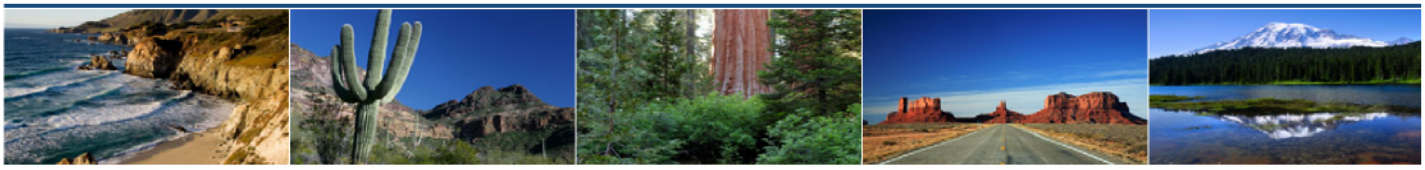
Western Climate Initiative



September 30, 2008

To All Interested Parties:

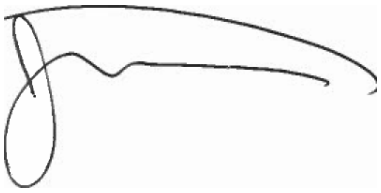
Today, the WCI Reporting Subcommittee is releasing their "Essential Requirements of Mandatory Reporting for the Western Climate Initiative, Second Draft." This document builds on the draft recommendations released in July, incorporates reporting elements from the Design Recommendations for the WCI Regional Cap-and-Trade Program (released September 23, 2008), and identifies additional decisions to be made.

As noted in the draft recommendations released in May, completion of the essential requirements for mandatory emissions reporting is scheduled for December 2008. As noted in this current draft, we have many additional decisions that will need to be made in order to complete the essential requirements, and we intend to provide additional opportunities for stakeholder input and comment as the work proceeds.

Stakeholder comments on the reporting-related elements of the July Draft Design document and the initial draft of the Essential Requirements are summarized in Attachment D of this Second Draft. Stakeholder comments have been very helpful in shaping the decisions made to date, and we look forward to receiving your comments on this current document and its Attachments. Additional opportunities for public comment will be provided as future drafts of the Essential Requirements for Reporting are completed. These future drafts will include increasing level of detail and the final document will address all the Essential Requirements.

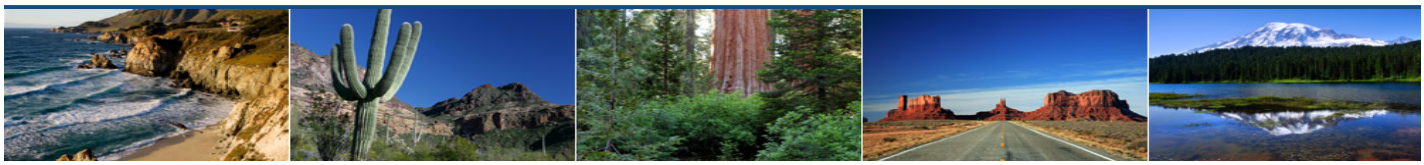
You are invited to participate in a stakeholder conference call to discuss the present draft on October 7 at 11 AM Mountain Time. The call-in number is 800-868-1837 (direct dial 404-920-6440), access code 659-537#. We ask that written comments be submitted through the WCI Website (www.westernclimateinitiative.org) by Tuesday, October 14.

Sincerely,



Jim Norton, Chair
WCI Reporting Subcommittee
State of New Mexico

Western Climate Initiative



Essential Requirements of Mandatory Reporting for the Western Climate Initiative, Second Draft

September 30, 2008

Introduction

The "Design Recommendations for the WCI Regional Cap-and-Trade Program" (September 23, 2008) state that "prior to the start of the mandatory reporting program, the WCI Partner jurisdictions will establish the essential requirements for reporting by all entities and facilities required to report in each of the WCI Partner jurisdictions." To complete the essential requirements for reporting rules, the Western Climate Initiative (WCI) must make numerous decisions about how it wishes to approach, define, and structure the elements that have been identified as necessary to an effective WCI cap-and-trade program. A number of these decisions have already been made by the WCI, but many have not. This paper documents the current status of the essential requirements of mandatory reporting, and is an update to the document previously issued on July 23, 2008, addressing continuing work being conducted by the WCI Partners and the Reporting Subcommittee (RSC). Also, this paper strives to incorporate responses to comments made by Stakeholders on the July 23 version (see Attachment D).

The purposes of this paper are to: 1) document the current status of WCI's consideration of essential requirements; 2) identify the decisions that remain to be made; and 3) seek public comment on these essential requirements. As decisions are made to finalize the essential requirements, the WCI will move toward developing a regulatory structure for the essential requirements in future steps.

The paper is divided into nine categories of essential requirements related to mandatory reporting of GHGs: definitions, pollutants, applicability, timing, confidentiality, report content and submittal, compliance, emissions quantification and monitoring, and verification and quality assurance. For each group of essential requirements, the following information is presented:

- "Discussion and Notes" describes the essential requirements that are proposed to be addressed in the context of future model rule sections.
- "Design Recommendations for the WCI Regional Cap-and-Trade Program" summarizes the specific recommendations contained in the most current design document (September 23, 2008) and/or previous draft versions (July 23, 2008 or May 16, 2008), if applicable to the essential requirement.
- "Recommendations for Reporting" summarizes the specific recommendation being made by the RSC pertaining to reporting, if applicable to the essential requirement.
- "Additional Decisions Needed" summarizes the decisions that need to be made concerning the approach, definition and structure of the essential requirement, and any options, if applicable to the essential requirement.

