



APRIL 7, 2020

# Offset Protocols for Grassland Conservation & Management

TOWN HALL: USING CARBON OFFSET MARKETS TO RETAIN AND ENHANCE CANADA'S GRASSLANDS



A photograph of a soil profile. The top layer is dark brown, rich soil with some organic matter. Below it is a lighter, yellowish-brown, sandy subsoil. The text is centered over the dark topsoil layer.

**Introduction to Indigo Ag  
& Climate Action Reserve**

# We are building a new system of agriculture where growers and buyers interact and transact in our grain, transportation and carbon credit marketplaces

SUPPLY

DE-COMMODITIZING AGRICULTURE

DEMAND



GROWERS



TRANSPORT COMPANIES



GRAIN BUYERS, FOOD & FIBER COMPANIES



CONSUMERS, NON-FOOD COMPANIES, GOVERNMENTS

**INDIGO MARKETPLACES**

- indigo™ GRAIN
- indigo™ TRANSPORT
- indigo™ CARBON

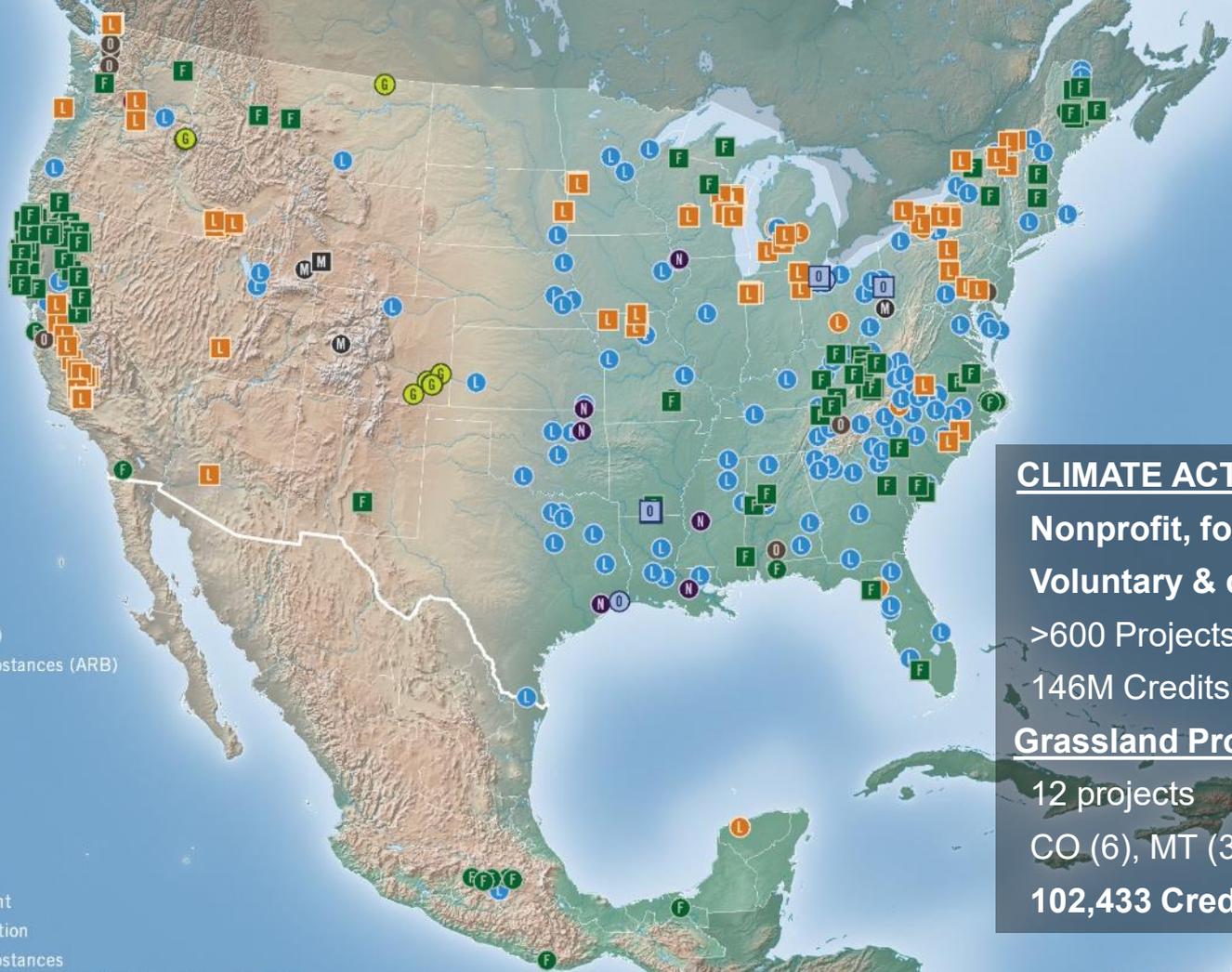




CLIMATE ACTION RESERVE

- F Forest (ARB)
- L Livestock (ARB)
- M Mine Methane (ARB)
- O Ozone Depleting Substances (ARB)
- D Composting
- F Forest
- G Grassland
- L Landfill
- L Livestock
- M Mine Methane
- N Nitric Acid Plants
- N Nitrogen Management
- O Organic Waste Digestion
- O Ozone Depleting Substances

