Kickoff Meeting

Mexico Boiler & Furnace Efficiency Project Protocol Workgroup

USAID FROM THE AMERICAN PEOPLE

CLIMATE ACTION RESERVE

July 9, 2015

Agenda

1. Introductions
   a) Reserve staff
   b) Tetra Tech / MLED
   c) Workgroup Members
2. Background
3. Process overview and expectations
4. Initial policy questions

Technical issues? Please email Mark: mhavel@climateactionreserve.org

Item 1

INTRODUCTIONS

Who are we?

- The Climate Action Reserve (the Reserve): California-based, Not-for-profit founded in 2001 (formerly known as the California Climate Action Registry)
- Voluntary Offset Project Registry
  - Develop standardized offset protocols and issue CRTs to projects verified against those standards
  - U.S. and Mexico
- Accredited Offset Project Registry (California)
  - Process projects and issue credits under the California regulatory cap-and-trade program
  - Six Reserve protocols have been adopted for compliance use

Reserve staff

Teresa Lang	**Sami Osman**
Senior Policy Manager	*Policy Manager*
• Manage overall protocol development process, particularly Workgroup • Spanish / English	• Technical lead • Lead protocol author • English-only
Mark Havel	**Heather Raven** (not present today)
Program Manager	*Policy Coordinator*
• Assisting w/ webinar logistics (today) • Advising on project implementation and verification • English-only	• Assisting w/ webinar logistics & workgroup coordination • English-only

Who are we?

- Tetra Tech: Implementing the Mexico Low Emissions Development Program (MLED), funded by the United States Agency for International Development (USAID).
  - This offset protocol is being developed under this program
- Tetra Tech Staff
  - Mark Oven
  - Ana Arrocha
  - Ana Maria Contreras (Primary contact)
  - Margarita Hernandez (administrative assistant)
- Tetra Tech's Technical Contractor: Jorge Plauchu

Workgroup members

Name (alphabetical)	**Organization**
Jens Notholt	Calderas Powermaster (Termodinamica Enica S.A. de C.V.)
Charles Purshouse	Camco International Group, Inc.
Juan Mendoza	CFE (Comisión Federal de Electricidad)
Andrés Nájera	CFE (Comisión Federal de Electricidad)
Josè Alberto Sánchez Rivera	CIME (Colegio de Ingenieros Mecánicos y Electricistas)
Barbara Toole O'Neil	Consultant
Francisco Martin Mendoza Méndez	CONUEE
Israel Jáuregui Nares	CONUEE
Tanya Moreno Coronado	ECOVES
Alejandro Butrón	Evolution Mind
Antonio Diego Marin	Instituto de Investigaciones Eléctricas (IIE)
Carlos Mandujano Mejia	Instituto Mexicano del Petróleo (IMP)
Jose Luis Lopez Martinez	Instituto Mexicano del Petróleo (IMP)
Eduardo Piquero	MÉXICO2 - Mexican Carbon Platform / Mexican Stock Exchange
Julio Alberto Valle Pereña	Petróleos Mexicanos (PEMEX)
Paulina Serrano	Petróleos Mexicanos (PEMEX)
Monica Echegoyen	SEMARNAT
Adrián Cordero Lovera	SENER
Carmen Silva Gallardo	Sustrend SpA
Danae Diaz	TÜV Rheinland de México S.A. de C.V.
Felipe Adrian Vazquez	Universidad Autonoma de Ciudad Juarez

Attribution

- Workgroup members will be listed on the website by organization only (starting Monday)
  - Let us know if you want the listing formatted differently from what was on the last slide
- Workgroup members and their organizations will be listed in the front of the protocol document