Comments on this document should be submitted in writing by Tuesday, October 14, through the WCI Website (www.westernclimateinitiative.org). Please note that relative to the previous version (released July 23, 2008), most of the new material is contained in the Attachments. Also, there will be other opportunities to submit comments on the essential requirements for mandatory reporting after future drafts are released in the Fall of 2008.

Definitions

Discussion and Notes

1. This rule section will contain clear and appropriately detailed definitions of key terms used in the monitoring and reporting rule.

2. When source category-specific requirements are considered, there may be hundreds of terms that need definition. The most efficient approach to creating a list is to "borrow" from other jurisdiction's rules. There are a number of precedents to consider for definitions. Terminology defined by The Climate Registry (TCR) could be used, although some definitions might not be sufficiently detailed for regulatory use. If TCR's list is not comprehensive enough for a mandatory reporting rule, then CARB's reporting rule has a very detailed and lengthy list of definitions that may be used. CARB's list combines source category-specific definitions with those common to all source categories in a single list. The definitions established by the U.S. EPA, Canadian agencies, and states like New Mexico should also be considered.

3. Definitions will facilitate communications among WCI jurisdictions and stakeholders by defining common terminology very early in the process of developing the details of essential requirements for model GHG reporting rule language. For example, the term "source categories" is used throughout this paper to indicate groupings of sources and activities; definitions for these types of terms should be agreed upon and articulated by the WCI jurisdictions.

Recommendations for Reporting

1. The Reporting Subcommittee recommends the partial list of definitions shown in Attachment A. We will add to the list as required during on-going development of the Essential Requirements for Mandatory Reporting. In general, we will include definitions that are necessary to understanding specific essential reporting requirements and avoid definitions that are not absolutely essential. For example, we will not define terms that are used in their common English context (e.g., fence line, unit) or that explain acronyms or chemical formulae.

Additional Decisions Needed

1. Using the CARB, Environment Canada, and TCR definitions as a starting point, compile the list of definitions for review by the Reporting Subcommittee.

2. Continue to develop definitions.

Pollutants

Discussion and Notes

1. Pollutants – This section will list the pollutants that must be quantified and reported.

2. Global warming potential (GWP) factors – The section will specify the 100-year GWP factors used to convert other pollutants to CO_2e. The WCI presumably will use the same GWP factors as are used regionally and internationally, such as the IPCC Second Assessment Report, 1995, updating that list only for new GHGs as identified in the IPCC Third Assessment Report, 2001.

Design Recommendations for the WCI Regional Cap-and-Trade Program (September 23, 2008):

1. Greenhouse gases (GHGs) covered: Carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Recommendations for Reporting:

1. According to the Intergovernmental Panel on Climate Change (IPCC), the global warming potential (GWP) of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram (kg) of a trace substance relative to that of 1 kg of a reference gas. The reference gas used is CO_2. It is recommended that the values listed in the table below be used to be consistent with other statewide and national GHG inventories. (This table is the same as contained in the TCR General Reporting Protocol, Version 1.1, May 2008.) Operators would use these values when converting emissions of GHGs to carbon dioxide equivalent values (CO_2e) for purposes of estimating de minimis or other emissions as specified in these essential requirements.

Additional Decisions Needed

1. In order to remain consistent with international practice, and in the event that more recent GWP values are adopted as standard practice by the international community (e.g., when reporting under the United Nations Framework Convention on Climate Change [UNFCCC]), then a mechanism for updating the GWPs would need to be developed.

Global Warming Potential Factors for Required Greenhouse Gases			
Common Name	**Formula**	**Chemical Name**	**GWP**
Carbon dioxide	CO_2		1
Methane	CH_4		21
Nitrous oxide	N_2O		310
Sulfur hexafluoride	SF_6		23,900
Hydrofluorocarbons (HFCs)			
HFC-23	CHF_3	trifluoromethane	11,700
HFC-32	CH_2F_2	difluoromethane	650
HFC-41	CH_3F	fluoromethane	150
HFC-43-10mee	$C_5H_2F_{10}$	1,1,1,2,3,4,4,5,5,5- decafluoropentane	1,300
HFC-125	C_2HF_5	pentafluoroethane	2,800

Common Name	Formula	Chemical Name	GWP
HFC-134	$C_2H_2F_4$	1,1,2,2-tetrafluoroethane	1,000
HFC-134a	$C_2H_2F_4$	1,1,1,2-tetrafluoroethane	1,300
HFC-143	$C_2H_3F_3$	1,1,2-trifluoroethane	300
HFC-143a	$C_2H_3F_3$	1,1,1-trifluoroethane	3,800
HFC-152	$C_2H_4F_2$	1,2-difluoroethane	43*
HFC-152a	$C_2H_4F_2$	1,1-difluoroethane	140
HFC-161	C_2H_5F	fluoroethane	12*
HFC-227ea	C_3HF_7	1,1,1,2,3,3,3- heptafluoropropane	2,900
HFC-236cb	$C_3H_2F_6$	1,1,1,2,2,3-hexafluoropropane	1,300*
HFC-236ea	$C_3H_2F_6$	1,1,1,2,3,3-hexafluoropropane	1,200*
HFC-236fa	$C_3H_2F_6$	1,1,1,3,3,3-hexafluoropropane	6,300
HFC-245ca	$C_3H_3F_5$	1,1,2,2,3-pentafluoropropane	560
HFC-245fa	$C_3H_3F_5$	1,1,1,3,3-pentafluoropropane	950*
HFC-365mfc	$C_4H_5F_5$	1,1,1,3,3-pentafluorobutane	890*
Perfluorocarbons (PFCs)			
Perfluoromethane	CF_4	tetrafluoromethane	6,500
Perfluoroethane	C_2F_6	hexafluoroethane	9,200
Perfluoropropane	C_3F_8	octafluoropropane	7,000
Perfluorobutane	C_4F_{10}	decafluorobutane	7,000
Perfluorocyclobutane	c-C_4F_8	octafluorocyclobutane	8,700
Perfluoropentane	C_5F_{12}	dodecafluoropentane	7,500
Perfluorohexane	C_6F_{14}	tetradecafluorohexane	7,400
Source: Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report published in 1995, unless no value was assigned in that document. In that case, the GWP values are from the IPCC Third Assessment Report published in 2001 (those marked with *). GWP values are from the Second Assessment Report (unless otherwise noted) to be consistent with international practices. Values are 100-year GWP values.			

