of "asymmetrical information." In this case, asymmetrical information refers to the fact that the sellers of ecological goods and services know more about their costs than the purchasers. In such a situation, the buyers are likely to overpay for those goods. A reverse auction, where the price descends, incents farmers to "reveal" what it really costs to provide a good or service. One of the more prominent international examples of the reverse auction is the Conservation Reserve Program run by the United States Department of Agriculture.

Interview participants cautioned against using reverse auctions because some farmers in Canada see reverse auctions as pitting farmer against farmer. Instead, participants encouraged continued research into both the values and costs of providing ecological goods and services. Once such price points are known, a program like ALUS can be adjusted to pay a more appropriate amount.

Another challenge is funding. The pilot project in the County of Vermilion River has been funded by contributions from Delta Waterfowl, Wildlife Habitat Canada and local farmers. The question is where the funding will come from once the pilot project is over. Delta Waterfowl is currently doing market research to see whether local individuals, local businesses or larger businesses may be interested in contributing to fund ALUS. Other options under consideration include selling carbon offsets and wetland mitigation funds.

For those interviewed, provincial funding should be a key component of long-term funding stability, much like the model established in Prince Edward Island. There may, however be a tension in the program if the provincial funding route is travelled. The program is designed to be locally led and delivered. Setting up a provincial program whereby the funding comes from the provincial government, but the decisions are taken locally, may be problematic.

A final issue this project reveals is the need for program monitoring and evaluation. It is a key feature of the ALUS program and is currently being carried out by the nonprofit organization Cows and Fish. There needs to be certainty that payments made for ecological goods and services actually result in the protection and preservation of environmentally sensitive areas in the long term. Ideally, if there is to be transparency and public buy-in to more programs like this, an independent third party should regularly monitor and evaluate, with the results being made available to the public.

The ALUS program is interesting not only because it is an example of a fully functioning MBI, but also because it has been implemented and operated almost in the absence of a provincial policy framework. The provincial government did not mention this kind of program in either the LUF or the ALSA. Questions of funding aside, this kind of program certainly fits within the spirit of the legislation and there is potential that programs like this could be a vital component of the regional plans around the province.

Lessons Learned

The case studies and the literature illustrate a number of key lessons about the use and implementation of MBIs. The lessons speak to the best ways to design and deliver market-based instruments while highlighting some of the challenges.

A Clear Problem: At a broad level, one of the most important lessons learned from the case studies is that there has to be a clear environmental goal that the MBI strives to achieve. This goal needs to be supported by scientific evidence and baseline ecological studies. If there is not a clear environmental goal, it will not be clear which (or if a) particular MBI is appropriate. Whether that environmental goal is to reduce the level of greenhouse gas emissions, stop pollutants from entering the air or water, prevent the destruction of wetlands or improve waste management, there must be clarity around what the problem is and how the MBI can potentially help address it. Without this clarity it will be difficult to utilize MBIs effectively within the specific context and it will be a challenge to get community and political support for the project.

Community Support: Stakeholder interest, community support and understanding, public buy-in are essential for these kinds of programs to work. If people do not understand the value and the purpose of different market-based instruments, let alone how to navigate them, they will be ineffective. Additionally, if there is a sense that government is simply abdicating its role by allowing the market to take care of environmental conservation, there will not be sufficient support for the projects. Community support is important because most of these initiatives are very specific and take place at the local level. If support and agreement are lacking at the grassroots, it is unlikely that MBIs will successfully get off the ground.

Need for Balance: There is a need for the right balance between government regulations and market forces. MBIs are not a replacement for regulations and neither are they an extension of regulations; instead they must operate as a market *within* a regulatory framework that sets out clear boundaries. As one of the interview participants noted: "If MBIs are to become more comprehensive, more pervasive and especially more credible, then the regulatory aspect becomes increasingly important." This should not be a surprise because most markets operate within regulatory frameworks. The challenge, however, is that the optimal balance between regulation and market forces may need to be set for each individual MBI as it is not clear that different environmental issues should be subject to the same level of government control. It is possible that the balance between regulations and markets will vary considerably for water allocation, wetland restoration, emissions management and so on.

