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Alberta releases the Carbon Capture and Storage Quantification Protocol for Public Comment

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Document Commented On: [Quantification Protocol](#) for CO₂ Capture and Permanent Storage in Deep Saline Aquifers, Version: DRAFT for public comment, November 2014 and associated [commentary](#) on changes made from the version released for technical review.

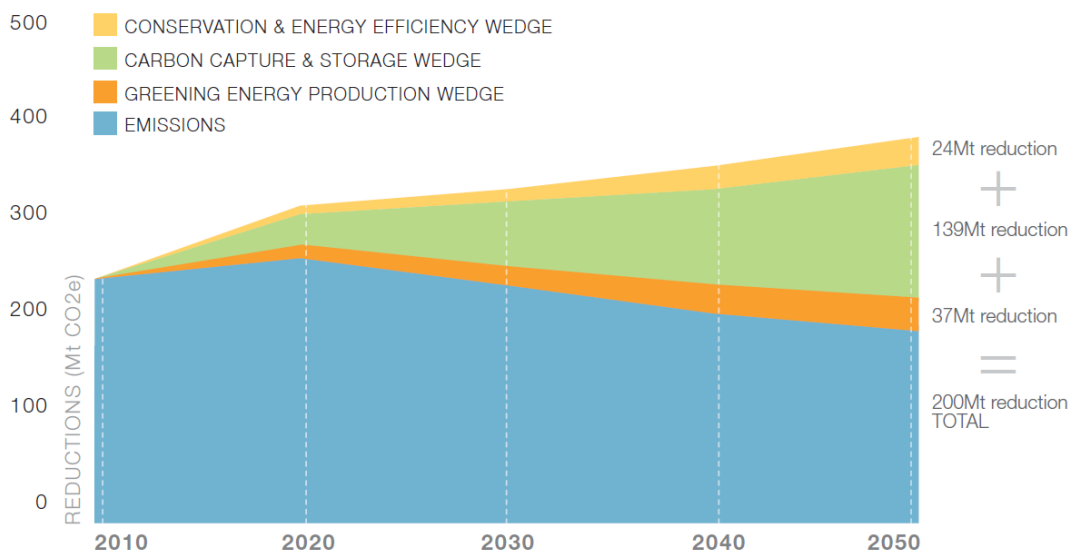
The Government of Alberta (GoA) continues to make progress in putting together the legal and regulatory framework for commercial scale carbon capture and storage (CCS) projects in the province. Such a legal and regulatory framework needs to address four types of issues: (1) property issues including the ownership of pore space and a scheme for leasing or disposing of rights to pore space; (2) regulatory or permitting rules for reviewing the merits of particular projects and to establish the terms and conditions under which projects might proceed; (3) liability issues; and (4) greenhouse gas (GHG) accounting issues to ensure that CCS projects are fully integrated into regulatory approaches for managing greenhouse gas emissions – in the case of Alberta this means integrating CCS projects into the *Specified Gas Emitter Regulation*, Alta Reg 139/2007 ([SGER](#)).

The key elements of the province's framework to date (with links to previous posts on the topic), are as follows:

1. Commercial scale CCS projects constitute a large and essential wedge in Alberta's commitment to reduce greenhouse gas emissions over a business as usual (BAU) scenario. Alberta's 2008 [Climate Change Strategy](#) envisages CCS contributing 139 Mt in reduced emissions in Alberta per year by 2050. This is close to 70% of the reduced

emissions that Alberta anticipates over BAU.

