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# Argentina Landfill Protocol V1.0

Workgroup Meeting #3

March 10, 2025

# Introduction



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# Housekeeping

- Workgroup members can actively participate throughout the meeting
  - Please, keep yourselves muted unless/until would like to speak
- We will ask and take questions throughout the session
  - Please use the raise your hand function
- All other attendees/observers are in listen-only mode
- Observers are free to submit questions in the question box
- We will follow up via email to answer any questions not addressed during the meeting
- The slides and a recording of the presentation will be posted online

# AGENDA

- Introductions
- Process Overview
- Protocol Considerations
  - Previous meeting pending questions
  - Summary of Sections Reviewed in previous meetings
    - Remaining topics
  - Sections to Review:
    - Reporting Parameters
    - Verification Guidance
    - Appendix A
    - Appendix B
    - Appendix C
- Open Discussion
- Next Steps



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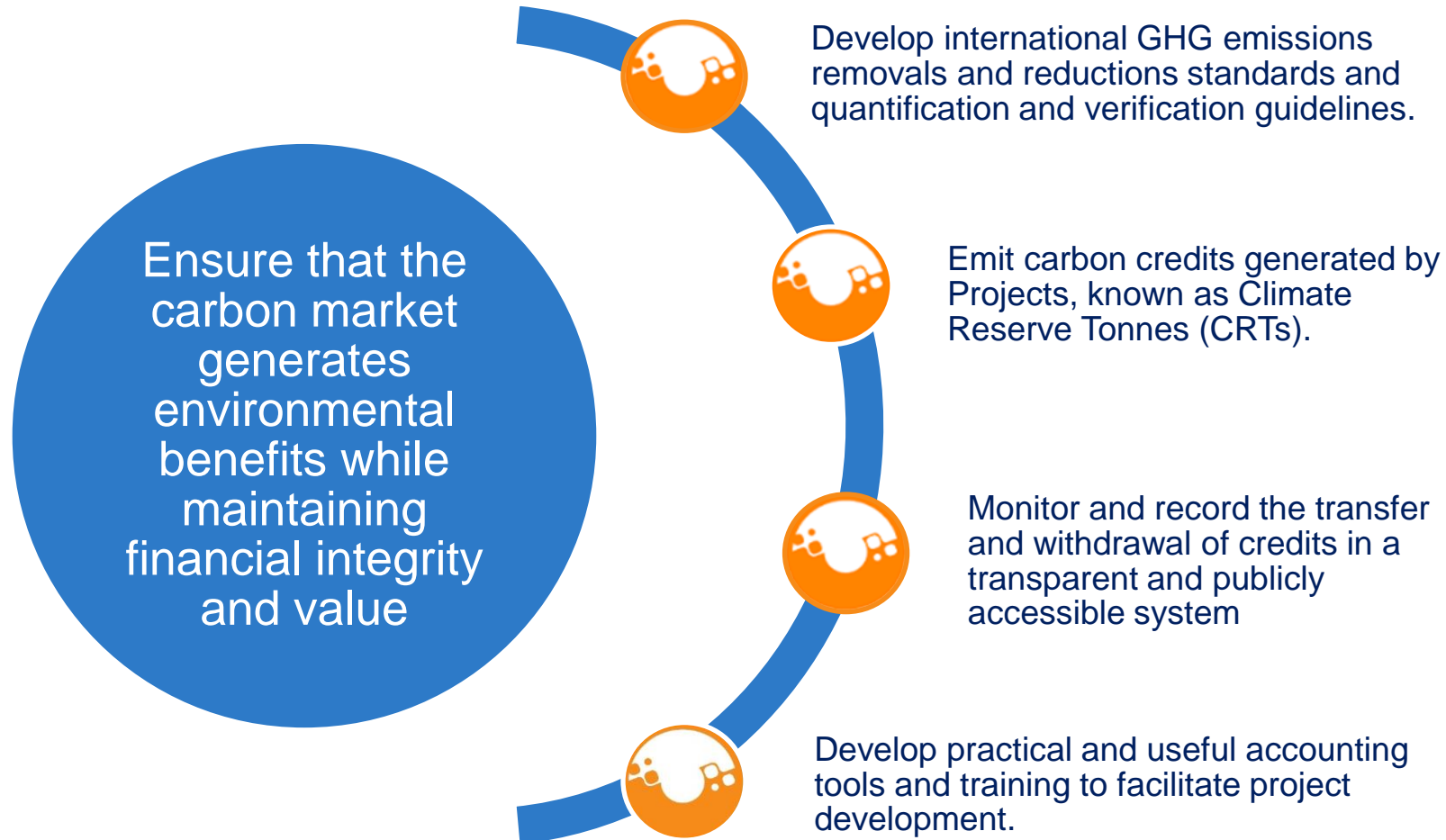
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# INTRODUCTIONS