Complexity: A central lesson of the case studies is that MBIs can be extremely complex and require a great deal of planning and monitoring at all stages of their implementation—particularly if they are inter-jurisdictional like the Beaver Hills Initiative. The time required to develop and implement effective market-based instruments is lengthy and the process is convoluted. MBIs should not be viewed as an easy solution or a "hands off" approach to environmental conservation. MBIs can only work within a framework of clear scientific evidence and baseline ecological assessments, government regulations around environmental boundaries and a system of effective monitoring and evaluation. This is important to note because there can be a tendency to think that market solutions are more straightforward than regulations. This misperception can lead to MBI programs that are not well thought through and may increase the likelihood of failure. As one interview participant succinctly noted, "If you are utilizing markets, money, land and rights, it's very complex."

Flexibility is Key: Since MBIs can be so complex, it is critical that there is room for change and adaptation once they get off the ground. It is unlikely that the designers of these instruments will have anticipated every possibility and therefore building flexibility into the instruments is a way to ensure they remain relevant and effective. An example of where this has been done well in Alberta is in the emissions management market, which has been updated and adapted to meet changing economic and environmental circumstances. If MBIs, and the regulation surrounding them, are too rigid and there is little room for adjustment, it is unlikely they will remain effective over time.

Subject to Market Forces: One of the risks of using the market to accomplish environmental goals is that environmental management can become subject to volatile market forces. What this means is that if the province enters a period of recession and reduced spending, there may be an impact on the amount of interest, and possibly the price that people are willing to pay, for environmental goods and services. This is not necessarily a problem as presumably development pressure will also decrease, but it underscores the need for MBIs to be lodged within a strong regulatory framework.

Transparency: A final lesson is that MBIs must be transparent if they are going to be broadly accepted and widely used in the province. This includes the need for transparency in price, as is illustrated by the example of Alberta's emissions management program, and transparency of environmental outcomes, as the ALUS project in the County of Vermilion demonstrates. The public must be confident that credits are being traded for an appropriate price and that clear environmental outcomes are the result.

All of these lessons will be important as increased experimentation with MBIs continues in the province. These lessons have the potential to determine how successful the instruments will be and the degree to which they will be used going forward.

Public Policy Landmines

Research into the use of MBIs, as well as talking to people actively involved with them in Alberta, has also revealed some of the tensions or policy landmines around their use. There are a handful of issues with MBIs that do not have clear public policy solutions. Some of these are practical and focus on the technical aspects of putting the tools into place while others are more philosophical and speak to the challenges of adapting theoretical policy solutions to the reality of human behaviour. The issues include: questions regarding which level of government should be responsible for the MBIs in Alberta, the tolerance level for failure and the challenge of providing financial incentives for moral behaviour.

Level of Government: An issue that emerged from this research relates to the roles and responsibilities of different levels of government when it comes to setting up and administering programs that make use of MBIs. It is clear that the provincial government has put in place enabling legislation and is in the process of developing regional land use plans. It is also clear that market-based instruments are generally local tools in terms of both the ecology and the politics around them.

Greenaway highlights this tension when he notes: "The *Alberta Land Stewardship Act*, even with its very prescriptive demands on municipalities to align with the upcoming regional plans, sees those municipalities as the primary vehicles for implementation" (2011).

Municipalities are not *required* to use market-based solutions for their environmental challenges, but they are encouraged to do so by the provincial government. The question then becomes, if a municipality makes use of MBIs, who should ultimately be responsible for paying for the program? Additionally, who will retain control over how these programs are designed and administered? If the provincial government agrees to be the financial backer, will they still extend control to local stakeholders and communities? Finally, who will be liable should something go wrong?

These are all questions that are not answered at the moment because the *Alberta Land Stewardship Act* does not spell them out and there have not yet been enough MBIs implemented in Alberta to have established precedence.

Tolerance of Failure: Another issue that arose in the research around how MBIs could be implemented in Alberta was the role of failure and risk tolerance, particularly since these are mechanisms being endorsed by the provincial government. Experts expressed concern that MBIs are, in many respects, still quite experimental in Alberta and if the tolerance for failure is too low, it could prevent effective experimentation with these tools.

