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Mine Methane Capture & Destruction Protocol: 1st Stakeholder Meeting

Ontario & Quebec Adaptation
March 2, 2017

Agenda



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1. Background & introductions
2. Overview of Timeline & Process
3. Overview & definition of MMC Project Type
4. Policy & technical considerations, common to all 13 protocols
5. Substantive policy & technical considerations, specific to MMC
6. Next steps



Item 1

BACKGROUND & INTRODUCTIONS

Background



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- Ontario & Quebec have retained the Climate Action Reserve (“the Reserve”) to develop 13 offset project protocols for use in their respective cap-and-trade programs
 - **MOECC** = Ontario Ministry of Environment and Climate Change
 - **MDDELCC** = Quebec Ministry of Sustainable Development, Environment, and Fight Against Climate Change
- 3 protocols identified as high priority for Ontario (accelerated timeline), due to Quebec’s prior adaptation and adoption of protocols of these three project types
 - Landfill Gas Destruction
 - Ozone Depleting Substances Destruction
 - **Mine Methane Capture & Destruction**

Climate Action Reserve



- Nonprofit founded in 2001
- Developed GHG inventory & verification protocols for commercial and industrial entities
 - Operated a public registry for hundreds of entities in California
- Launched online offset project registry in 2008
 - Developed or adapted 18 project protocols for the US and Mexico
 - Work directly informed the California and Quebec compliance protocols
 - Registered hundreds of voluntary and compliance projects, generating >87M tCO₂e in GHG reductions
- Partners: Viresco Solutions, Brightspot Climate, Cap-Op Energy, Green Analytics, & EcoRessources

MMC Protocol Adaptation Team



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Organizations	Names
Climate Action Reserve	<ul style="list-style-type: none">• Teresa Lang (<i>Team Lead</i>)• Andrew Craig• Mark Havel
Cap-Op Energy	<ul style="list-style-type: none">• Cooper Robinson• Peter MacLeod
EcoRessources	<ul style="list-style-type: none">• Mathieu Dumas

MMC Technical Task Team



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Name	Title	Organization
Steve Doucet-Héon	Carbon Market Directorate	MDDELCC (Quebec)
Dan Hahn	Senior Program Advisor	MOECC (Ontario)
Dushan Jojkic	Senior Program Advisor	MOECC (Ontario)