Item 2

BACKGROUND

Reserve's Offset Protocols

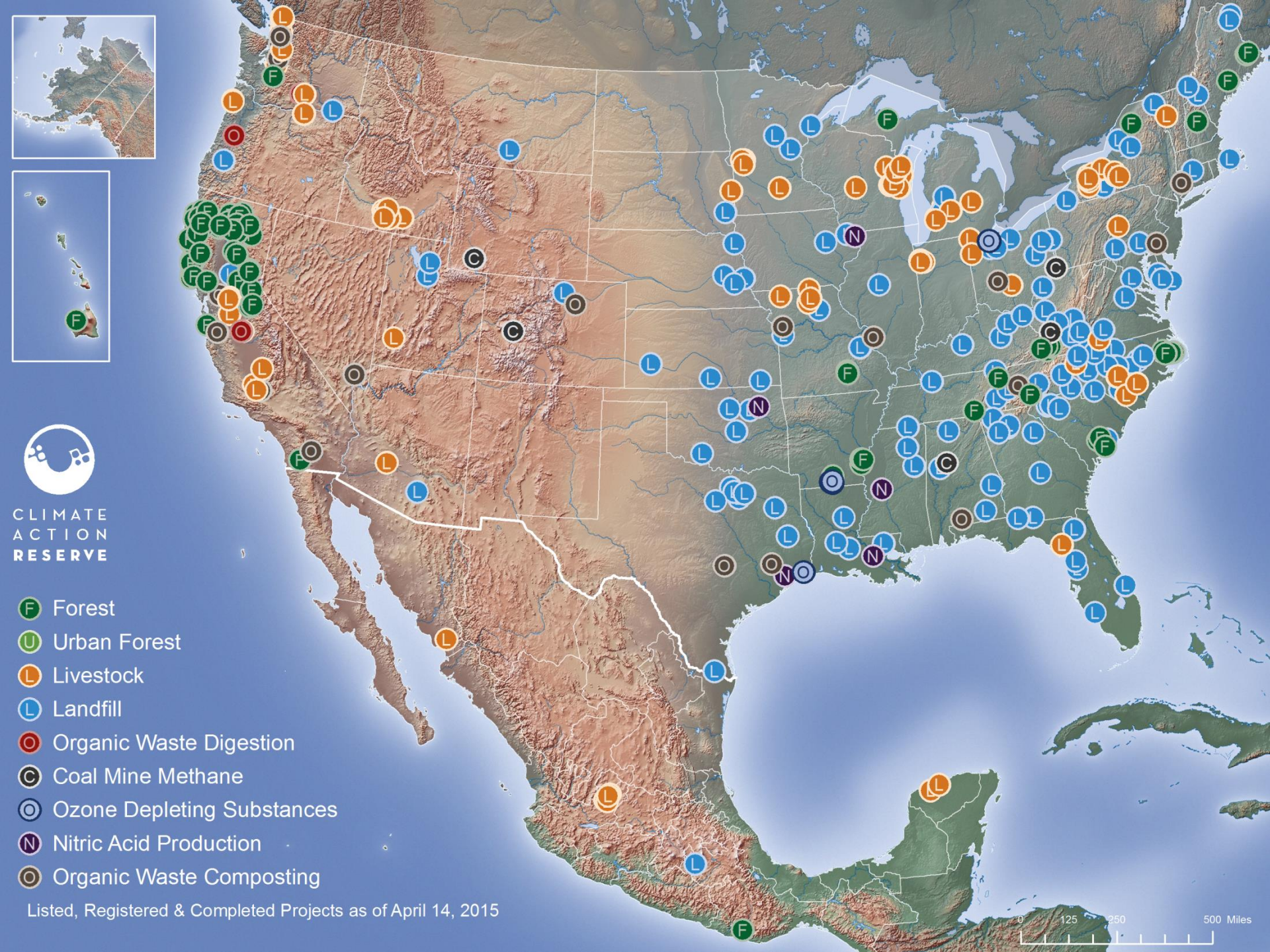
- Developed with extensive input from the public
  - Public meetings, working groups with experts, public comments
- The aim is to create a uniform standard, widely recognized and based on best practices
- Designed as step by step instructions for developing projects

Guiding GHG Accounting Principles

- REAL
  - Can be measured accurately.
- ADDITIONAL
  - Occurs outside of any legal requirement or regulation
  - It would not have happened if not for the carbon market incentive
- VERIFIABLE
  - It can be verified independently
- ENFORCEABLE
  - Undisputed ownership
- PERMANENT