One aspect of this was concern that the government may have been too prescriptive in the ALSA with respect to MBIs, and that there is too much of an attempt to dictate how and which MBIs will be used in an effort to avoid any possible failure. This indicates that the tolerance for failure is relatively low.

The challenge with being too prescriptive is that there is no clear "this works in Alberta" model of MBIs that can simply be rolled out. There is still a need to figure out what works in this particular provincial context. It is extremely difficult to determine what the optimal circumstances might be without some experimentation—which necessitates some failure.

The question, then, is how much tolerance of failure should there be in the experimentation around MBI implementation? If the bar is set too low (too much acceptance of failure), the province and organizations may not be making effective use of funds and not achieving good environmental outcomes. Conversely, if the bar is set too high (too little acceptance of failure), it will be extremely difficult for MBIs to ever get off the ground and implemented in the province.

Financial Incentives for Moral Behaviour: Many of the environmental and conservation initiatives undertaken by individual Albertans and by organizations are done because people feel there is a moral imperative in play. People seek to protect the environment because it is the right thing to do. MBIs, on the other hand, pay people to act as environmental stewards, and, conversely, require people to pay for the protection of ecological goods and services. Will this have a corrosive effect on altruistic action? Will tax dollars be used to subsidize behaviour that was formerly done for free? For example, some people recycle bottles because they feel recycling is important, some do it because they get their deposit back and some do it for both reasons. These questions should not deter policymakers from considering the use of MBIs, but they should form part of the debate about their efficacy.

The potential policy landmines are a reminder that there is considerable work to be done on the MBI front in Alberta. As communities, local governments and the provincial government obtain more experience with the design, implementation and evaluation of MBIs, it is reasonable to assume that these issues will be at play.

Public Policy Recommendations

Notwithstanding the challenges of, and ongoing questions about, using MBIs, the fact remains that in some cases the market, when operating within a framework of government regulations and based on clear scientific evidence, can be a very useful tool for protecting the environment. The simplest reason for this is because the market enables flexibility and equity in a way that government command and control cannot. Markets are very effective at linking buyers and sellers and encouraging the most cost-effective responses to complex situations.

In the case of Alberta, the absence of completed regional land use plans for each designated region must be acknowledged prior to the discussion of policy recommendations. The extent to which MBIs are utilized successfully will largely depend on how they are provided for in each regional plan. The future use of MBIs will be influenced by the conservation objectives of each region, the socioeconomic and political characteristics particular to the area and the current and anticipated development pressures, among other factors. It also stands to reason that MBIs are not a "silver bullet" and they are not going to be the best fit in every situation. Nonetheless, a number of policy recommendations emerge from the research that will, as long as changing local and regional contexts are also considered, assist in the effective use of MBIs in Alberta.

The recommendations fall into two broad categories: 1) how the provincial government can create an effective policy framework for MBIs; and 2) how the provincial government can actively promote and encourage the use of market-based instruments in Alberta.

Create a Framework for Success

With the passing of the ALSA, the provincial government has signalled that it is in favour of using MBIs to achieve environmental outcomes. If it is serious about this, there are some direct actions that could be taken to create an effective policy framework for MBIs. This includes a commitment to more environmental research, greater government cooperation and integration around MBIs, promoting awareness of MBIs, integrating conservation planning, and monitoring and evaluating program results into all aspects of land management.

Commitment to Research: While a certain amount of information and intelligence surrounding the ecology and environmental state of the province already exists, the need for additional research is apparent. This research needs to be closely tied into land use planning and decision-making at the regional and municipal levels because these are the levels of government where practical implementation of land use plans occurs. The relationship between the market tools, the regulations and the research is dynamic, meaning that these elements are interdependent and consistently interact with one another. The data underlying the tools is constantly evolving and require research to be conducted on an ongoing basis. Up-to-date information is also necessary to demonstrate that the objectives established in the regional planning process, and the regulations

pertaining to MBIs, are based on sound principles. Research provides clarity and encourages stakeholder buy-in as it contributes to the body of knowledge surrounding what is a rather new and innovative approach to land use planning and markets.