Item 2

OVERVIEW OF TIMELINE & PROCESS

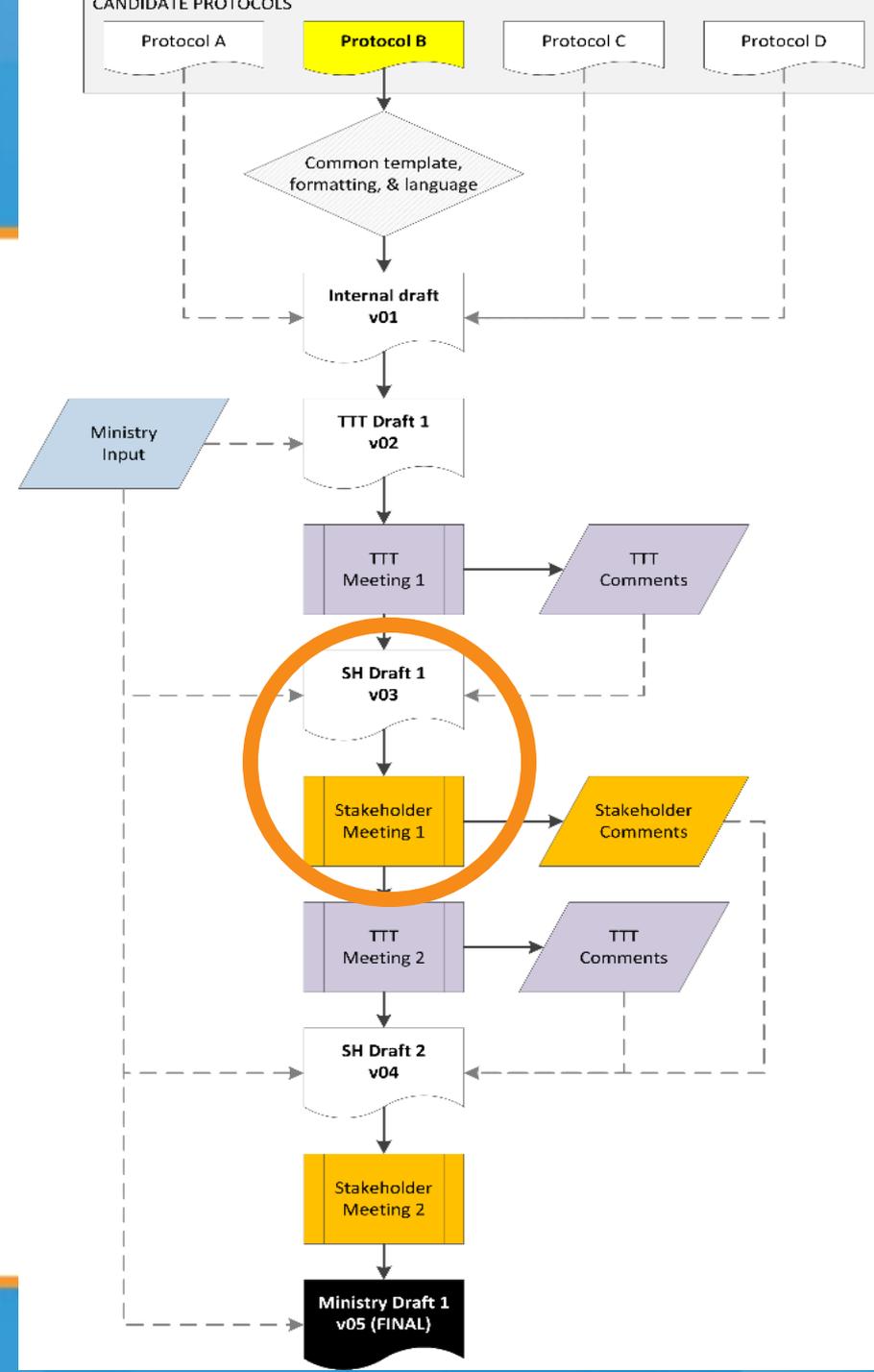
Work plan



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Timeline (expected)	Task
January	<i>PAT works with Ministries to develop task teams and coordinate outreach.</i>
February 17	<i>Initial meeting (webinar) of this TTT. Staff from the Reserve present the draft protocol and any proposed changes. TTT members are asked to submit feedback and comments.</i>
February 24	<i>TTT comments are due to the Reserve.</i>
February 27 – March 1	<i>PAT will revise the protocol based on TTT comments.</i>
March 2	Initial meeting (webinar) with the broader group of interested stakeholders. TTT members are encouraged to attend this meeting, as well.
March 9	Stakeholder & TTT comments due
March 10-15	PAT will revise the protocol based on stakeholder and TTT comments
March 17	Second meeting (webinar) with the stakeholder group, including TTT members, to discuss the revised protocol
March 20-22	PAT will revise the protocol based on stakeholder and TTT comments
March 23	Final, revised protocol will be submitted to the Ministry for approval

Process flow diagram



Process overview



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- Protocol adapted from two Quebec protocols:
 - Active Drainage Protocol (drainage from active underground and surface mines)
 - Ventilation Air Methane (VAM) Protocol (VAM from active underground mines)
- Reformatted into a common template, which will be used for all protocols
- Worked with PAT & TTT to propose and implement adaptations and improvements to the QC protocol
 - TTT will continue to review, discuss, and advise on ongoing basis
- A larger team of stakeholders will also review and comment on the draft protocol (1st meeting today)



Item 3

OVERVIEW & DEFINITION OF MMC PROJECT TYPE

Where are Canada's Coal Mines?