Listed, Registered, Transitioned, & Completed Projects as of June 20, 2019



## CLIMATE ACTION RESERVE

Nonprofit, founded 2001

Voluntary & compliance

>600 Projects

146M Credits Issued

### Grassland Projects

12 projects

CO (6), MT (3), OR (3)

**102,433 Credits issued**





# Setting the Bar for Offset Protocol Development

# Overview

## Topics to be covered

- Voluntary vs compliance protocols
- Standardized vs project-based protocols
- Ownership
- Additionality
- Permanence
- Quantification
- MRV: Monitoring, reporting, & verification



### Question:

What is the “bar” for development of a “high-quality” offset project protocol?

# Voluntary vs compliance offset protocols

## Voluntary protocols

- Development is not regulated by a government entity
- Protocols either developed by the program (e.g. CAR) or by program participants (e.g., Verra)
- Some programs will allow use of external protocols (e.g., Verra allows CAR and CDM)
- Very little policy limitations on acceptable project types
- Development will generally involve expert stakeholders and public comment

## Compliance protocols

- Generally look to the voluntary market as a proving ground for activities and protocols
- Limited by the scope of the regulated program
  - **E.g., CARB doesn't allow landfill offsets due to strict, existing LFG regulations**
- Often either adopted directly from, or based heavily on, existing voluntary or compliance protocols
  - **CARB simply put four CAR protocols directly into the regulation, verbatim**
  - **QC adapted CARB and CAR protocols**
  - **ON was planning to “adapt” 13 protocols, rather than start from zero**
- Usually written in legal/regulatory language
- Development always requires public input

# Standardized vs project-based protocols

## Standardized protocols

- **Top-down**
- Typically narrow in scope with prescriptive guidance
- Can avoid the need for project validation (\$\$)
- Reduced burden on project developer, **increased burden on protocol developer**
- Should be more easily applied to a large number of individual projects
- Greater **objectivity** leads to easier enforceability and less regulatory interpretation

## Project-based protocols

- **Bottom-up**
- Allows more variability between projects of the same type
- **Increased burden on project developer** to demonstrate how their activities and methods fit within the protocol
- Greater **subjectivity** introduces more need for interpretation and judgement
- Greater flexibility for novel project ideas

# Past challenges with soil carbon offsets

## Lessons learned

- Policy challenges
  - Establishing additionality for agricultural practices
  - Ensuring permanence of stored carbon
  - Aggregating projects at scale
- Scientific challenges
  - Sufficient data across time and space to understand processes and support project-level quantification
  - Calibrating and validating models
- Technical challenges
  - Soil sampling
  - Using and verifying models

# Additionality

- Credited emission reductions must go above and beyond business as usual
- Various approaches, which may be project-based or standardized, and may be combined

## Financial analysis

- Show that the baseline scenario is more profitable than the project scenario
- **PRO:** Intuitive
- **CON:** Subjective and labor-intensive

## Barriers analysis

- Identify social, cultural, financial, technological, etc. barriers to the activity
- **PRO:** Flexible
- **CON:** Subjective and time consuming

## Common practice threshold

- Assess market penetration of the project activity or technology
- Allow activities / technologies with low (e.g. <5%) BAU
- **PRO:** Objective; easy to apply and verify
- **CON:** Resource intensive to develop; false positives & negatives

## Proportional additionality

- Allow activity w/high BAU, but discount all crediting by the market penetration rate (e.g., if 40% adopt no-till, then only issue 60% of credits)
- **PRO:** Objective; easy to apply and verify; rewards early adopters
- **CON:** Penalizes new adopters; early adopters likely to be first to sign up, skewing the %

# Additionality examples

## CAR Canada Grassland Protocol

- Standardized approach, based on a financial analysis and a “reverse” barriers analysis
- Financial analysis uses top-down thresholds, applied to a site-specific real estate appraisal
- “Reverse” barriers analysis by showing site suitability according to Land Suitability Rating System (LSRS)

## CAR U.S. Grassland Protocol

- Same basic approach as CGPP
- Financial analysis uses county-level rental rate data, rather than appraisal (more standardized)
- Site suitability based on Land Capability Classification (similar to LSRS)

# Ownership

## Who gets the credits?

- “Project Owner” is the entity with rights to the **GHG emission reductions**
- Depends on the nature of the sources/pools being credited
  - Reduced emissions are easier, simply focus on the **operator** of the activity
  - Stored/sequestered carbon more complex, involves **landowner and/or easement holder**
- Forest “Project Owner” is the entity who holds the rights to the **timber**
- Grassland protocols allow **decoupling** of land ownership from GHG rights
  - Still require legal consent from **landowner** in some form
  - Also require legal consent of conservation **easement holder**
- Forward credit sales contracts **should not** convey ownership **prior to** credit issuance