Applicability

Discussion and Notes

1. This rule section describes who must comply with the reporting rule. As a minimum, the reporting system must include all activities and sources that will be part of the cap.

2. This rule section will also list any source categories that are not subject to the initial cap but which will be required to report emissions.

3. Thresholds – This section will contain the thresholds for mandatory reporting, stated as metric tons of CO_2 or CO_2e per year, or other appropriate emissions or operational indicators.

4. Sources not included – This section will describe sources or activities in affected source categories that are not subject to reporting requirements.

5. Level of reporting – This rule section will address by source category at what level (i.e. corporate [entity], facility or process level) reporting will be required.

Design Recommendations for the WCI Regional Cap-and-Trade Program (September 23, 2008):

1. Emissions covered:

   - Electricity generation, including emissions from electricity generated outside the WCI jurisdictions (or generated by a federal entity or on tribal lands) that is delivered into a WCI Partner jurisdiction for consumption in that WCI Partner jurisdiction;
   - Combustion at industrial and commercial facilities;
   - Industrial process emission sources*, including oil and gas process emissions;
     *As used here, process emissions include emissions from chemical, biological, and other non-combustion processes. These emissions may be deliberate (e.g., vented), fugitive (e.g., leaked), or accidental.
   - Residential, commercial, and industrial fuel combustion at facilities with emissions below the WCI thresholds* (as described below in the Point of Regulation section, these emissions will be covered upstream). Coverage of these emissions will begin at the start of the second compliance period;
     * Thresholds are emission levels that determine when a particular entity or facility will have a compliance obligation under the cap-and-trade program.
   - Transportation fuel combustion from gasoline and diesel (as described below in the Point of Regulation section, these emissions will be covered upstream). Coverage of these emissions will begin at the start of the second compliance period.

2. For biomass determined by each WCI Partner jurisdiction to be carbon neutral, the carbon dioxide emissions from the combustion of that biomass are not included in the cap-and-trade program, except for purposes of reporting.

3. Carbon dioxide emissions from the combustion of pure biofuels, or the proportion of carbon dioxide emissions from the combustion of biofuel in a blended fuel (e.g., B20 or E85), are not included in the cap-and-trade program, except for purposes of reporting.

4. Prior to program start, the WCI Partner jurisdictions will assess whether and how to include upstream emissions from biofuel and fossil fuel production, taking into consideration the potential for emissions leakage, the potential role of other policies (such as a low carbon fuel standard), consistent treatment among fuels, and other factors (such as practicality of implementation).

5. Adequate quantification methods will be established for emissions sources prior to including them in the [cap-and-trade] program.

6. Point of Regulation*
   * The point of regulation is the entity or facility with the compliance obligation, i.e., the requirement to surrender sufficient GHG allowances to cover actual emissions during the compliance period. An allowance is the tradable permit to emit one metric ton of GHG emissions in CO2e. The term entity is generally used when the point of regulation is upstream of the point of emissions, to describe a company that has an obligation to surrender allowances to cover the carbon content of the fuel the company is moving through commerce, or when the

point of regulation is at the First Jurisdictional Deliverer, to describe a company that has an obligation to surrender allowances to cover the emissions attributable to the generation of power the company is importing. When the point of regulation is at the point where the emissions occur, the term facility is generally used. The term source is used to refer to emissions from either a facility or an entity.

- Industrial sources (both process and combustion) with emissions above the threshold: The point of regulation will be at the point of emission.
- Electricity: The point of regulation is the First Jurisdictional Deliverer (FJD). For sources within WCI jurisdictions the FJD is the generator. For power that is generated outside the WCI jurisdictions (or generated by a federal entity or on tribal lands) for consumption within a WCI Partner jurisdiction, the FJD is the first entity that delivers that electricity over which the consuming WCI partner jurisdiction has regulatory authority.
- Residential, commercial, and industrial fuel combustion at facilities with emissions below the threshold: The point of regulation will be where the fuels enter commerce in the WCI Partner jurisdictions, generally at a distributor. The precise point is to be determined and may vary by jurisdiction.
- Transportation fuel combustion: The point of regulation will be where the fuels enter commerce in the WCI Partner jurisdictions, generally at the terminal rack, final blender, or distributor. The precise point is to be determined and may vary by jurisdiction.

7. The entities and facilities subject to reporting are those with annual emissions equal to or greater than 10,000 metric tons of CO2e. Where fuel combustion emissions are covered upstream (e.g., emissions from transportation fuel combustion and emissions from fuel combustion at residential, commercial, and industrial facilities with emissions below the threshold) the reporting threshold will apply to entities (e.g., fuel distributors and blenders) based on the expected combustion emissions from the fuels distributed. In some limited instances the threshold may be based on other parameters, such as throughput or capacity, as long as these thresholds represent the equivalent of, or are lower than, the 10,000-metric-ton threshold.

8. Nothing in the WCI program design limits the discretion of any WCI Partner jurisdiction to require reporting earlier, at lower thresholds, or for entities and facilities not covered by the cap-and-trade program.

Recommendations for Reporting:

1. GHG emissions from combustion of biofuels and biomass will be included in the reporting requirements, and reported separately from other fuel combustion types.

Additional Decisions Needed

1. Complete decisions on which source categories will be subject to mandatory reporting. Select the numeric value and form of applicability thresholds for those source categories.