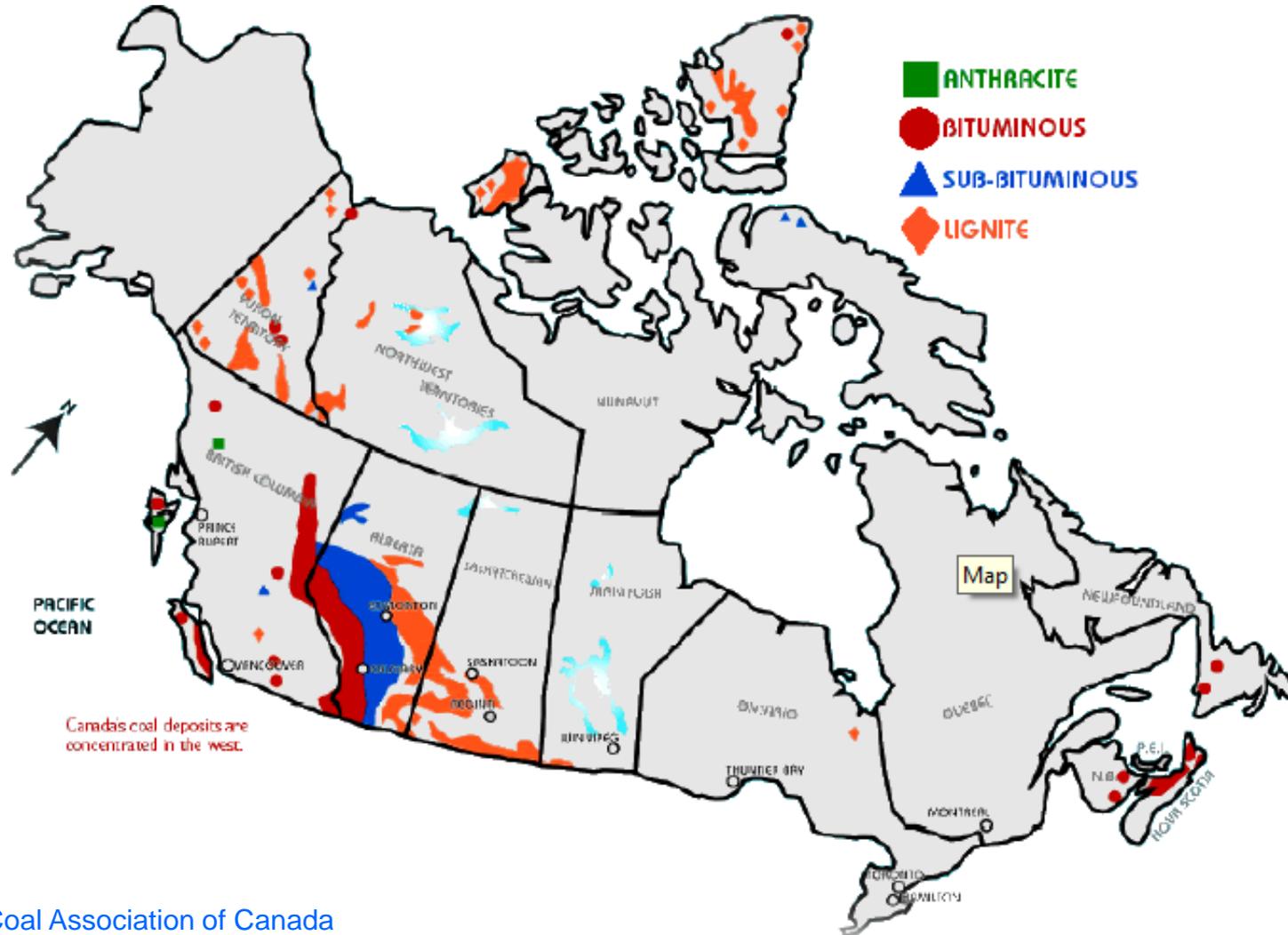


Source: Coal Association of Canada

Where are Canada's Coal Mines?



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Source: Coal Association of Canada

What is the Emission Potential for Coal Mine Methane (CMM) in Canada?



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- There are roughly 24 active coal mines in Canada
 - 97% of the coal extracted in Canada is extracted via surface mining methods
 - Several underground mines in various stages of planning; underground mining is expected to grow in contribution to total coal production
- Canada's CMM emissions:
 - 2010 equaled 65.8 million cubic meters (m³)
 - In 2015 were expected to increase to 68.6 million m³
 - By 2030, are anticipated to increase to 76.3 million m³



Project Definition (Section 2)

- Project is defined as the used of an “eligible device” to capture and destroy methane from”...
- Eligible Mine Types / Project Types :
 - Active Underground (drainage & VAM)
 - Active Surface (drainage)
 - Still TBD: Abandoned mines**
- *Questions for stakeholders:*
 - *Do we need to include extensive list of “mine statuses” as a component of eligibility?*
 - *If we do not include “abandoned” project type, is there any reason this status is necessary?*
 - *Is our understanding of drainage vs. VAM and applicable mine types correct?*