GREENHOUSE GAS REDUCTION WEDGE -- HIGHLIGHTING GREENER ENERGY PRODUCTION REDUCTIONS



2. Alberta passed legislation to establish the framework for dealing with the property, regulatory and liability issues in 2010 (*Carbon Capture and Storage Statutes Amendment Act*, SA 2010, c.14). This legislation amended the *Mines and Minerals Act* ([MMA](#)), RSA 2000, c. M-17, the *Oil and Gas Conservation Act* ([OGCA](#)), RSA 2000, c.O-6, and the [Surface Rights Act](#), RSA 2000, c.S-24. See post [here](#).
3. The province built on that framework in 2011 by promulgating the Carbon Sequestration Tenure [Regulation](#), Alta Reg 68/2011. See post [here](#).
4. The province has committed \$1.3 billion over 15 years to support [two projects](#), Shell's Quest Project (a deep saline sequestration project) and the Alberta Carbon Trunkline Project.
5. The province amended the SGER in 2011 to begin addressing how CCS projects should be integrated into the province's GHG management plans. See post [here](#). Those amendments gave effect to two key decisions. First, the province decided that CCS projects should be credited as offset projects and not as emission performance credits (i.e. as avoided emissions at associated regulated emitters). Thus, regulated facilities report CO₂ sent offsite as an emission. Second, the province decided to give double credits to CCS projects associated with bitumen upgraders (subject to some conditions). Thus the Regulation credits both sequestration and capture (provided that capture occurs at a facility "upgrading or refining bitumen" in Alberta and provided that construction of the infrastructure commences after January 1, 2012 and that the infrastructure is used before December 31, 2017). In practice the only project likely to qualify was and is Quest.
6. The SGER was scheduled to sunset in September 2014. The province has extended the regulation until December 31st 2014. There are rumours that the new regulations will be available in mid-December. For a report on a workshop examining possible adjustments to the regulations see [here](#).
7. The Quest project received regulatory approval from the Energy Resources Conservation Board in July 2012 (see post [here](#)) and shortly after that Shell and its partners made the commercial decision to go ahead. Shell anticipates commencing injection in 2015 – hence the need to get the Quantification Protocol (QP) approved.

8. In order to help address possible public concerns with respect to CCS projects, the province commenced a multi-stakeholder review of Alberta's regulatory framework for such projects. This project was known as the Regulatory Framework Assessment (RFA). The RFA was designed to identify gaps in the regulatory scheme for CCS and to provide recommendations to address any gaps. I served as a member of the Steering Committee. The RFA commenced in March 2011 and completed its work in November 2012 although the [Report](#) was not released until well into 2013. The Report contains some 71 recommendations. The Department of Energy continues to work on its responses to those recommendations.
9. Under the amendments to the *MMA* referred to above, the province agreed to accept a transfer of most of the liabilities for a CCS project once a closure certificate has been issued for that project. The *MMA* amendments and the subsequent regulations also contemplated the creation of a Post Closure Stewardship Fund to cover at least some of those liabilities with contributions to the Fund coming from those injecting CO₂ under the terms of a sequestration leases. The province has yet to establish the fee for this activity but has received a report from DNV GL on the methodology for establishing the fee.

This post describes how the QP fits within the overall regulatory scheme described and offers some brief comments on the QP from a legal perspective – the QP is an 80 page technical document and I lack the expertise to critique it from anything other than a legal perspective.

A Quantification Protocol is an essential part of qualifying a project for offset credits under Alberta's SGERs. The SGERs require regulated facilities (i.e. facilities emitting more than 100,000 tonnes CO_{2e}/ year) to meet emissions intensity reduction targets set against a three year historic baseline. A regulated facility may achieve compliance in one of four ways: (1) by meeting its efficiency targets, (2) by paying the \$15 per tonne levy to the Climate Change and Emissions Management Fund, (3) by applying emissions performance credits (EPCs) (generated by a regulated facility that beats its own target) or (4) by applying offset credits from a qualifying offset project.

A qualifying offset project is a project that reduces emissions over a business as usual (BAU) baseline from a project at a non-regulated facility and in accordance with an approved QP. There is considerable technical guidance available from the GoA in the form of Technical Guidance for [Offset Protocol Developers](#) and Technical Guidance for [Offset Project Developers](#). A list of approved QPs is available [here](#).

Once registered, an offset project will ordinarily generate credits for eight years with a possible extension of five years. It is assumed that a CCS Offset project will generate credits for a longer period and the Summary of Comments for the Draft QP advises that the Technical Guidance for Project Developers will likely be amended to provide that CCS Offset projects will have a crediting period of 25 years.

The purpose of a QP is to establish a methodology for quantifying the net emission reductions associated with the project activity. In Alberta a QP also authoritatively establishes "additionality" which is an assessment that a project which proceeds on the basis of the Protocol would not have proceeded but for the incremental carbon financing provided through the offset scheme. In some cases a QP may be withdrawn where the technology or the process on which the QP is based simply becomes BAU – because it simply makes economic (or other) sense to adopt that process or technology, or it becomes required by law. A relevant example in Alberta is

acid gas disposal ([AGD](#)) which used to be the subject of an Alberta QP. The QP has now been withdrawn on the basis that AGD (which involves the capture and re-injection of acid gases from sour gas processing into underground formations rather than flaring the residue (thereby producing sulphur oxides and other emissions) or scrubbing it (and producing elemental sulphur) is actually BAU.