2. Complete detailed definitions of each source category to address point of regulation issues and further clarify which sources and activities within each source category are covered by the reporting requirement (i.e., activities, sources, and operational boundaries).

3. Determine sources, activities and processes to be excluded from reporting.

4. Determine by source category whether reporting will occur at the corporate (entity), facility, or process level.

Timing

Discussion and Notes

1. Effective Date – This rule section will specify the period when mandatory record keeping and reporting begins for affected source categories. An issue is whether or not to use measurement and monitoring data for years prior to 2010.

2. Reporting Period – This requirement specifies the calendar year or other period within which emissions must be quantified. The Design Recommendations (September 23, 2008) suggests starting on January 1, thus implying a calendar year reporting period. Consideration may have to be made for some form of more frequent or interim reporting to support the development and implementation of the cap-and-trade program.

3. Report Submission Date – This section will specify when reports must be submitted. To maintain alignment with future cap-and-trade allocations and reconciliation periods, it is preferable for reports to be submitted at the same time in all jurisdictions. A key issue is how long after the reporting year ends that reports be due.

Design Recommendations for the WCI Regional Cap-and-Trade Program (September 23, 2008):

1. Mandatory measurement and monitoring for the six included GHG emissions will commence in January 2010 for all entities and facilities subject to reporting. Reporting of 2010 emissions will begin in early 2011.

2. For 2012, each WCI Partner jurisdiction's allowance budget will be based on the best estimate of expected emissions for sources covered in the cap-and-trade program in the WCI Partner jurisdiction in 2012. The estimate of expected actual emissions in 2012 will be developed using the best available data (including any available mandatory reporting data) and by accounting for expected changes in emissions in 2012.

3. Each covered entity or facility will demonstrate compliance with the cap-and-trade program by surrendering sufficient allowances by July 1 of the year following the end of each compliance period.

Recommendations for Reporting

1. Mandatory measurement, and monitoring will begin in all Partner jurisdictions on January 1, 2010.

2. The reporting period is the calendar year, beginning with 2010 emissions to be reported in 2011.

3. To spread out the reporting and verification workload in the early years of reporting, reporting deadlines will be staggered for emissions occurring in the calendar years 2010 and 2011. Some source categories will submit their reports April 1, three months after the end of the reporting period, and the remainder will report on May 1, four months after the end of the reporting period. Electrical generating units; facilities which only contain stationary combustion sources of GHGs; and transportation and residential, commercial, and industrial fuels will report on April 1. All other source categories, including facilities and other reporting entities with a combination of stationary combustion and non-combustion sources, will report on May 1.

4. For the reporting periods 2010 and 2011, facilities and other reporting entities that are subject to verification requirements will complete the verification process no later than five months following their reporting deadline (i.e., September 1 or October 1).

5. Requirements for reporting of pre-2010 emissions will not be specified in the Essential Requirements. Jurisdictions cannot adopt retrospective requirements for measurement and monitoring, but some jurisdictions may have pre-existing reporting requirements that can be used in obtaining the "best available data" for pre-2010 emissions.

Additional Decisions Needed

1. Establish report submission and verification deadlines for the 2012 and subsequent reporting periods.

2. Determine whether more frequent interim reports are necessary to support the development and implementation of the cap-and-trade program.

3. Establish a timetable for the public release of reported data.

Confidentiality

Discussion and Notes

1. In general, emissions data are not considered confidential although some operational information can be protected, depending on each jurisdiction's legal authority.

2 Stakeholders have offered a range of comments with some favoring a narrow construction of confidentiality to protect the public's right to know, and others favoring a broader construction that would better protect sensitive operational information from competitors.

Design Recommendations for the WCI Regional Cap-and-Trade Program (September 23, 2008):

1. As each WCI Partner jurisdiction collects additional emissions data from entities and facilities required to report, data will be made available to all WCI Partner jurisdictions for review and consideration for possible expansion of the cap-and-trade program.

2. Each covered entity or facility will demonstrate compliance with the cap-and-trade program by surrendering sufficient allowances by July 1 of the year following the end of each compliance period. To ensure transparency and maintain public confidence, certain data from the emissions reports, allowances, and offsets that are used for compliance will be made public in a timely manner.

Additional Decisions Needed

1. WCI is considering whether WCI-wide policy and procedures pertaining to emissions data and public disclosure are needed in addition to existing policy and procedures of individual WCI jurisdictions.

Report Content and Submittal

Discussion and Notes

1. Content – These sections and subsections will specify the information that each reporting unit will be required to submit. Examples of typical administrative information are facility names, identification numbers, physical addresses, mailing addresses, locations, responsible officials, various operational information, ownership structure, etc. More detailed information will be addressed in the source category-specific requirements.

   Technical content includes such examples as pollutants, quantification methods, and supporting operational and activity information and data. Requirements need to be specific and detailed and some will be source category-specific.

   There are a number of existing reporting rules that could provide potential starting points; however, many specific decisions on content will evolve from the choices made for other essential requirements.

2. Submittal – This section will specify who is responsible for submitting the report and to whom, and certifying the accuracy of the information contained in it.

Draft Design Recommendations (May 16, 2008):

1. The WCI has recommended using TCR's central repository for data storage as well as offering flexibility as to where affected sources initially report. Reports could either be submitted directly to jurisdictions (which will then upload the data to TCR's central repository), or be submitted directly through TCR's program framework (which will then download the data to the necessary jurisdictions).

Recommendations for Reporting: Upon further consideration and discussion, the May 16, 2008 design recommendation is revised as follows:

1. The WCI recommends using a version of TCR's Climate Registry Information System (CRIS), modified to support mandatory reporting, to collect and manage WCI's regional database of emissions information. In addition, jurisdictions may use the CRIS Common Reporting Framework to meet their individual jurisdictional database needs for emission collection, verification, and compliance.