Project Definition (Section 2)

- Eligible destruction devices:
 - Protocol currently allows an expansive list, including almost any technology that destroys methane, i.e.:
 - enclosed flares, open flares, combustion engines, boilers, turbines, microturbines, oxidizers, CH₄ liquefaction units, and fuel cells
 - *Question for Stakeholders: are all of these sufficiently common for mine methane and should be included? Are we missing anything?*
 - Need to make a determination on “pipeline injection” as end-use option for drainage projects (not an issue for VAM projects)
 - In US, pipeline injection is relatively common at underground mines near a pipeline, so this end-use is ineligible in CA and QC protocols (will likely be ineligible here too)
 - Less common at surface mines; currently eligible in CA and QC protocols.
 - Coalbed methane (distinct from waste mine methane) is increasingly injected into pipelines in BC and AB
 - *Question for Stakeholders: is pipeline injection of mine methane occurring in Canada? Thoughts on eligibility?*

Project Definition (Section 2): Abandoned Mines



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- Not yet included in the protocol.
- Abandoned underground mines exist in BC, AB, and NS and seem to have sufficient mitigation potential to consider inclusion
- Quantification methodology would be based on the California MMC Compliance Offset Protocol (COP) methodology for abandoned mines
 - Models a hyperbolic emission rate decline curve for what baseline emissions of the abandoned mine would have been
 - Uses a combination of default values and measured data derived from pre-existing wells (ie. flow rates, local barometric pressure, and methane concentration)
 - Minimum required data input: ***average ventilation air methane emission rate***, over the life of the mine
 - In US, this data is available through MSHA (the national Mine Safety and Health Administration), for some but not all abandoned mines.
 - ***Question for Stakeholders: Is this information available?***



Item 4

POLICY & TECHNICAL CONSIDERATIONS

(COMMON TO ALL 13 PROTOCOLS)

General changes



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- Emphasize that protocol applies to all of Canada
- Discussion of regulations for all provinces; effort to reference respective provincial agencies
- Include sections on additionality (3.4), ensuring all projects meet or exceed the performance standard and legal requirements
- Include monitoring, reporting, and verification guidance specific to each protocol
- Include additional definitions and a comprehensive glossary section specific to each protocol.
 - Ensure all terms are translated appropriately, included in glossary
- Update language based on Ontario & Quebec regulations
- Refresh equations, tables and diagrams
- Standardize emission factors, destruction efficiencies, etc. across all protocols



Item 5

SUBSTANTIVE POLICY & TECHNICAL CONSIDERATIONS SPECIFIC TO MMC

Substantive Issues for MMC



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- Eligibility Issues:
 - Start date
 - Performance standard
 - Legal requirement test
- Project GHG Accounting Boundary
- Updates to Quantification Methodology
- Additional monitoring and QA/QC requirements
- Reporting and verification guidance

Eligibility Issues (Section 3)

Start date for MM project:

- Date of commencement of continuous CH₄ destruction following the completion of a start-up and/or testing period (beginning on the first day of MM destruction in the project system; not to exceed six (6) months).
- Project Developers shall refer to the Regulation to determine the eligibility of their start date, including deadlines related to submittal of applications to the Ministry.

Crediting Period: determined by the Regulation

Location: all of Canada (may add additional detail)

Performance Standard (Section 3.4.1)

- Apply a practice-based threshold (established on an ex-ante basis by this protocol) to ensure that only mine methane destruction above and beyond what is “common practice” is eligible for crediting
 - Assessing rate of adoption of mine methane capture and destruction technologies at coal mines.
 - According to the Global Methane Initiative, zero MMC projects exist in Canada, in which case, mine methane capture from drainage and VAM projects likely “additional”
 - *Question to Stakeholders: how common is pipeline injection of MM is in Canada?*
- Add equations and monitoring requirements for deduction of any pre-project mine methane destruction