Current Protocols (U.S. & Mexico)

- Ozone Depleting Substances Destruction (US, Article 5 & Mexico)
- Forest (US & Mexico)
  - Improved Forest Management
  - Avoided Conversion
  - Reforestation
- Urban Forest
- Livestock Manure Management (US & Mexico)
- Coal Mine Methane Capture
- Rice Cultivation
- Landfill Gas Capture (US & Mexico)
- Organic Waste Digestion
- Organic Waste Composting
- Nitric Acid Production
- Nitrogen Management
- Avoided Conversion of Grasslands *(in development)*


CLIMATE ACTION RESERVE
Forest
Urban Forest
Livestock
Landfill
Organic Waste Digestion
Coal Mine Methane
Ozone Depleting Substances
Nitric Acid Production
Organic Waste Composting
Listed, Registered & Completed Projects as of April 14, 2015
0
125
250
500 Miles

Reserve by the numbers

Total offset credits registered	**64.2 million** tCO_2e
Retired	**15.2 million**
Transferred to ARB	**15.3 million**
Total projects	**296**
Completed verification	**182**
Account Holders	**665**

As of 07/01/15

Climate Action Reserve in Mexico

- 4 Reserve protocols for Mexico (all adaptations of successful Reserve protocols)
- 1st Mexico protocol that is not an adaptation of an existing Reserve protocol
- Offsets generated using the Reserve's Mexico protocols are currently applicable for use in the voluntary market only
  - i.e. US, Mexican or int'l companies seeking to voluntarily offset GHG emissions
  - Not currently eligible for compliance purposes in the California Market
- Reserve is hopeful that offsets from this (and offsets from the other Reserve Mexico protocols) will be eligible under future compliance obligations of the Mexican Climate Law (and Carbon Tax)
  - However, Reserve offsets are not currently eligible.

Item 3

PROCESS OVERVIEW AND WORKGROUP EXPECTATIONS

Roles and responsibilities

- Reserve staff
  - Process management
  - Protocol drafting
- Tetra Tech & Contractor
  - Technical assistance
  - Mexico-specific context
- Workgroup
  - Policy assistance & Expert feedback
  - Mexico-specific context

Workgroup expectations

- Attend and participate in all Workgroup calls
- Workgroup calls and communications will be primarily in English, but workgroup presentation slides and protocol drafts will be made available in Spanish, as well.
- Review Draft Protocols and background materials
- Provide comments and feedback on draft protocols and specific policy and technical questions
- Attend in-person meeting(s) in Mexico City (D.F.)
  - At least one in-person meeting (August / September), with the possibility of attending a second (February / March)
  - The Reserve cannot assist with travel expenses, but we plan to provide access via webinar for those who cannot join in person
- Be constructive, collaborative, and productive

Observers

- Workgroup meetings are open to the public, but each meeting is not widely publicized
- Interested stakeholders may register as “observers” at any time, and will be invited to listen to meetings and review materials, but not participate directly in WG activities
- Current observer organizations:

CESPEDES

Ecoves S.C.

PEMEX

Sidel Systems

Sustrend SpA

Protocol Development Timeline

This schedule is preliminary and subject to change.

Milestone/Task	Timeline
Phase 1:	May – September 2015
Protocol drafting	May – August 2015
1st Workgroup meeting (webinar)	July 9, 2015
2nd Workgroup meeting (in-person)	August / September 2015
Phase 2: Data collection and analysis	July 2015 – January 2016
Phase 3:	January – June 2016
Reconvene workgroup & finalize draft (1-2 additional workgroup meetings, webinar or in-person)	January – April 2016
Public comment period	May 2016
Protocol presented to Reserve Board	June 2016

