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Shortage of CO₂e offsets predicted under federal regulatory scheme



By John Goetz

Providing a coalition government does not replace Prime Minister Harper's minority government, the Conservatives are expected to proceed with proposed new greenhouse gas (GHG) regulations under their Regulatory Framework on Air Emissions (the Federal Framework), announced in April 2008. But will there be enough carbon dioxide equivalent (CO₂e) offsets to go around for such a program? Chances are, the answer is no.

Notwithstanding the Prime Minister's recent letter to U.S. President-Elect Barack Obama proposing a joint climate-change pact, indications are that the Federal Framework is still proceeding, with draft regulations expected out later this month. It is uncertain if this framework will be replaced or modified to mesh with the U.S. climate change plan when it is unveiled, but that is likely. Obama appears to be leaning towards a cap and trade program. The question is whether or not it will include offsets as a component of the program, similar to what is being done in the EU with Certified Emission Reductions (CER's) under the Kyoto Protocol.

The province of Alberta has already taken steps to reduce CO₂e emissions from large industrial emitters (LIEs) and was the first jurisdiction in North America to do so. The province requires LIEs that emit more than 100 kilo-tonnes of CO₂e per year to reduce their emissions intensity by 12 per cent each year, against a specified baseline of emissions for that facility (usually the average annual emissions between 2003-2005). There are some significant differences between Alberta's regulations and the Federal Framework. The impact of the difference between the two schemes — the ability to use an unlimited amount of Technology Fund Credits under Alberta's regulations, and the more limited ability to use Technology Fund Credits under the Federal Framework — is the challenge at hand. This article will assume that the more stringent scheme, being the Federal Framework, will prevail.

Key differences

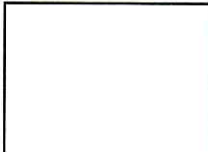
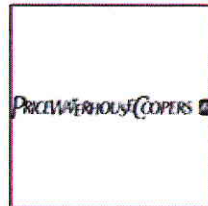
In Alberta, a LIE is able to meet its emission intensity reduction targets by buying Technology Fund Credits (1 credit = 1 tonne of CO₂e). This means that if an emitter requires another 10,000 tonnes of emission intensity reductions, it can buy 10,000 Technology Fund Credits at \$15 per tonne to meet its compliance obligation. This \$15 per tonne price has effectively established the maximum price for one tonne of CO₂e reductions under Alberta's Regulations.

The Federal Framework is different from Alberta's and focuses not only on long-term emission reductions, but short-term reductions as well. (When we refer to reductions, actual reductions or emission reductions, we are actually referring to reductions in emission intensity, since both the Alberta and the federal system are intensity based — i.e. ratio of emissions per unit of production.) To achieve short-term reductions, the federal scheme will only allow an emitter to achieve 70 per cent of its compliance by way of Technology Fund Credits. The remaining 30 per cent must be achieved by real intensity reductions. These real reductions can come from three sources: actual intensity reductions at the emitter's facility; purchase of emission performance credits (EPCs) from another regulated emitter; or through the purchase of "offsets."

Offsets are generated by emission reduction activities of a non-regulated emitter that quantifies its reductions following an accepted quantification protocol, and then sells the offsets to the emitter. Under the Federal Framework, the verified offset project will be submitted to Environment Canada and if the reductions are approved, certified offsets will be issued. Given that the government certifies these offsets, they have less risk than non-certified offsets under the Alberta regulations and because of this, will likely command a higher price. However, it is not the certified nature of the federal offset that is likely to have the greatest impact on its price, but rather, the demand and supply of the offset.

Challenges of the Federal Framework

Unlike the Alberta regulations, the federal requirement to meet 30 per cent of the reduction target by real reductions is expected to cause challenges. First, given the uncertainty surrounding the



implementation of the Federal Framework to date, emitters now have only one year to react to the anticipated reduction requirements. In most cases, one year will not be enough time to achieve significant reductions at their facilities, since the introduction of technology and equipment to reduce or remove emissions can be extremely expensive, (up to hundreds of millions of dollars per facility) and the lead time to plan, build, test and commission the systems is typically longer than one year. That leaves offsets as the primary mechanism for emitters (at least outside of Alberta), to achieve the remaining 30 per cent of their reduction targets. This means that most, if not all Canadian regulated emitters will be searching out offsets to meet up to 30 per cent of their compliance obligations.

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Compounding this issue are a number of factors. First, the Federal Framework has a much lower emission threshold for regulation than the Alberta system, so it will capture a much larger number of emitters. Alberta regulates just over 100 large industrial emitters. The Federal Framework is expected to regulate thousands of emitters and require emission reductions from each. This will dramatically increase the volume of offsets required to meet reduction targets.

Second, unlike Alberta, Environment Canada has to date effectively rejected the use of managed agricultural and forest sequestration programs as an accepted method of carbon sequestration. These sequestration programs are seen by many environmentalists as amongst the most effective means of removing carbon from the atmosphere. Afforestation and reforestation projects have been undertaken around the world to remove CO₂e from the atmosphere. However, following the lead of the CDM Executive Board, which is the body that approves Clean Development Mechanisms under the Kyoto Protocol, Environment Canada has cited the risk of events such as forest fires, pine beetles, crop fires and a return to tillage practices as reasons not to favour these types of sequestration programs to generate offsets under its system. Where these programs would be accepted, the discounting for risk is seen to be so onerous, that it negates any incentive to pursue such a sequestration project.