Comments on the Protocol

The Protocol applies (at 6) to CCS deep saline projects for which a proponent will have both a sequestration lease and a scheme approval under the *OGCA*. The Protocol does not apply to emissions sequestered through a CO₂ miscible flood enhanced oil recovery (EOR) project. There is a separate Protocol dealing with CCS/EOR projects although that Protocol has been “[flagged](#)” for some time – meaning that it can only be used with special permission. For a report considering the differences in the legal treatment of CCS deep saline and CCS/EOR see [here](#).

The Protocol envisages that it might also be used for projects that capture GHGs at a facility or facilities and then transport the captured gases for injection at a number of different projects only some of which might be disposal projects and others might be EOR projects. In such a circumstance it might be necessary to prorate captured emissions across these projects, with some presumably being credited under this Protocol and others credited, if at all, under an EOR Protocol.

I noted above that the SGER was amended in 2011 to provide for double crediting for Quest. Thus the regulation provides offset credits for the *sequestration* of CO₂ and also provides offset credits for the *capture* of CO₂ at an upgrading facility provided that the CO₂ is also sequestered. As a result the Protocol can be used to quantify both sets of credits. Double crediting undermines the integrity of Alberta’s offset system and one wonders why the province decided to make carbon financing available in this manner rather than simply adjusting the other sources of financial support available for Quest. But that is a broader issue which goes far beyond the details of this QP.

The QP contains the “disclaimer” that all QPs are subject to regular review but offers the assurance that such a review “will not impact the credit duration stream (*sic*) of projects that have been initiated under previous versions of the protocol. Any updates to protocols ... will apply at the end of the first credit duration period for applicable project extensions.” This is a standard clause included in most QPs. It clearly makes sense in the context of the normal crediting period associated with offset projects (8 + 5). Thus a conventional offset project would have to re-qualify at the end of the 8 year term on the basis of the revised QP. In the case of CCS projects however the application of this clause will ensure that a qualifying project such as Shell’s Quest project will be grandparented or “stabilized” for twenty five years (assuming that is the crediting period agreed upon). This may well be appropriate given the capital costs associated with CCS projects and the reality that CCS projects, unlike EOR projects or methane capture projects, do not provide any revenue stream. Shell and others will require some certainty as to the manner in which credits will be quantified over something like the life of the project. But it does mean, for example, that even if CCS were in the future to be required by law for a project that is registered under this Protocol (and is therefore BAU), the project would still continue to generate offset credits. This is actually consistent with s.7(1.1)(c) and s.7(1.2)(c) of the SGERs, which contemplate sequestration and capture crediting provided that “the sequestration\capture of the specified gas must not be required by law at the time sequestration\capture of specified gas is initiated”. (emphasis added)

All of that said, it does seem a little strange that something as important as the crediting period for an offset project is provided for in the Technical Guidance documents rather than in the regulations. This is simply one example of how these issues are negotiated between government and industry without any opportunity for public participation. The SGER is anything but transparent in its application.

The CCS Saline Protocol is generally structured in the same manner as other Alberta Protocols. Thus it endeavours to describe the project condition (i.e. a project involving capture, transportation and storage) and then identifies all possible project sources of CO₂ emissions and any possible sinks. Having done so, Table 5 identifies whether a proponent should be required to quantify (measure/estimate) these sources or sinks. A common reason given for not requiring quantification (e.g. the emissions associated with construction activities or decommissioning activities) is that such emissions are one-off and are negligible in the context of the entire project and that their exclusion is “consistent with Alberta practice”. In providing comments on an earlier draft of this QP I suggested that it would be nice to know if this was consistent with international practice as well as Alberta’s practice. The current version of the QP has not changed in this regard. Is this important? I think that it is important to the extent that Alberta is interested in maintaining market access for oilsands production. Premier Prentice indicated through the [throne speech](#) that market access remains a critical issue for his government (hardly a surprise) and thus it becomes important to reassure others that Alberta’s offset scheme is as stringent in ensuring ‘environmental integrity’ as are other offset schemes. One way to do that is to offer the assurance that Alberta’s offset protocols are at least as stringent as the offset protocols of, say, the Clean Development Mechanism.