Protocol development overview

- **GOAL**: Develop a standardized carbon offset protocol that incentivizes commercial and industrial boiler and furnace efficiency upgrades in Mexico
- **APPROACH**: Build from
  - Existing work on energy efficiency projects in Mexico,
  - Existing carbon offset protocols, especially CDM and EPA Climate Leaders protocols on boilers
  - Workgroup expertize on current standard practice in Mexico with regards to boiler and furnace use, efficiency upgrades, and end-of-life retirement

Protocol organization

1. Introduction
2. Project Definition
3. Eligibility
4. GHG Assessment Boundary
5. Quantification
6. Monitoring
7. Reporting
8. Verification
9. Glossary

- Appendices

This is standard across Reserve protocols. Keep this format in mind, as it is a useful shorthand to enhance clarity and understanding when discussing protocol issues.

Item 4

INITIAL POLICY DISCUSSIONS

Section 2: Project Definition

2.2.1. Equipment Types to be Considered for Eligibility

- Commercial boilers
- Industrial boilers
- Power boilers
- Commercial furnaces
- Industrial furnaces
- Steam distribution systems

Section 2: Project Definition

2.2.2 – Proposed Eligible Activity Types

- **Early retirement of existing boilers/furnaces.** Replacing an old, inefficient boiler or furnace with a more efficient boiler/furnace prior to the end of its useful life and scheduled retirement.
- **Retrofitting existing boilers/furnaces.** Installing new efficiency improvement technologies to existing boilers/furnaces.
- **Fuel Switching.** Through retrofits, switching boiler or furnace fuel use from a high-carbon intensity fuel to low-carbon intensity fuel.
- **Installing new high-efficiency boilers/furnaces.** Installing a new boiler or furnace that demonstrates greater efficiency than conventional alternatives.

Questions for consideration:

- ***Are all these activities applicable for boilers? Furnaces? Both?***
- ***Are we missing any attractive potential project activities?***

Section 2: Project Definition

General factors to consider in determining whether to include each equipment type and/or each activity as eligible:

- Availability of historic data **
- Availability / accuracy / cost of gathering current/ongoing data;
- Existence of appropriate quantification methods;
- How easy it will be to verify emissions – ie monitoring / checking results;
- Legal requirements / existing regulations;
- Potential emission reductions associated with such equipment; &
- Other policy / practical considerations.

Section 2: Project Definition

Specific questions regarding eligible equipment / activities:

- Power boilers:
  - How do we adequately account for displaced grid emissions?
- Project boundaries:
  - Do we include emissions from up/down stream auxiliary equipment?
  - How idiosyncratic are these? Can they be standardized?
  - Example: Steam distribution system improvements

Section 3: Eligibility

- Location – Mexico (3.1)
- Crediting period – 10 years from start date, renewable (3.3)

- Start date – the date on which an improved-efficiency boiler system becomes operational, after an initial start up period *(current proposal)*
  - Does the protocol need to allow for a start up period?
  - Are there common points in commissioning of these systems that would serve as a useful common starting point for projects?
  - How much flexibility is needed here?

Section 3.4.1: Performance Standard

One of most critical sections of protocol

- Projects pass the Performance Standard Test (PST) by meeting a performance threshold, i.e. a standard of performance that screens out non-additional projects
- Standards are specified such that the incentives created by the carbon market are likely to have played a critical role in decisions to implement projects that meet the performance standard.
- The Reserve considers financial, economic, social, and technological drivers that may affect decisions to undertake a particular project activity.
- Access to data on Business-As-Usual (BAU) practices and efficiencies will be critical for development of the PST. As we discuss options, please consider what are the data needs for each and whether sufficient data may/may not be available

Section 3.4.1: Performance Standard

Retrofit Projects: The Reserve recommends the adoption of ***fuel specific efficiency benchmarks*** for retrofit projects.

- Threshold represents a level of performance (emissions rate) that is beyond that expected compared to the emissions of recently installed boilers.
- To meet the performance threshold, a project will be required to reduce CO_2 emissions per unit steam generated (or per unit of heat/hot air in the case of furnaces) below fuel-specific values.

Section 3.4.1: Performance Standard

- **New equipment** The Reserve recommends the adoption of ***technology based performance thresholds*** for new boilers.