Government Coordination: A greater degree of inter- and intra-governmental coordination and communication would help support the implementation of MBIs. As the enabling framework is already in place, some leadership needs to come from the provincial government to address the gap between legislation and local implementation. Clear communication about the design of these tools and their possible applications is necessary to increase the comfort around their use, particularly in the nascent years of an initiative. A number of those interviewed expressed that, while MBIs are entrenched in provincial legislation, and will likely be incorporated into regional plans, these tools have the ability to be most effective at the local level.

One option for how this could take place is through embedded MBI experts who could assist in spreading information about how MBIs could be applied in specific, localized instances. The purpose of these individuals would not be to encourage the use of MBIs indiscriminately, but rather to educate others and put MBIs on the table as a policy option, when appropriate. These key policy entrepreneurs could be placed within the Conservation Exchange, the Land Use Secretariat, and/or on Regional Advisory Councils and could work with municipal governments interested in learning more about MBIs.

Education: Tying into the idea of an embedded MBI expert, a greater level of general education surrounding the use of MBIs as a land use planning and conservation tool would improve the extent to which MBIs are utilized in Alberta. There is a strong need to demonstrate the overall utility of MBIs to potential users and to explain the benefits of using them in the appropriate context. Some of the individuals interviewed indicated that they have experienced difficulty with both instilling knowledge about these non-traditional tools and making connections outside of those already involved with MBI research and decision-making. One expert noted, "There's more knowledge among policy folks, among the legislators and bureaucracy but you still need to get that knowledge down to the players who are going to actively engage in these cases." The reality is MBIs still are not on the radar for the majority of stakeholders.

To increase awareness, a two-pronged approach could entail a more general information campaign aimed at those broadly involved with land use planning and conservation, as well as specifically targeted efforts to inform key stakeholders about MBIs. Equally, more information about MBIs could be disseminated during the consultation process for the regional plans through the use of the embedded MBI expert. Further education is necessary to gain buy-in from those not aware or not convinced of the practical application of MBIs.

Integrated Conservation Planning: There is a need for the province and local governments to better integrate conservation planning into the policy process. Conservation needs to be moved up in priority so that it is not a passing consideration or a secondary concern behind development and economic growth, but instead needs to be at the forefront of policymakers' minds whenever

a decision is made about land use in the province. This could require some new standards and procedures such as requiring municipalities to develop conservation plans concurrently with their development plans, for example. This will not only promote the use of MBIs (when appropriate), but will enable a more thoughtfully managed use of a finite landbase.

Monitoring and Evaluation: Finally, it is necessary that program results be regularly monitored and evaluated to ensure that they are meeting the standards established at the outset, both in terms of environmental performance and resource expenditure. In simple terms, it's imperative to know what works and what doesn't, and at what cost. Particularly since market-based programs are rather new to the policy landscape, future program design must be informed by the successes and failures that have come before. Regular monitoring and evaluation is important in promoting transparency and accountability, which may contribute to the improving the public's confidence in these new initiatives. Evaluation also ensures that knowledge is being institutionalized, with a view to translating this awareness into best practice.

These policy recommendations—a commitment to environmental research, increased government cooperation and leadership, more education about MBIs, integrated conservation planning, and monitoring and evaluation—can broadly be understood as ways for the provincial government to put in place a successful framework within which MBIs can operate. The government has already signalled its support for the use of MBIs for environmental purposes; these are simply suggestions for how they could enable those tools to have greater success.

Promote MBIs in the Province

In addition to creating a framework within which MBIs can operate, there are also some policies the province could look at that would directly promote the use of MBIs in Alberta. These include investing in MBI pilot projects and incenting buyers for environmental goods and services or energy efficient products.

Invest in Pilot Projects: In order for MBIs to be seen as viable land use planning tools, the provincial government could invest in getting pilot projects off the ground. Provincial funding for a number of projects could help to establish a template that would aid future interested parties with using MBIs by establishing best practices, made-in-Alberta solutions and creating design templates. Initially these pilots should be funded by the provincial government, even if the effect of the initiative is concentrated more locally, in order to indicate support for these types of initiatives. If the pilots are successful there should also be a commitment to sustainable administration funding so that the successful ideas can be transferred from the pilot stage to the implementation stage. The provincial government is best placed to extend financial and institutional support since the relevant policy was formulated and enacted at this level. Other interests and partnerships should still be heartily encouraged, like conservation groups and those at the municipal level, but provincial funding may start the ball rolling by further developing the work being done on the ground.