How significant is Environment Canada's decision not to accept meaningful volumes of emission reductions generated by agricultural and forestry projects as part of the federal offset system? You only have to look to Alberta's experience to see the potential impact. Alberta's regulations required 12 per cent reductions by emitters for the first compliance period, which was effectively six months from July 1, 2007 to December 31, 2007. About 5.7 million tonnes (5.7 MTs) were required to meet reduction targets. Of the 5.7 MTs of reductions required in Alberta, 1 MT was achieved by way of offsets. About 65 per cent of Alberta's offsets were generated by agricultural sequestration projects. Given that this type of offset is not expected to be available under the federal scheme in any meaningful way, emitters will likely need to look elsewhere to fulfill their offset needs. The problem is that Alberta's history indicates this may be very difficult, if not impossible.

To look at how the federal numbers may develop, we have to examine the National GHG Inventory figures that the federal government released for 2006, showing Canadian Anthropogenic (caused by humans) GHG emissions were 721 MTs. This translates to about 300 MTs of regulated CO₂e emissions. The Federal Framework will require industrial emitters to reduce emissions in 2010 by 18 per cent (54 MTs) from the 2006 baseline. While 70 per cent of these (38 MTs) can be satisfied by purchasing Technology Fund Credits, that still leaves 30 per cent (16 MTs) to be satisfied by offsets or at-source intensity reductions.

If we assume that half of this requirement is satisfied by at-source reductions (which would be a stretch), that will leave a requirement for Canadian regulated emitters to find and purchase 8 MTs of offsets. Herein lies the potential challenge. Alberta was only able to come up with 1 MT of offsets, and 65 per cent (650,000) of those offsets resulted from agricultural sequestration projects. This means only 35 per cent (350,000) resulted from non-agricultural projects. With Alberta alone making up almost 40 per cent of Canada's industrial emissions, extrapolating to account for the other 60 per cent translates to a total of only 875,000 tonnes of offsets. This raises the question: Where are the other 7 MTs of offsets going to come from? This figure represents an imminent need for 20 times more non-agricultural offsets than were available to meet Alberta's 2007 reduction targets.

To further put this in perspective, under the Federal Framework, emitters will be able to draw on projects that have been generating verifiable emission reductions since 2008. So there will be three years worth of emission reductions in inventory to draw on (2008 – 2010). Compare this with Alberta, which could draw on emission reductions generated from 2002 – 2007 (6 years). When you consider Alberta emitters had twice as many years to generate its offsets, and were only able to come up with 350,000 tonnes of non-agricultural offsets in that time, it makes the prospect of emitters obtaining sufficient offsets for their 2010 federal compliance even less likely.

Tight timeframe

There is no question that some emitters have been searching out projects and buying offsets in contemplation of the Federal Framework, but they are likely in the minority. Emitters have been penalized in the past for taking early action, only to find out later that their offset projects or purchases do not comply with new regulations or that new regulations do not materialize in the anticipated time frame.

The uncertainty surrounding the Federal Framework to date, including the fact that the proposed regulations may not be approved and finalized until near the end of 2009, and the question as to whether they would proceed at all, has deterred emitters from taking early action, at least to the extent it would cost them money. Now, emitters will be faced with a very tight timeframe to meet their reduction targets, unless the federal regulations respond to address this issue.

Offset pricing

The projected scarcity of federal offsets will undoubtedly have a significant impact on offset prices. Until now, Alberta emitters have had a price ceiling of \$15, by using unlimited Technology Fund credits to meet their target. This is no longer the case under the Federal Framework. The \$15 price that puts a ceiling on Alberta offsets has no relevance whatsoever under the Federal Framework. The key factor to determine the price will be supply and demand. The risk factor that affects the price of Alberta offsets is not present under the Federal Framework, since the Crown will issue all offsets. As such, all offsets will have the same intrinsic value, regardless of their source. This is distinct from Alberta, where certain offsets are seen to be less risky and, therefore, more valuable.

Given the evaluation of the demand for offsets discussed above (8 MTs), and the constraints existing on the current supply of offsets, especially non-agricultural offsets, it is very likely there will be a large gap between the volume required and the volume available. To avoid non-compliance, emitters will have two options: find and pay market price for enough offsets to meet their target; or pay a penalty for non-compliance, which, if like Alberta, will be \$200 per tonne.

Offset aggregators, traders and project developers are predicting federal offsets will be valued over \$20 per tonne and given their limited supply, may move toward the actual cost per tonne of reducing/sequestering emissions. The actual cost of reducing significant volumes of emissions has been estimated to be in the range of \$30-\$175 per tonne, depending on the type of emission source, with EOR and CCS schemes conservatively estimated to be in the range of \$30-\$80 per tonne and as high as \$200. The international price for certified emission reductions (CERs) of CO₂e have been in the range of €15.00 - €23.00 (\$23.00 - \$35.00 CAD) per tonne. As only 10 per cent of offsets can be satisfied through foreign CERs, the price range for CERs in the international markets is only an indicator. In addition, the volume of European Union Allowances available to foreign emitters to meet their targets has exerted downward pressure on the price of CERs. As such, they are not a very accurate price indicator for Canadian offsets. Again, the key factor in Canada will be the limited supply in a closed Canadian system.

Conclusion

Assuming the new Federal Regulations will be consistent with the Federal Framework, and the above analysis holds true, it may be prudent for emitters to seriously evaluate their emissions management and compliance programs to ensure that they will meet the challenges of more stringent reduction targets and more limited mechanisms with which to achieve them. The price of federal offsets could potentially be much higher than that which Alberta emitters currently must pay. In the worst-case scenario, if there are insufficient offsets to go around, the emitters' only alternative may be to pay a steep penalty for excess emissions. Hopefully, that will not be the case. Much of this problem could be avoided if the federal government allowed agricultural offsets along the lines of Alberta's system.

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