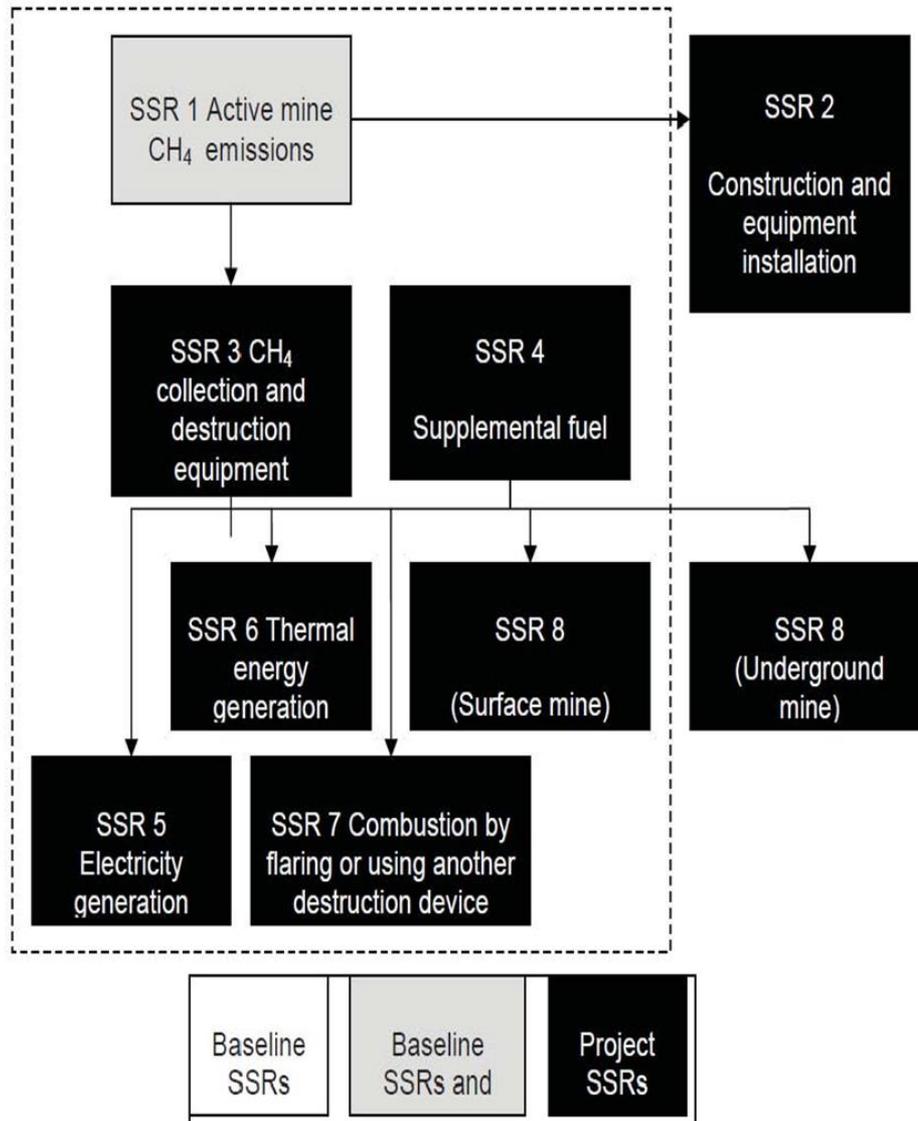
Legal Requirements (Section 3.4.2)

- All projects are subject to a Legal Requirement Test to ensure that the GHG reductions achieved by a project would not otherwise have occurred due to federal, state, or local regulations, or other legally binding mandates
- Research shows no current or planned Federal or provincial regulations requiring the capture and destruction of mine methane emissions
- Regulations in Ontario and other provinces to phase-out or ban electricity generated from coal-fired power plants may reduce the demand for coal, but do not impact additionality considerations.
- *Question for stakeholders: are there any federal or provincial regulations not yet included here?*