Incent Buyers: A second way governments could promote the use of market-based instruments in Alberta is by incenting buyers of ecological goods and services or encouraging the use of energy efficient products and services. This could be done through tax incentives, for example, that would encourage buyers to partake in market-based initiatives.

There are a number of different tax incentives that could encourage investment in market-based instruments in the province including, but not limited to, tax credits, tax differentiation and tax relief. These could all be applied to both businesses and individuals and would help make Albertans more accountable for the choices they are making.

A program could be put in place wherein individuals, organizations, philanthropists or businesses could buy ecological goods and services from a registered market-based instrument and receive a credit on their taxes akin to a charitable donation. This would use tax credits as an incentive for buyers of ecological goods and services and could work for programs like the ALUS project in the County of Vermilion River, which has farmers and landowners interested and invested in the project, but needs buyers who will purchase the ecological good of a functioning wetland or a parcel of land restored to native grasses.

The policy option of incenting buyers of goods and services that benefit the environment is not restricted to the specific case studies examined in this report. There is a clear role for governments to incent buyers for all types of MBIs. This could include differentiated tax rates for purchasers of energy efficient products, for example. This would encourage Albertans to use more energy efficient products and could help offset the cost of buying hybrid cars or high efficiency furnaces. This kind of a program could help Alberta reduce its high emissions rate and would shift some of the emphasis onto consumers rather than just producers.

Similarly, a program could be put in place that would reward Albertans for making energy efficient choices by allowing them to deduct a portion of the efficiency upgrade from their income tax. This could include home efficiency measures such as the installation of solar panels, high insulation value windows or any other upgrade that measurably reduces energy use. All of these policies could be used in conjunction with existing policies designed to improve Alberta's environmental performance, such as the new home energy efficiency rebate program. These policies would not necessarily support the use of the MBIs examined in the case studies, but they are market-based instruments and they could help Alberta to better manage environmental protection.

Broadly, if MBIs are to be used more extensively in Alberta, it is important that a supporting framework for their design and implementation is created, that they are promoted through enabling tax legislation and that the government is leading by example.

Figure 7: Policy Recommendations for Fostering MBIs in Alberta

Create an effective policy framework for MBIs

- → Commit to more environmental research
- → Increase government cooperation
- → Promote awareness of MBIs
  - General education initiatives
  - Embed a MBI expert at the regional planning tables
- → Integrate conservation planning into all aspects of land management
- → Conduct regular program monitoring and evaluation

Promote the use of MBIs in Alberta

- → Invest in pilot projects to develop best practices
- → Incent buyers for environmental goods and services and energy efficient products
  - Tax credits for environmental investors
  - Tax differentiation for energy efficient choices
  - Tax relief for efficiency upgrades

While the recommendations summarized in Figure 7 would go a long way toward promoting MBIs, it also must be kept in mind that government policy is not the only answer. The history of MBIs in Alberta clearly shows that they can be designed, developed and implemented with little or no support from the provincial government. Some MBIs work best at the local level when applied to specific environmental issues and, while it would be unquestionably easier if the provincial government put in place a supportive policy framework and financial incentives, the lack of a clear policy framework does not mean MBIs are not an option. There is room for local municipalities, conservation groups, philanthropic organizations and others to set up MBIs to achieve environmental goals.

Conclusion

The *Land Use Framework* and the *Alberta Land Stewardship Act* have clearly legitimized the use of MBIs in Alberta. Many of these tools, such as conservation easements and TDC schemes, had a prior history in the province. In this way, the LUF and the ALSA did not generate new MBIs, so to speak, but they have been instrumental in endorsing their continued use. The conversation around the use of MBIs (and by extension, the protection of environmental goods and services) has increased as a result of the LUF and the ALSA. These policies have created opportunities for interested parties that are not necessarily available in other jurisdictions at present.