2. Emission reports must be submitted to the appropriate jurisdiction or their agent, where verification and compliance will be conducted.

3. All jurisdictional databases will transfer or ensure the transfer of verified emissions and related information into the regional database.

Additional Decisions Needed

1. Determine the specific contents of report to be submitted.

Compliance

Discussion and Notes

1. Rule violations – This section will discuss the actions that will be considered violations of the rule (e.g., failure to submit complete reports when required to do so, knowingly submitting false information with a intent to deceive, etc.).

2. Enforcement Mechanisms – The WCI will develop consistent administrative practices to respond to non-compliance issues; however specific enforcement actions, such as levying fines and penalties, will likely be carried out by jurisdictions.

3. Records Retention – This section will describe which records must be kept and for how long. More detailed requirements may be included in source category-specific requirements.

4. Revisions – The rule will describe the process for revising reports that contain inaccurate or missing information and data. The revision process might differ depending on the timing and the circumstances in which the inaccuracies were discovered.

Design Recommendations for the WCI Regional Cap-and-Trade Program (September 23, 2008):

1. Each WCI Partner jurisdiction will retain and/or enhance its regulatory and enforcement authority and responsibilities to enforce compliance with the cap-and-trade program within its own jurisdiction.

Additional Decisions Needed

1. Determine which actions will be considered violations of the reporting rule.

2. Develop guidelines to promote consistent administrative practices and responses to non-compliance issues among jurisdictions.

3. Determine which records must be maintained for all source categories subject to the reporting rule.

4. Establish procedure and policy for revisions.

Emissions Quantification and Monitoring

Discussion and Notes

1. The essential requirements to the model rule will provide an introduction to quantification, probably in a "General Requirements" section, but will also specify source category-specific quantification requirements.

2. In addition to the technical issues related to reporting, there are also a number of policy-oriented choices to be made. Examples are:

    a. The degree of coordination with other (non-GHG) emissions reporting requirements;
    b. De minimis requirements; and
    c. Procedures for missing data.

3. A key factor in determining emissions quantification and monitoring requirements is that the requirements must provide levels of accuracy necessary for an effective cap-and-trade program. It is generally accepted that quantification methods must be more rigorous under mandatory reporting for cap-and-trade, than for some methods allowed for voluntary reporting. For example, while a voluntary program might allow a range of methods, quantification and monitoring requirements for mandatory reporting might include "higher tier" methods that assure the appropriate level of accuracy needed to support a cap-and-trade program. Attachment B explains the relative accuracy of several general types of GHG emissions quantification and monitoring methods, and Attachment C contains a preliminary assessment of the adequacy of GHG emissions quantification methods for various source categories.

4. Several key issues of concern to stakeholders include the following:

    a. How to deal with combined heat and power (CHP) sources;
    b. Treatment of biomass combustion;
    c. Methods for quantifying emissions from imported electricity; and
    d. Methods for quantifying emissions for waste management.

5. Existing GHG emission quantification and monitoring requirements in the WCI jurisdictions and other relevant programs are currently being summarized and reviewed by the Reporting Subcommittee. This review will determine applicability of existing methods to the WCI reporting requirements for a cap-and-trade program, and provide a basis for evaluating consistency with existing WCI jurisdiction reporting rules.

Draft Design of the Regional Cap-and-Trade Program (July 23, 2008):

1. Adequate quantification methods will be established for emissions sources prior to including them in the program.

Additional Decisions Needed

1. Select the methods, and provide the details for each source category-specific method.

2. Determine if a de minimis reporting level will be allowed, and if so, then determine its level and the method(s) for estimating de minimis emissions.

3. Specify procedures for missing data. These may be source-category specific.

4. We are considering requiring reporting of emissions as estimated by best practice estimates for some specified emissions source categories in cases where accurate methods are not currently available and are not prescribed in the Essential Requirements.

Verification and Quality Assurance

Discussion and Notes

1. This essential requirement will address how reported information will be quality assured.

2. ISO 14064-3 and ISO 14065 are international standards for GHG verification and accreditation, respectively. In an effort to promote international consistency of GHG reporting and verification, many GHG reporting and market programs, including EU ETS, UK ETS, and TCR have based their verification programs on these standards. In addition, California's mandatory reporting regulation is based on ISO standards. WCI also intends to design its verification and accreditation programs to be consistent with ISO 14064-3 and ISO 14065 (as much as possible).

Design Recommendations for the WCI Regional Cap-and-Trade Program (September 23, 2008):

1. WCI Partner jurisdictions will require third party verification of reported emissions from entities and facilities that will be included under the cap.

Recommendations for Reporting

1. The Reporting Subcommittee will evaluate and modify the existing California regulation to lay out a standardized approach to verification that will assure integrity in the reported GHG data and a consistent quality of verifications across all WCI partners. Key areas of focus will be accreditation of verifiers, core verification services, and conflict of interest requirements. The WCI verification requirements will also ensure an enforceable verification program with direct oversight.

Additional Decisions Needed

1. Define the specific requirements for third-party verification by reporting entities and facilities.

2. Determine the level of quality assurance required for entities and facilities that are required to report, but will not be included in the cap.

Approach

The Reporting Subcommittee will add to the definitions list as required during on-going development of the Essential Requirements for Mandatory Reporting. In general, we will include definitions that are necessary to understanding specific essential reporting requirements and avoid definitions that are not absolutely essential. For example, we will not define terms that are used in their common English context (e.g., fence line, combustion, unit) or that explain acronyms or chemical formulae.