**Mission:** to develop, promote and support innovative, credible market-based climate change solutions that benefit economies, ecosystems and society

- Develop high-quality, stakeholder-driven, standardized carbon offset project protocols internationally
- Accredited Offset Project Registry under the California cap-and-trade program
- Serve compliance and voluntary carbon markets
- Reputation for integrity and experience in providing best-in-class registry services for offset markets

# The Climate Action Reserve





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## Climate Action Reserve Projects



Project Type  
Select



Status  
Select



Country  
Select



State  
Select



Project ID  
Select



Project Video  
Select

Number of Projects

# 954

Compliance projects use square icons. Additionally, you can filter by project type and select the protocols that indicate (ARB) to show all California compliance projects.

### Status Definitions

Listed projects have paid the submittal fee and successfully met eligibility requirements and other aspects set forth within the appropriate protocol.

Registered projects

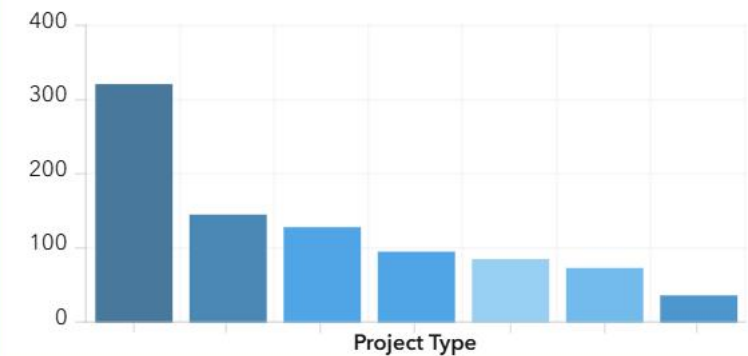


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### Projects by Type



For questions, please contact [jmao@climateactionreserve.org](mailto:jmao@climateactionreserve.org)

# Principles of the Reserve Program

All registered projects and credits issued by the Reserve must be:

ADDITIONAL	VERIFIED	REAL	PERMANENT	ENFORCEABLE
<ul style="list-style-type: none"><li>• Beyond common practices</li><li>• Beyond regulatory requirements</li></ul>	<ul style="list-style-type: none"><li>• Standardized eligibility criteria and quantification methodologies</li><li>• Independent third-party review.</li></ul>	<ul style="list-style-type: none"><li>• Conservative emissions accounting</li><li>• Prescriptive models and equations</li><li>• Uncertainty reduction</li></ul>	<ul style="list-style-type: none"><li>• Monitoring and reporting processes</li><li>• Any leakage or loss is quantified and compensated</li></ul>	<ul style="list-style-type: none"><li>• Processes to ensure program compliance</li><li>• Accountability mechanisms</li></ul>

- The Reserve seeks to be practical and ensures that projects do not have negative impacts
- The standards include social and environmental safeguards to ensure the participation and benefit of the participants



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**WORKING GROUP**

# Workgroup Members

Organization (Alphabetical)	Name
ATO Carbon	Sami Osman
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Gestión Ambiental y Desarrollo Sustentable - Gobierno de Chubut.	Fernando Pegoraro
HINS	Sofia Neyra
Independent Consultant	Jose Davila
Independent Consultant	Ana Marcela Villarroya
Independent Consultant	Nicolas Zeballos
Independent Consultant	Gisela Daniele
IRAM(Instituto Argentino de Normalización y Acreditación )	Jessica Wasilevich
LSQA Argentina	Alejandra N. Arribillaga
MexiCO2	David Colin
Ministerio de Ambiente y Economía Circular de la Provincia de Córdoba	Germán Juri
Ministerio de Ambiente y Economía Circular de la Provincia de Córdoba	Iriart Marine
Secretaría de Cambio Climático, Ministerio de Ambiente y Economía Circular de la provincia de Córdoba	Julia Coito
SEGAM CONSULTORA / Secretaría de Transición Energética, Ministerio de Infraestructura y Servicios Públicos de la provincia de Córdoba	Marcos Cena



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# PROTOCOL CONSIDERATIONS

# Previous meetings pending questions

- Inventories or databases that track the operation of each landfill and data on landfill gas collection and control systems at any scale.
- Studies and/or data to confirm that the installation of landfill gas collection and control systems not common practice at landfills in Argentina
- Comments, documentation, or related studies that could support the fact that the methane fraction does not vary daily, or in few days, or even weekly
- ☒ • Examples of commonly used equipment
- ☒ • Confirm feasible the suggested arrangement of the landfill gas flow meters and methane concentration metering equipment
- Further information about the potential third-party technician for the field check for calibration accuracy. Location of the instrumental labs, ownership (private/public), services and/or expertise, accreditation or approval form the manufacturer, other.