- Threshold represents a level of performance (technology) above a typical boiler, based on current technologies available for improving boiler efficiency.
- Can be used when there is a range of efficiencies/performances (dictated by operational/emissions requirements) applicable for a particular set of boilers.
- Threshold could be defined as the least efficient fuel-specific boiler design that meets the engineer's specifications and all applicable legal requirements.
- To generate reductions, a project developer would have to add at least one of the selected additional technologies to the boiler system in order to pass the performance threshold.

Section 3.4.1: Performance Standard

- **Fuel Switching:** The Reserve recommends adoption of a ***simple performance threshold*** = presence of ***some significant barrier to switching fuel use***
- The Reserve recommends that the performance standard for fuel switch projects simply be that that there is some significant impediment to the switching of fuel use;
- Consider specifically defining what does / does not result in a "significant barrier to fuel switching"
- Examples:
  - Boilers already configured for dual-fuel use would likely not really go beyond BAU;
  - Boilers that require upgrading in order to use more efficient fuel would be eligible.

Section 3.4.1: Performance Standard

- **Early retirement:** Multiple recommendations here – dependent upon what is happening to boilers / furnaces in Mexico that are being retired early.
- ***If retired boilers*** are assumed ***not to be re-commissioned***, compare the project to the old-boiler emissions until the point where the old boiler would have reached the end of its life, then compare to BAU replacement
- ***If retired boilers*** are assumed ***to be re-commissioned,*** treat such projects as new equipment projects – adopt a ***technology based performance threshold***

Question for consideration: Is equipment being retired early in Mexico? What is happening to such equipment?

Section 3.4.2: Legal Requirement Test

- A project passes the Legal Requirement Test when there are no laws, regulations, permitting conditions or other legally binding mandates requiring the project activity
- Do any laws and regulations in Mexico (effective now or in future) require boiler / furnace efficiency levels or upgrades?
- We will compile list of most relevant laws
- Are these most relevant laws effectively enforced?
  - If some legal requirements do exist, but are not enforced, further data and analysis on how effectively certain laws are enforced will be necessary.

Section 3.5: Regulatory Compliance

- Project must be in material compliance with all applicable laws at all times during each reporting period
- Under this protocol, projects may be located at facilities in a wide range of sectors, and as such, the facilities where projects are located may be subject to a wide range of regulations
  - The Reserve will consider including a list of key regulations in Appendix, but likely to be challenging and somewhat high level
- In the event of regulatory non-compliance,
  - Project developers alert verifiers of non-compliance
  - Verifiers use their professional judgment to determine if non-compliance relates to project , a determination which is further reviewed by the Reserve
  - Credits may not be issued for periods of non-compliance

Section 4: GHG Assessment Boundary

We typically consider *all* sources, sinks, and reservoirs (SSRs), listing them in Table 4.1 of the protocol, then assess any material change between baseline and project for each SSR

- ***Source*** = any process or activity through which a GHG is released into the atmosphere.
- ***Sink / Reservoir*** = something that takes up and stores a GHG.

SSR - Description	GHG	Included (I) or Excluded (E)	Baseline / Project
Combustion emissions from boiler / furnace	CO_2 CH_4 N_2O	I I E	B & P
Electricity use (to operate boiler/furnace)	CO_2	I	B & P
Project construction and decommissioning emissions	CO_2	E	P
Natural gas leaks (from new sections of the distribution pipeline)	CH_4	I	P
Emissions from fuel extraction, processing and delivery	CO_2 CH_4 N_2O	E	B & P

Section 5.1.1: Setting the Baseline

- Various options for setting the baseline exist – Reserve recommendations are based upon the PST options presented in the section 3.4.1
- For ***new installations***, the baseline should be standardized and linked to the performance standard.
- For ***retrofits, fuel switching***, and potentially ***early retirement*** projects, the baseline should simply be a continuation of historic baseline emissions.
  - Setting baseline based on historic emissions is often the simplest approach;
  - For early retirement projects – need to consider assumptions for what would have happened to the retired equipment (as did in choosing PST)

Questions for discussion:

- Is it accurate to assume that historic emissions would continue in BAU?
- How much historic data is likely to be easily accessible?