Partial List of Definitions

"Stationary combustion unit" means any boiler, heater, furnace, kiln, turbine, internal combustion engine, incinerator or other non-mobile source device that combusts any solid, liquid, or gaseous fuel for purposes of producing useful heat or energy for industrial, commercial, or institutional use; or for purposes of reducing the volume of waste by removing combustible material. [1]

"Facility" means any property, plant, building, structure, stationary source, stationary equipment or grouping of stationary equipment or stationary sources located on one or more contiguous or adjacent properties, in actual physical contact or separated solely by a public roadway or other public right-of way, and under common operational control.[2]

"Carbon dioxide equivalent" or "CO_2 equivalent" or "CO_2e" means a measure for comparing carbon dioxide with other GHGs, based on the quantity of those gases multiplied by the appropriate global warming potential (GWP) factor and commonly expressed as metric tons of carbon dioxide equivalent.

"Continuous emissions monitoring system" or "CEMS" means the total equipment required to obtain a continuous measurement of a gas concentration or emission rate from combustion or industrial processes.

"Greenhouse gas", "greenhouse gases" or "GHG" means carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).

"Global warming potential" or "GWP factor" means the radiative forcing impact of one mass-based unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide over a given period of time.

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[1] The intent is to require any collection of stationary combustion units, located at any facility, that collectively emit 10,000 tons of CO_2e on an annual basis, to report emissions. In other words, the requirement applies to any individual stationary combustion unit, or any collection of units, whether or not they are located at a source-specific category facility addressed by this rule. Biomass-fueled units are included but would be reported separately.

[2] Some special "facilities," such as oil or gas production fields, will have separate definitions.

"Hydrofluorocarbons" or "HFCs" means a class of GHGs primarily used as refrigerants, consisting of hydrogen, fluorine, and carbon.

"Perfluorocarbons" or "PFCs" means a class of greenhouse gases consisting on the molecular level of carbon and fluorine.

The uncertainty in the greenhouse gas (GHG) emissions reported to WCI will be evaluated by the product of the uncertainties of the various components or methods used to estimate the emissions (e.g., direct measurements of flue gas; parametric measurements of fuel flow, feed water flow and steam flow; equipment manufacturer data; etc.). Accuracy is the inverse of uncertainty; that is, a high level of accuracy is the same as a low level of uncertainty. The quantification methods required for GHG emissions reporting under the WCI cap-and-trade program should have a high level of accuracy to ensure that all emissions reported across all source categories are equal, and that each ton reported is, in fact, a ton.

This document explains the relative accuracy of several general types of GHG emissions quantification and monitoring methods: continuous emissions monitoring systems (CEMS), parametric monitoring (i.e., measuring something other than fuel or gas, such as a catalytic feed rate), and material balance. This comparison provides a basis for comparing the accuracy of various source-specific methods, and determining their adequacy for use in reporting emissions under the WCI cap-and-trade program. Also, this document provides some initial conclusions regarding the relative accuracy of methods available to estimate and monitor emissions for non-combustion emissions from several source categories. This information will be updated in the future based on a continuing analysis of accuracy of existing quantification and monitoring methods.

Types of GHG Emissions Quantification and Monitoring Methods

Direct measurement of CO_2 emissions, such as collected with a CEMS maintained to specifications, can provide a high level of measurement accuracy. On the other hand, parametric monitoring would generally provide less accuracy as compared to CEMS, although often sufficient to support cap-and-trade programs. For example, pipeline quality natural gas has a relative consistent carbon composition, so measuring the flow of natural gas to a combustor is a good predictor of the CO_2 emissions from the combustor. However, the carbon content of coal, refinery gas, or field gas can be highly variable (i.e., greater than 10%) making fuel flow an inaccurate CO_2 emissions predictor for these fuels without taking special care.

A material balance approach to estimating coal combustion emissions can provide greater accuracy than parametric monitoring for these sources. In a material balance method, the carbon content of the incoming coal and of the discarded ash are measured on a frequent basis and used in conjunction with mass flow measurements to determine the carbon emitted as CO_2. Also, the accuracy of emission quantification and monitoring methods can vary depending upon the GHG being measured or estimated. For example, continuous fuel flow measurements can be fairly accurate for determining CO_2 content, but not at all accurate for determining CH_4 or N_2O content.

Relative Accuracy of Source-Specific Methods

The relative accuracy of existing GHG quantification and monitoring methods is being evaluated on a source category-specific basis, especially for the source categories (combustion and noncombustion) that are candidates for inclusion in the WCI cap-and-trade program. Accuracy

of annual emissions will be affected by the required frequency of measurement and the variability of the parameter(s) to be measured. Several metrics are being used to determine if source-specific methods support accurate reporting of GHG emissions, including:

1. Relative accuracy compared to CEMS measurements
2. Whether or not other cap-and-trade programs (e.g., European Union) require, recommend, or allow use of the method for a particular source category.

Based on the preliminary information on existing methods collected and examined to date, several source categories have been judged to have inadequate quantification methods for some of their non-combustion emissions to support including those emissions in the WCI cap-and-trade program at this time. It should be noted that facilities in these source categories could be subject to the program if they had sufficient combustion emissions to exceed cap-and-trade thresholds.

For now, this assessment is qualitative, and based on engineering judgment, in order to expedite the identification of source categories for which no accurate methods currently exist. A more detailed assessment of methods for other source categories will be necessary in order to select specific methods, when more than one method exists for estimating emissions. In addition to this qualitative assessment, the fact that some source categories are not included in other cap-and-trade programs, such as the European Union, factor into the recommendation to not require allowance obligations for these source categories in the WCI cap-and-trade program. For example, the following emission sources do not appear to have quantification and monitoring methods accurate enough to support inclusion in a cap-and-trade program:

- Landfills – The generation of CH_4 in landfills is based on several site-specific factors, including waste composition, moisture content, temperature, availability of nutrients, waste density, and waste particle size. Historical estimation methods, such as the method published by the U.S. EPA in AP-42, rely on a "first order decay" equation that includes several parameters with high uncertainty, such as the methane generation potential, which can vary by as much as ±50% from the default values provided in the methods. We consider this method to be highly uncertain, especially as compared to a CEMS method. It should be noted that the Solid Waste Industry for Climate Solutions (SWICS) has proposed to replace default values with new values for landfill gas collection system efficiencies and methane oxidation in cover soils, and use new carbon storage factors for carbon sequestration.
- Municipal and Industrial Wastewater Treatment Plants- The generation of CH_4 and N_2O in large open lagoons is very difficult to measure, so the emissions are normally estimated using imprecise models and emission factors. The models attempt to predict the methane and nitrous oxide byproducts from microbial processes that are highly influenced by unknown factors in the lagoons, including temperature, waste digestibility, trace nutrient levels, oxygen and nitrogen levels, and microbial species.