On the whole, the current use of MBIs in Alberta is much more theoretical than practical. At this point, in a period of policy change, positive experience with MBIs has the ability to beget a snowball effect, where MBIs are legitimized in the eyes of stakeholders and the public. Conversely, negative experience has the potential to impact the perception of MBIs and their capacity for generating beneficial economic and environmental outcomes.

It is currently too soon to tell how effective the supporting policy framework will be in promoting the use of MBIs in the province. For the time being, the negative attention drawn to ALSA and the controversy around it may be seen as a potential negative influence on the perception of MBIs themselves. As one interview participant noted, "The perception of MBIs is very important. If people do not see these instruments as being good, they will not have the impact we want them to have."

Moving forward, building a more positive public profile for new policies will be crucial in combating unfavourable perceptions. Those involved with the operation of MBIs, including (and perhaps especially) the government, must foster stakeholder buy-in in order to gain trust and confidence so that MBIs can be smoothly implemented. Likewise, the benefits—both economic and environmental—should be highlighted when it comes to the promotion of MBIs and the conservation outcomes should be very clearly defined.

Using market-based instruments for environmental protection is an innovative and exciting opportunity for the future. Alberta is a large province and is home to a wide variety of ecosystems from prairies to badlands to the Rocky Mountains. While Alberta is blessed with a wide variety of landscapes, the land serves different purposes for different people. This means that it is not possible to develop a one-size-fits-all solution to the points of tension that arise between development and environmental protection.

Market-based instruments have the potential—when developed and coordinated with other environmental and economic policy tools—to protect and preserve a variety of environmentally significant areas while balancing economic growth and equity. The introduction of policy tools that can balance environmental protection with economic growth into the Alberta legislative process is both timely and necessary. As the population of the province is projected to rise and with the next development boom potentially around the corner, the need to protect Alberta's environment has never been more critical.

Bibliography

Beaver Hills Initiative. 2011 *Ecological Primer—What Makes the Beaver Hills So Special?* www.beaverhills.ca/uploads/files/ecoprimer.pdf

Delta Waterfowl. 2011. *Alternative Land Use Services (ALUS)*. www.deltawaterfowl.org/alus/index.php

Designer Carrots: Market-Based Instruments for NRM Change. Australia Government. Accessed on October 24, 2011 at http://www.marketbasedinstruments.gov.au/

Environment Canada. 2011. *National Inventory Report: Greenhouse Gas Sources and Sinks in Canada.* www.unfccc.int/files/national_reports/annex_i_ghg_inventories/national_inventories_submissions/application/zip/can-2011-nir-16may.zip

Fisher, Jim. 2010. *Alternative Land Use Services (ALUS) Demonstration Project in the County of Vermilion River (CVR), Alberta: Final Project Report to Wildlife Habitat Canada (WHC) for Fiscal Year 2009/2010*. www.whc.org/downloads/final-project-reports/alberta/17-alus-demonstration-project-in-the-county-of-vermilion-river-cvr-alberta-final-project-report-20092010/download

Goetz, John C., Morella M. De Castro, Gray Taylor and Karen Haugen-Kozyra. 2009. Development of Carbon Emissions Trading in Canada. *Alberta Law Review* 46: 377-425.

Gordon, M. and Hulchanski, J. David. 1985. *The Evolution of the Land Use Planning Process in Alberta 1945-1984*. University of Toronto Centre for Urban and Community Studies.

Government of Alberta. 2002. *Albertans and Climate Change: Taking Action*. Accessed September 12, 2011 at www.environment.gov.ab.ca/info/library/6123.pdf

Government of Alberta. 2003. *Water for Life: Alberta's Sustainability Strategy*.

Government of Alberta. 2008. *Land Use Framework*.

Government of Alberta. 2009. *Alberta Land Stewardship Act*.

Government of Alberta. 2011(a). *Alberta Population Projections by Census Division, 2011-2050*.

Government of Alberta. 2011(b). *Alberta results demonstrate responsible, clean energy production*. May 3 press release. www.alberta.ca/acn/201105/30322B6FFB035-F686-76DE-835193EEE98AC9B2.html

Government of Alberta. 2011(c). *Economic Outlook 2011-14*.