# Summary of Sections reviewed in previous meetings

## **First Meeting**

- Project Definition – Eligible landfill
- Project Ownership
- Social and Environmental Safeguards
- Parameters/Default Values

## **Second Meeting**

- Social Safeguards MRV
- The GHG Assessment Boundary
- Quantifying GHG Emission Reductions
- Project Monitoring & Monitoring Requirements
- QA/QC requirements

## Section 3.4.2 Limits on Credit Stacking

- Under this protocol, credit stacking is defined as receiving both offset credits and other types of mitigation credits for the same activity on spatially overlapping areas (i.e., in the same landfill).
  - The Reserve has identified market opportunities for the upgrade of landfill gas into high-Btu fuels, or other fuel or renewable energy certificates programs that provides an incentive sufficient to raise additionality concerns. Analysis reveals that the strength of these incentives is driving investment in landfill gas projects at present, and that such projects can be considered “business as usual”, without the additional presence of carbon offset revenues.
  - Projects that receive mitigation credits for upgrading landfill gas into high-Btu fuels, or other mitigation credits directly related to the project activity will not be eligible to receive offset credits for the same period of time under this protocol.
- 
- ✓ Are there any type of mitigation credits functioning in the landfill sector in Argentina?
  - ✓ Other comments

## Section 5.1 Quantifying Baseline Emissions - The oxidation factor (OX)

The OX reflects the amount of methane from landfills that is oxidized in the soil or other material covering the waste. Well-managed landfills may have a higher OX rate than uncontrolled dump sites, where sites with thick, well aerated material differ from those with no cover. The OX shall be determined based on the following scenarios:

- Equal to 0.0 for landfills that have a geomembrane (synthetic) cover with less than 12 inches of cover soil for above, the landfill area.
  - Equal to 0.10 for landfills that don't meet the condition above, and the methane flux is unknown or if the landfill does not have a soil cover of at least 24 inches for the majority of the landfill area.
  - Equal to 0.10 for landfills that have a soil cover of at least 24 inches for a majority of the landfill area and the methane flux rate is greater than 70 g/m<sup>2</sup>/d.
  - Equal to 0.25 for landfills that have a soil cover of at least 24 inches for the majority of the landfill area and the methane flux rate is 10 – 70 g/m<sup>2</sup>/d.
  - Equal to 0.35 for landfills that have a soil cover of at least 24 inches for a majority of the landfill area and the methane flux rate is less than 10 g/m<sup>2</sup>/d.
- ✓ Is methane flux testing feasible in Argentina?
  - ✓ Is there guidance for determining oxidation factors in Argentina?
  - ✓ Other comments?

## Section 6.1 Monitoring Requirements – non continuous measurements 10% discount

When the fraction of methane in the landfill gas is not measured continuously and recorded every 15 min and averaged at list daily then a 10% discount is applied in the quantification of the baseline emissions.

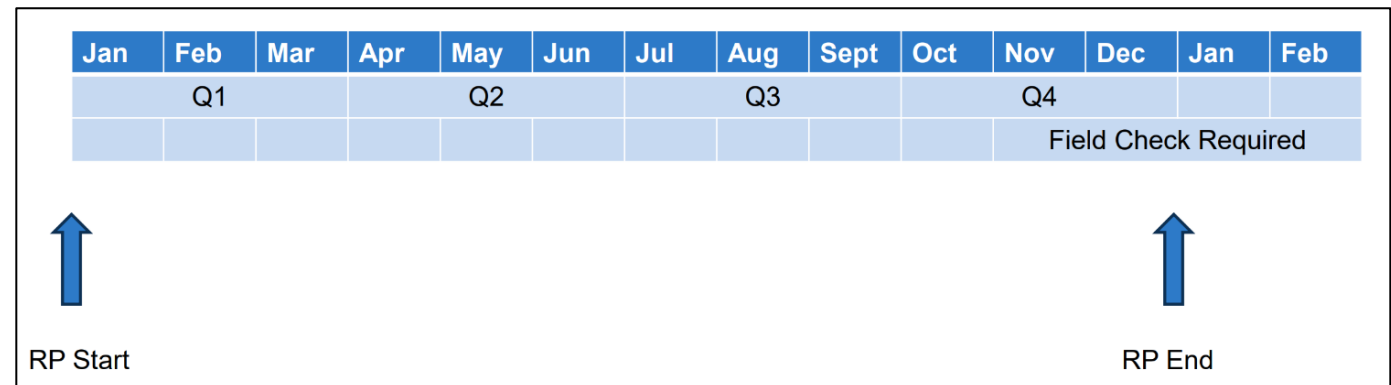
- measurements taken at a frequency that is between daily and weekly may be used with the application of a 10% discount in Equation 5.3
- Comment was received that the 10% discount may be too punitive.
  - 10% discount is to account for the methane fluctuations based on precipitation, temperature, waste accepted, etc.
- Other Comments?