Project GHG Accounting Boundary: Drainage Projects



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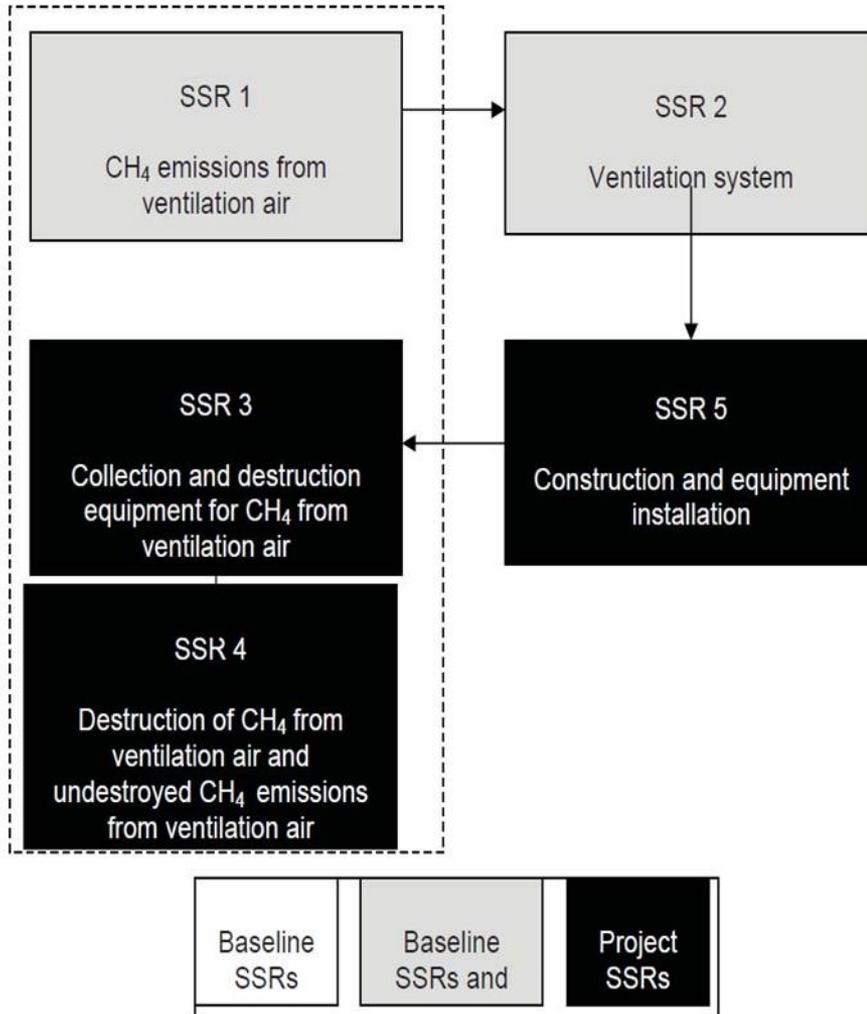


- Replace Supplemental Fuel with fossil fuels used for transporting mine gas
- Add liquefaction, compression and storage of CNG/LNG
- Add vehicle operation
- Add displacement of fossil fuels or electricity
- Include accounting for pre-project destruction

Project GHG Accounting Boundary: VAM Projects



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- Include accounting for pre-project destruction



Quantification (Section 5)

- Consistency with Quebec methodologies mostly maintained, some changes based on California and Reserve protocols
 - Account for pre-project destruction of methane
 - *Discussion for Stakeholders: Is it helpful (or tedious?) for methodology to separate out distinct sources of mine gas, such as surface wells, pre-mine boreholes, etc., which may require multiple distinct meters?*
 - QC protocol & current draft **do not** separate mine gas sources
 - California & Reserve do separate distinct sources
 - Expand project emissions to include electricity consumption, heat consumption, and transport of mine gas to the destruction device

Monitoring & QA/QC (Section 6)



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- Guidance for measurement on a wet/dry basis
- Use of single meter for multiple, identical destruction devices
- Guidance for temporary meters
- Allowance for manufacturer-specified cleaning and retesting for meters which fail initial check
- Guidance for “operating status” of destruction devices
- Wherever possible, maintains consistency with other protocols, particularly Landfill Protocol, which is also methane capture & destruction

Reporting and Verification



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- Refers to the Regulation for all program-wide guidance
- Reporting guidance specific to project type included here (much is based off of Reserve protocol)
 - Worth noting that duration of Reporting Periods will be defined by the Regulation as 12 months
 - Small projects that generate credits below a specified threshold will be allowed to verify 24 months of data
- Verification guidance specific to project type included here (much is based off of Reserve protocol)
 - Specify standard of verification (protocol, regulation)
 - Summarize core verification activities



Item 6

NEXT STEPS

Next Steps



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- Stakeholders to review draft protocol and submit written comments/feedback to the Reserve no later than:
 - **Thursday March 9th, 2017** (end of day)
 - TLang@climateactionreserve.org
- Please submit comments in a Word document, referencing the section number in the protocol, for which the comment is relevant

Contact Information



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Questions or Comments??