# Aggregation

## Grouping projects to reduce costs

- Single projects must be thousands of acres to make financial sense
- Grouping / aggregating projects provides for economies of scale
- Administrative aggregation: “**cooperatives**” (e.g., CAR protocol)
  - Each property is a **separate “project,”** with associated fees and documentation
  - Each project may have **different ownership**
  - Benefits are similar to collective bargaining
- Deep aggregation: “**grouped projects**”
  - **Single “project”** comprising multiple properties in different places, with different characteristics
  - Single point of ownership for GHG rights
  - Reduced cost and complexity in some cases, but also reduced clarity for buyers and regulators

# Permanence

## Ensuring fungibility in the market

- Stored carbon must be “permanent”; premature release of stored carbon is a “**reversal**”
- Internationally-accepted standard is **100 years** for equivalence of carbon storage and emission reduction
  - Required by compliance offset programs
  - Required by ICAO’s CORSIA program (International Airline Industry)
- Different programs address this in different ways
  - Accounting of reversal risks and holding % of credits in a **buffer pool**
  - Use of **conservation easements**
  - **Legal contracts** with the registry (e.g., Project Implementation Agreement)
  - Regulatory programs with **enforcement** capabilities
  - Tonne-year accounting

# New approach to permanence

## The Reserve is considering a new approach in its Soil Enrichment Protocol

- Reversal risk still considered for 100 years following credit issuance
- Project Implementation Agreement may be signed for less than 100 years (e.g., 30 years)
- At end of the PIA term, one of the following must occur; either:
  1. The Project Owner signs an extension of the PIA and continues monitoring; or,
  2. The Project Owner receives Reserve approval for an alternative mechanism
    - a) Demonstration that the remaining risk of avoidable reversals is acceptably low; or,
    - b) Implementation of a remote system for monitoring, identification, and compensation of reversals;
  3. The Reserve declares a reversal of the remaining reversible emission reductions.
- This allows for shorter-term contracts and provides time to develop better solutions, while also providing legal and financial protection for the registry

This proposal is included in the draft protocol which is currently undergoing workgroup review. It will be available for public comment later this month.

# Quantification of soil carbon

Balancing practicality, cost, accuracy, data availability, and scientific understanding

	Cost	Accuracy	Uncertainty	Ease of use	Project Data Needs	Sector Data Needs
IPCC default factors	Low	Low	High	Easy	Low	High
Pre-modeled default factors	Medium	Medium	High	Easy	Low	High
Direct measurement	High	High	Medium	Difficult	Medium	Medium
Project-level modeling	High	Medium	Medium	Difficult	Medium	Medium
Hybrid measurement & modeling	High	High	Medium	Difficult	Medium	Medium

# MRV: Monitoring, reporting, & verification

## Balancing cost, flexibility, & rigor

- Level of monitoring depends on the quantification approach
  - Direct measurement and modeling require detailed sampling design and more detailed project info
  - Use of emission factors requires very little site information
- Always need some level of information regarding grazing activities
- Reporting & verification timelines depend on the program
  - Compliance programs generally want reports every year
  - Voluntary programs may have relaxed timelines (e.g., CAR allows up to 6 years)
- Long-term monitoring for permanence varies by program
  - Verra requires no obligation after crediting period
  - CAR requires 100 years following credit issuance (reduced intensity for grassland projects)
  - California so far requires 100 years following credit issuance (forestry)

# U.S. Grassland participants

## Large conservation organizations

- Ducks Unlimited (1)
- The Nature Conservancy (5)

## Small conservation organizations

- Southern Plains Land Trust (4)

## Private landowners

- Carroll MT Properties, LLC (1)
- Weaver Cattle Co. (1)

# U.S. Grassland projects

102,433 CRTs issued since 2016



6 projects total
5 projects verified
49,143 CRTs



3 projects total
1 project verified
36,310 CRTs



3 projects total
3 projects verified
16,980 CRTs

# Indigo Ag protocols for ag soil carbon

- Indigo Ag is pursuing soil carbon protocols through the Reserve (U.S.) and Verra (global)
- Both targeted for adoption this summer
- Flexible approach targeting incremental management changes on cropland and grassland
  - Fertilizer application
  - Water management/irrigation
  - Tillage and/or residue management
  - Crop planting and harvesting
  - Fossil fuel usage
  - Application of other synthetic inputs
  - Grazing practices and emissions
- Allows grouped projects
- Simplified approaches to additionality (with differences between registries)
- Quantification based on periodic direct measurement with interim modeling
- Flexibility to improve the models and methods over time without drastic revisions to protocols

# Indigo Ag protocol timelines



CLIMATE  
ACTION  
RESERVE



# Questions?

**Max DuBuisson**

Director of Carbon Operations, Methodology

[mdubuisson@indigoag.com](mailto:mdubuisson@indigoag.com)