# Remaining Topics

## Section 6.2 Instrument QA/QC – Third Party Technician

- A field check is an on-site validation of a meter to determine drift and assure accuracy.
- All flow meters and continuous methane analyzers must be field checked for calibration accuracy by a third-party technician with the percent drift documented, using either a portable instrument (such as a pitot tube) or manufacturer specified guidance.
- All flow meter, continuous methane analyzer, and portable methane analyzer field checks and calibrations must have “as found” and “as left” conditions documented, and percent drift calculated and recorded. The percent drift must be assessed relative to the expected reading rather than the full scale reading of the device.

- ✓ More info on third party technicians:  
availability, accreditation, etc.
- ✓ Comments?



# Sections to Review

- Reporting Parameters
- Verification Guidance
- Appendix A
- Appendix B
- Appendix C

# Reporting Parameters

- This section provides guidance on reporting rules and procedures. A priority of the Reserve is to facilitate consistent and transparent information disclosure among project developers.
    - ✓ Project developers must submit verified emission reduction reports to the Reserve annually at a minimum.
  - All project submittal and registration documentation is listed in this section
  - Record keeping is also covered in this section
    - ✓ For purposes of independent verification and historical documentation, project developers are required to keep all information outlined in this protocol for a period of 10 years after the information is generated or 7 years after the last verification.
  - This section also brings clarity on Reporting Periods, Verification Periods and the Verification Site Visit Schedule
- ✓ Comments?

# Verification Guidance

- This section provides verification bodies with guidance on verifying GHG emission reductions from landfill gas projects developed to the standards of this protocol.
- The monitoring plan serves as the basis for verification bodies to confirm that the monitoring and reporting requirements in Section 6 and Section 7 have been met, and that consistent, rigorous monitoring and record-keeping is ongoing at the project site.
  - ✓ Verification bodies shall confirm that the monitoring plan covers all aspects of monitoring and reporting contained in this protocol and specifies how data for all relevant parameters in Table 6.1 are collected and recorded.
- ✓ Comments?

# Verification Guidance

Eligibility Rule	Eligibility Criteria	Frequency of Rule Application
<b>Location</b>	Argentina	Once during first verification
<b>Start Date</b>	Project start date must be no more than 90 days after landfill gas is first destroyed by project destruction device. Projects must be submitted for listing within 12 months of the project start date	Once during first verification
<b>Project Crediting Period</b>	Ensure the project is within its first, second, or third crediting period	Once during each crediting period
<b>Performance Standard</b>	Installation of a qualifying destruction device where not required by law (see Section <a href="#">3.4.1</a> for other requirements)	Once during first verification
<b>Legal Requirement Test</b>	Signed Attestation of Voluntary Implementation form and monitoring procedures that lay out procedures for ascertaining and demonstrating that the project passes the Legal Requirement Test	Every verification
<b>Regulatory Compliance Test</b>	Signed Attestation of Regulatory Compliance form and disclosure of all non-compliance events to verifier; project must be in material compliance with all applicable laws	Every verification
<b>Exclusions</b>	<ul style="list-style-type: none"> <li>Bioreactors</li> <li>Landfills which re-circulate a liquid other than leachate in a controlled manner</li> <li>Indirect emissions from the displacement of grid electricity or natural gas</li> </ul>	Every verification