The Protocol distinguishes between the monitoring that is required for quantification and verification purposes under the Protocol (project monitoring) and the monitoring that is required to provide assurance that the injected CO₂ remains sequestered (referred to in the Protocol as MMV (monitoring, measurement and verification) of containment) and that there are “no emissions to surface”. The latter as the QP points out is actually the responsibility of the Alberta Energy Regulator (AER) under the terms of the *OGCA* and the AER Directives and of the Minister of Energy under the terms of the *MMA* and Sequestration Regulations. Consequently it is not clear to me why the Protocol needs to address this second type of monitoring at all except to the extent that if MMV of containment identifies a leak to surface such an event would *inter alia* trigger a reassessment of offset credits as discussed in the next few paragraphs.

Finally, the QP contains (at 69) a statement about “liability”. It observes that liability for “sequestered carbon” rests with “the project developer” until a closure certificate is issued. In fact, as the rules are currently written, “climate CO₂ liability”, whatever we mean by that, is not a liability that is assumed by the Crown when the closure certificate is issued. It is true that the RFA recommended that this liability should be assumed by the Crown but this recommendation has yet to be implemented. The QP hints at this since it acknowledges that the GoA is “developing policy guidelines on climate CO₂ liability for the post closure period and will update the regulations and protocol, as required.” But this may be easier said than done because of the lack of clarity about what we mean by the term “climate CO₂ liability” or equivalent terms.

In general there is no liability for CO₂ emissions. The only people who carry a CO₂ liability are the owners of (persons responsible for) regulated facilities under the SGER and then only for any emissions that they release in excess of their emissions intensity based targets. The

owner/operator of a CCS saline project will never have any liability as the person responsible for a regulated facility because a saline project will never be regulated facility.

So how might CO₂ liability arise in the first place? The only liability we can possibly be talking about is the potential liability that a person responsible for a regulated facility (i.e. not the sequestration project) might have if that person has used offset credits generated under this Protocol to achieve compliance and it subsequently transpires that some of the sequestered CO₂ on which those credits were based has leaked into the atmosphere. In sum, the liability is a liability of the “person responsible” for the regulated facility that has used CCS offset credits to meet its obligations and not a liability of the operator of the CCS injection facility. While in some cases this may be the same person, the offsets may also have been sold on the carbon market. I think that this interpretation is confirmed by s.26 of the SGER, which provides as follows:

26(1) The director may issue an order to the person responsible for a facility requiring the person responsible to take the measures specified in the order to minimize or remedy the effects of the facility releasing specified gases into the environment in amounts in excess of those within the net emissions intensity limit for the facility where

- (a) a compliance report indicates that the net emissions intensity limit for the facility has not been met,
- (b) the director determines that the calculation of the net emissions intensity of the facility was incorrect or was based on inaccurate, incorrect or false information and that the net emissions intensity limit for the facility was exceeded, or
- (c) the value for the emission offsets that was used to calculate the net emissions intensity of the facility for a year is no longer valid because some or all of the tonnes of specified gases which the emissions offsets represented as not being released into the environment have subsequently been released.

(2) An order under subsection (1) may require the person responsible to take the following measures:

- (a) obtain emission offsets or emission performance credits;
- (b) make contributions to the Fund;
- (c) any other measures that the director considers advisable. (emphasis added)

The issue is also addressed in the [Technical Guidance for Completing Specified Gas Compliance Reports](#), version 7.0, January 2014 under the heading of “Offset Credit Error Correction”. That Guidance also warns (at 36) that “Corrective actions between buyers and sellers of offset credits are determined through contractual arrangements between the two parties and are outside the scope of the *Regulation*.”

All of this suggests that the problem of “CO₂ liability” is a general problem and not something specific to this Protocol. Indeed, to the extent that I have checked, no other Alberta Protocols contain a section on “Liability”. Perhaps then this section might simply be removed from this Protocol. To the extent that Alberta wishes to assume CO₂ liability post closure certificate as well as other forms of liability it may do so – but by means of an amendment to the *Mines and Minerals Act*.

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