Government of Alberta. 2011 (d). *Overview of environmental tools fact sheets: Market based instruments and fiscal instruments.* Accessed September 12, 2011 at http://environment.alberta.ca/01825.html

Government of Alberta. 2011(e). *Technical Guidance for Offset Project Developers Version 2.0*.

Greenaway, Guy and Kimberly Good. 2008. *Transfer of Development Credits in Alberta: A Feasibility Review*. Miistakis Institute. www.rockies.ca/project_info/TDCFeasibilityReviewMiistakis.pdf

Greenaway, Guy. 2011. *What About a Municipal "Conservation" Plan?* Miistakis Institute Blog. Accessed November 28, 2011 at www.rockies.ca/blog/?p=370

Guerra, Paul. 2010. *Investment in the Provision of Ecological Goods and Services on Private Rural Land in Ontario: A Framework for Policy Development (Master's thesis)*. University of Guelph.

Jenkins, Glenn P. and Ranjit Lamech. 1992. *Market-Based Incentive Instruments for Pollution Control.* International Bureau of Fiscal Documentation. 523-538.

Kopits, Elizabeth, Virginia McConnell and Margaret Walls. 2006. "Making Markets for Development Rights Work: What Determines Demand?" *Resources for the Future Discussion Paper*. 05-45-REV.

Kwasniak, Arlene. "The Potential for Municipal Transfer of Development Credits Programs in Canada." *Journal of Environmental Law and Practice* 15: 47-70.

Land-use blueprint alters how we work, live, play. April 15, 2008. *The Calgary Herald.* http://www.canada.com/calgaryherald/news/story.html?id=32acb917-1da1-4b58-a9d0-925327a5c2fd&k=52372

Liepa, Ingrid. 2002. *Greenhouse Gas Offsets: An Introduction to Core Elements of an Offset Rule*. Discussion Paper c3-05. Climate Change Central.

Stavins, R.N. 2001. *Lessons from the American experiment with market-based environmental policies.* Resources for the Future Discussion Paper 01-533.

Whitten, Stuart, Martin van Bureren and Drew Collins. 2003. *An Overview of Market-Based Instruments and Environmental Policy in Australia*.

Wilkie, Karen. 2005. *What's in it for me? Exploring Natural Capital Incentives.* Canada West Foundation.

Appendix A: Interview Participants

LAST NAME	FIRST NAME	POSITION	ORGANIZATION
Adamowicz	**Vic**	*Associate Dean (Research) in the Faculty of Agricultural, Life & Environmental Sciences, and University Professor in the Department of Rural Economy*	University of Alberta
Ambrose	**Norine**	*Executive Director*	Cows and Fish
Bjornlund	**Henning**	*Canada Research Chair in Water and the Economy – International*	University of Lethbridge
Boyd	**Richard**	*Policy Analyst*	C3
Dobson	**Stephen**	*Economics Analyst, Socio-Economics and Governance Team*	Government of Alberta
Fisher	**Jim**	*Director of Conservation Program*	Delta Waterfowl Foundation
Good	**Kim**	*Project Manager*	Miistakis Institute
Greenaway	**Guy**	*Senior Project Manager*	Miistakis Institute
Kerr	**Gillian**	*Manager Ecosystem Services*	Government of Alberta
Maynes	**Tanya**	*Program Manager*	C3
Poulton	**David**	*Former Executive Director*	CPAWS Southern Alberta Chapter
Stuparyk	**Amanda**	*Offsets Coordinator*	C3
Weber	**Marian**	*Environmental Planning and Economics*	Alberta Innovates Technology Futures
Whittaker	**Don**	*Former Reeve*	County of Vermilion River
Wispinski	**Brenda**	*Executive Director (BHI); Vice Chair (ALTA)*	Beaver Hills Initiatives/ Alberta Land Trust Alliance

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Since then, the Canada West Foundation has successfully met that goal, proving itself to be one of Canada's premier research institutes. The Canada West Foundation is the only think tank dedicated to being the objective, nonpartisan voice for issues of vital concern to western Canadians.

For over 40 years, we have represented western viewpoints. We are proud of our accomplishments and know that our research and commentary have improved government policy and decision-making.

Today the West is in, but we won't stop there. We continue to promote important issues and debates that provide made-in-the-West solutions to national problems and keep the West thriving.

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