<b>Social Safeguard 1 - FPIC</b>	Signed documentation demonstrating compliance with SS 1 FPIC.	Once during first verification
<b>Social Safeguard 2 - Ongoing notification, participation and documentation</b>	Signed documentation demonstrating compliance with SS 2	Every verification
<b>Social Safeguard 3 – Work &amp; Safety</b>	Signed compliance declaration form certifying material compliance with all applicable laws, including labor and safety laws.	Every verification
<b>Social safeguard 4 – Absence of Disputes</b>	Signed certificate of absence of conflicts attesting that there are no land tenure disputes affecting the project boundaries, including all landfill facilities directly associated with the carbon project.	Every verification
<b>Environmental Safeguard 1 – Air &amp; Water Quality</b>	Signed Regulatory Compliance Declaration form certifying compliance with all applicable laws, including those relating to air and water quality.	Every verification
<b>Environmental Safeguard 2 – Pollutants mitigation</b>	Historical records and ongoing monitoring and reporting through recording data from physical measurements, online sources, and government data to demonstrate that the project has been designed and implemented to mitigate potential emissions of pollutants that may cause degradation of soil, air, surface and groundwater quality, and that project developers have obtained appropriate local permits prior to installation to avoid violation of all applicable laws.	Every verification

# Appendix A – A.1. National Regulation

- At the national level, the **Ministry of Environment and Sustainable Development (MAyDS)** is responsible for policy definition, technical assistance and co-financing of investments in the waste sector.
  - **The National Environmental Policy Act No. 25,675, also known as General Environmental Law**, that establishes the minimum budgets for achieving sustainable and adequate management of the environment, the preservation and protection of biological diversity, and the implementation of sustainable development in Argentina.
  - **Law 25.916 Household Waste Management (August 4, 2004)** establishes minimum environmental protection budgets for the comprehensive management of household waste, general provisions, competent authorities, generation and initial disposal, collection and transportation, treatment, transfer and final disposal, interjurisdictional coordination, enforcement authority, infractions and sanctions, and complementary provisions.
    - Article 22 **Federal Council of the Environment (COFEMA)** in coord. with MAyDS
- ✓ Which is the public agency, whether national, provincial or municipal, that issues environmental licenses?
  - ✓ Any other relevant regulations to the sector?
  - ✓ ES2 and national regulation on pollutants (¿National Law 20,284 on Atmospheric Pollution?)
  - ✓ Other comments?

# Appendix A – A.2. Provincial Laws and Municipal Regulations

The provinces are responsible for forming and managing provincial waste policy, which has various regulations to govern different aspects of municipal solid waste disposal systems.

- In the Province of Buenos Aires, Resolution 1143/02 (August 13, 2022),
- In the Province of Córdoba, under the Ministry of Environment and Circular Economy, Resolution No. 372/01
- Article 40 of Law 13055 in the Province of Santa Fe
- Law 7,076 on the Final Disposal Regime of Urban Solid Waste (October 23, 2000)

- ✓ Any other relevant provincial and/or municipal law or regulations to consider and add to the Protocol?
- ✓ Other comments?

# Appendix B Development of the Performance Standard Threshold



## Development of the Performance Standard Threshold

- Waste management Practices in Argentina
- Participation in the Carbon Market
- Recommendation for Performance Standard
  - ✓ Information about the landfills functioning in the country and any capture and destruction systems functioning, installed, or in development.
    - Confirmation that the capture and destruction of landfill gas is not common practice
  - ✓ Other comments?

# Appendix C Emission Factors

## Emission Factor Table

- Stationary Combustion
- Mobile combustion
- It seems in the national inventory that mobile combustion EFs are IPCC values.
- ✓ Is there Argentina specific information/ documentation on EFs?

## Fossil Fuels Net Calorific Values Table

- Solid fuels
- Liquid fuels
- Gaseous fuels
- It seems the 2019 National Emissions Inventory uses national data from National energetic Balance (BEN) 2015 study.
- ✓ Is there newer national data on FF calorific values?



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## NEXT STEPS

# Next steps

- ***For Interested Stakeholders:***
  - Still can submit Local Engagement Form
  - Email interest to sign up for updates as an observer
  - Email us feedback anytime
- ***For Reserve:***
  - Compile notes summary on discussion
  - Post recording, notes, and presentation to the webpage
  - Incorporate feedback from workgroup discussion
  - Identify areas of focus for next workgroup meeting (if needed)
  - Finalize the Procol Draft for Public Comment
- ***For Workgroup:***
  - Email feedback on today's discussion (by March 21<sup>st</sup> )
  - Email comments on the Draft version sent by March 17<sup>th</sup>

# Key contacts

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**THANK YOU!**