As stated above, this information will be updated in the future based on a continuing analysis of accuracy of existing quantification and monitoring methods.

Source Category	*Accurate method*	*Method available, may need improved accuracy*	*Method under review*	*Identification/ development of accurate method underway*
Electricity Generation, Cogeneration (CHP)	●			
Electricity Importers (retail providers, marketers)				WCI Electricity Subcommittee
Stationary Fossil Fuel Combustion Sources: Fossil fuel combustion in equipment at industrial sources (e.g., cement plants, refineries, etc.)	●			
Biomass Combustion Sources: Biomass combustion in equipment at industrial sources.	●			
Liquid Transportation Fuels: Combustion of fuel in on- and off-road vehicles, regulated at point where fuel enters into commerce that may vary by jurisdiction (e.g., distribution terminal/rack, licensed fuel wholesalers)	●			
Residential, Commercial, Industrial (RCI) Fuels: Combustion of fuel (NG, fuel oil, other) in the RCI sector, regulated at point when fuel enters into commerce (e.g., local distribution company [LDC] for NG, distribution terminal/rack)	●			
Petroleum refineries	●			
Hydrogen production	●			
Noncombustion Emissions (Combustion Emissions for these Sources are Included in "Stationary Combustion Sources" Above)				
Oil and gas production & gas processing				WRAP/TCR
Natural gas distribution systems				CCAR
Cement production	●			
Lime manufacturing	●			
Glass production and other uses of carbonates			●	
Soda ash manufacturing			●	
Aluminum production	●			
Ferroalloy production		●		
Zinc production		●		
Lead production		●		
Pulp and paper manufacturing	●			
Iron and steel production	●			
Electronics manufacturing	●			
Petrochemical production			●	
HCFC-22 production		●		

Source Category	***Accurate method***	***Method available, may need improved accuracy***	***Method under review***	***Identification/ development of accurate method underway***
Adipic acid manufacturing		●		
Ammonia manufacturing		●		
Magnesium production			●	
Nitric acid manufacturing		●		
Phosphoric acid production			●	
SF_6 from electrical equipment	●			
Coal storage	●			
Coal mine fugitive emissions (active and abandoned)			●	
Waste Management				
Landfills		●		
Municipal wastewater		●		
Industrial wastewater		●		

Responses to July 2008 Draft Design document
and Draft Essential Requirements for Reporting

Thirty-eight commenters responded regarding reporting[3]. Most were from potential reporters, with a few from other categories (environmental groups, NGOs and consulting companies, and municipalities). Many comments addressed only a few topics, but several provided comments on all reporting topics presented in the July documents. A few provided very detailed recommendations in the form of regulatory language.

1) Highlights

Stakeholders were asked to recommend effective mechanisms for stakeholder involvement in the ongoing development of the Essential Requirements this year. The few comments received were supportive of frequent conference calls, perhaps supplemented by in-person meetings at the jurisdiction level or focused on specific topics or source sectors.

One significant emerging issue is that many potential reporters are calling for uniformity with the forthcoming US EPA mandatory GHG reporting regulation. This is likely driven by concern over the burden of having to measure, monitor, and report differently to two separate programs.

A few commenters have noted the need for development of a transaction tracking system in addition to the emissions reporting system.

Many industry commenters said that the 10,000 metric ton CO2e reporting threshold was too low or had not been adequately justified.

Although there were few comments on the issue of oil and gas production emissions, it is notable that both industry and environmental group commenters recommended aggregation of field facilities into larger reporting entities.

Most of those commenting on the issue of annual versus more frequent reporting recommended annual reporting. Most advocated uniform reporting timelines across WCI, but some were concerned about possible conflicts with existing reporting rules.

Most who commented on Global Warming Potential values to be used in calculating CO2 equivalents recommended using IPCC values, and some specified use of the 1995 IPCC Second Assessment Report values. None recommended use of other values.

Several commenters expressed concern that ancillary data other than emissions should be confidential. For some industries where emissions are from fuel combustion, the close relationship of emissions to fuel use may lead to claims of confidentiality for emissions data.

Commenters remain divided on whether reporting should be direct to TCR or through jurisdictions.

[3] Excluding multiple submissions of identical coalition or group comments by group members.

Many commenters recommended that quantification methods be consistent with existing industry protocols or federal, state or provincial reporting programs. Some called for simplified methods for small emitters, or de minimis provisions and specific exclusions for insignificant emission points. There were also recommendations for flexibility in quantification methods allowed to be used.

The requirement for third party verification remains a significant issue. Most commenters on this topic were from industry, and most opposed it. They argued that use of defined protocols, self-certification, and opportunity for agency audit should be sufficient. Some recommended exempting certain categories, such as certified CEMs, Title V sources, or sources not selling credits.

2) Detailed summary

Comments are summarized below by topic. Number in parentheses indicates number of commenters on each topic, or making a specific recommendation.