Section 5.2.1: Quantifying Project Primary Emissions

- Initially three quantification methods are presented for estimating project emissions from boiler systems.
- Reserve is seeking WG feedback on how practical each method is (in terms of data availability), and may ultimately decide to include one or more methodology in the protocol.
- ***(1) direct fuel volume measurement*** – would require PD to directly measure fuel volume used at project
- ***(2) dealer certified fuel volume measurement –*** would require PD to have accurate fuel heating value data from fuel supplier
- ***(3) direct stack CO_2 measurement*** – could be used when either fuel volume or heating value data is not available. Likely to be a more expensive for PD, due to need for (new) monitoring equipment.

Sections 6: Monitoring

- This section establishes monitoring requirements, such as listing all key parameters which must be monitored, and the frequency of any required QA/QC for monitoring equipment
- ***Questions to consider***
  - What data needs to be monitored for quantification purposes?
  - What data needs to be monitored to demonstrate meeting other standards?
  - What type of QA/QC would be necessary?
  - Do any other components of the project/process need to be monitored?
- Goal: balancing practicality & cost with robust data needs

Sections 7: Reporting

- *Questions to consider*
  - When we establish a requirement, what will the project need to report?
  - What kinds of evidence will make it easier for a verifier to confirm emission reductions?

- Goal: balancing practicality and cost with robust data needs

Sections 8: Verification

- Things to consider:
  - When we establish a requirement, always ask: How will this be verified?
  - Are there tools, methods, technologies a verifier can use to make verification more efficient?
  - How can we streamline process to keep costs down while maintaining level of assurance?
- Goal: balancing practicality and cost with robust data needs

Item 5

QUESTIONS

Item 6

NEXT STEPS

Next steps

- Staff and contractor work on technical issues and protocol drafting.
- We will contact individuals or the group as we have questions along the way
- Please reach out with additional feedback on today's meeting and these additional materials

Next steps

- Workgroup Draft of the Protocol will be distributed in August for review
- We will reach out next week to begin scheduling our in-person meeting in Mexico City (late August / September)
- Workgroup will provide written comments on the Draft Protocol after the meeting
- Reserve and technical contractor will pursue data acquisition plan, reaching out to WG members as needed
- Periodic updates will be provided during Phase 2.

Protocol Development Timeline

This schedule is preliminary and subject to change.

Milestone/Task	Timeline
Phase 1:	May – September 2015
Protocol drafting	May – August 2015
1st Workgroup meeting (webinar)	July 9, 2015
2nd Workgroup meeting (in-person)	August / September 2015
Phase 2: Data collection and analysis	July 2015 – January 2016
Phase 3:	January – June 2016
Reconvene workgroup & finalize draft (1-2 additional workgroup meetings, webinar or in-person)	January – April 2016
Public comment period	May 2016
Protocol presented to Reserve Board	June 2016

Contact Information

Teresa Lang
Climate Action Reserve
tlang@climateactionreserve.org
(213) 891-6932 (Pacific Time)
Skype: teresa.langreserve

Ana Maria Contreras Vigil
Tetra Tech Staff Lead
AnaMaria.Contreras@tetratech.com
(044 55) 2699-1982 (Hora DF)
Skype: anamcontrerasvigil

Sami Osman
Climate Action Reserve
sosman@climateactionreserve.org
213-542-0294 (Eastern Time)

Jorge Plauchu
Technical Contractor
plauchu@alestra.net.mx
Cel. 443 237 1565 (Hora DF)

Heather Raven
Climate Action Reserve
heather@climateactionreserve.org
(213) 542-0282 (Pacific Time)

Mark Havel
Climate Action Reserve
mhavel@climateactionreserve.org
(347) 732-9939 (Eastern Time)

http://www.climateactionreserve.org/how/protocols/mexico-boiler-efficiency