Mechanisms for Stakeholder Input to Further Development of Reporting Requirements (6)

- Frequent conference calls focused on specific topics (2)
- Supplement by in-person meetings at the jurisdiction level (1) or focused on specific topics or industries (2)
- Engage industry associations (1)

General (17)

- Consistency across WCI and between jurisdictional and federal levels (5)
- WCI reporting should be identical or equivalent to EPA mandatory GHG reporting system, or use data from EPA system with no separate WCI reporting (4)
- Need transactional tracking system in addition to emissions reporting (2)
- Support draft design on reporting (1)
- Reporting system as close as possible to TCR (2)
- Support current WCI draft design for reporting (1)
- Recommend industry protocol for solid waste management sector reporting (1)

Definitions (9)

- Harmonize across US regulatory frameworks (1)
- Support use of CARB as starting point (3)
- Start with TCR GRP instead of CARB definitions, which are too specific to CARB program (1)
- Also use forthcoming EPA reporting rule definitions, harmonize with federal programs (2)
- For effective stakeholder comment, give full text of referenced definitions, (1)
- Detailed recommendations for changes to CARB definitions (1)
- Source category definitions must include details on POR and activities included (1)

Applicability (29)

- Threshold of 10,000 metric tons CO2e is too low and/or lacks justification, will burden small companies (7)
- Reporting threshold should be same as cap and trade threshold (4)
- Reporting threshold should be 50,000 metric tons (1)
- Support threshold of 10,000 metric tons CO2e (2)
- Reporting thresholds should be industry-specific (1)
- Exclude specific sources:
    - methane vented and fugitive emissions from oil and gas sources because quantification inaccurate (1)
    - landfills because quantification inaccurate (1)
    - emergency engines and emergency generators (1)
    - indirect emissions (1)
    - sources, activities and processes associated with aviation fuel because in federal jurisdiction only (1)
- Include specific sources:
    - oil and gas field emissions (3)
    - transportation fuels and natural gas distribution (1)
    - biomass emissions (1)
- For oil and gas E&P, develop unique definition of reporting entity that will aggregate small facilities, such as by production field (4)
- Minimize exclusions (1)
- Reduce burden on small companies by phase-in or by providing assistance (1)
- Unclear on status of landfills and wastewater treatment plants (1)
- Be flexible in determining reporting level, vary this as appropriate for source/sector (1)
- Watch out for complexity of boundary issues, see EU ETS for examples (1)
- Point of regulation for RCI fuel use and transportation fuels should be uniform across WCI (2)
- Support policies to incentivize CHP (1)
- Distinguish between biogenic and anthropogenic CO2 emissions (1)
- Support reporting at corporate or facility level, not process level (1)

Timing (14)

- Report annually (6)
- Report monthly or quarterly, for efficient market functioning (1)
- Set uniform deadlines across WCI (4)
- Recommend specific reporting deadlines, 6-8 mos. after end of emissions year (5)
- Concern about conflict with existing jurisdictional deadlines (2)
- Set deadlines consistent with TCR (1) or Climate Leaders and other programs (1)
- Historical data to set cap should be collected in consistent manner (1)
- Move first reporting ahead one year and allow submission of "best available information", as in CARB rule (1)
- Support 2010 as first emissions year to be reported (1)
- Pre-2010 emissions reporting should be voluntary (1)

Pollutants and GWPs (6)

- Use 100-yr GWP values consistent with US and international reporting (5), such as IPCC (4), specifically from IPCC Second Assessment Report, 1995 (3)
- Formally adopt policy for calculating CO2 equivalents (1)

Confidentiality (8)

- Some ancillary data (energy consumption, wholesale power sales and purchases, production rate, specific fuel use) should be confidential (5)
- Facility-level reports should be confidential (1)
- Emissions data or total emissions should be public (3)
- Confirm public "right to know" for GHG emissions reports (1)
- Protect confidential information in accordance with federal and jurisdictional law ((1)

Report Content and Submittal (11)

- Report through jurisdictions for upload to TCR (4)
- Report directly to TCR (2)
- Support reporter option on reporting to TCR vs jurisdictions (1)
- Minimize reporting of ancillary information not needed for cap and trade (2)
- Consider streamlined reporting for small entities (1)
- Be consistent with EPA mandatory GHG reporting (2)
- Reporting fees to be borne by jurisdiction (1)

Compliance (3)

- Use federal Acid Rain and Title V programs as examples (1)
- Assume compliance would be according to existing state law (1)
- Identifies several additional issues to be decided (1)

Quantification (13)

- Rely on existing sector-specific methods (API Compendium, WRI/WBCSD, EU ETS, Canadian and US federal programs, forest products industry protocol) (5)
- Be consistent with EPA mandatory federal reporting (2)
- Methods for landfills (1) and for methane fugitive and process emissions from oil and gas (1) are unreliable, inadequate for cap and trade
- Treat CHP like any other emissions source (1)
- For small combustion sources at oil and gas sources, use standardized emission factors (1)
- For biomass and high GHG fuels (LNG and tar sands), do not use arbitrary emission factors unsupported by analysis (1)
- De minimis emissions should be set at 3%, also use list of de minimis activities as in Title V program (1)
- Level of accuracy should be based on significance and materiality of emissions (1)
- Allow for flexibility and avoid dictating specific methods (1)
- Share with stakeholders the process for selecting and approving methods (1)

Verification (21)

- No third party verification for all sources (8)
- No third party verification, use defined protocols and self-certification with agency audit authority, for:
    - power plant CEMs (1)
    - sources not selling credits (1)
    - Title V reporters (2)
    - sources subject to permitting (3)
    - small emitters (1)
- Support third party verification (2)
- Support CARB approach of multiyear verification cycle with one full verification and several less intensive verifications per cycle (1)
- Common approach and consistent standards for verification (2)
- If allow jurisdictional audit, set minimum standards for compliance assurance such as budget and staff levels, audit rates (1)
- Need accreditation process for verifiers to ensure program integrity (1)