

# The Evolution of Canada's Carbon Markets and Their Role in Energy Transition

PRESENTED TO THE CANADIAN ENERGY LAW FOUNDATION 61ST ANNUAL JASPER RESEARCH SEMINAR

June 16, 2022

OSLER

**Landon Miller | Imperial Oil Limited**



Legal Counsel

**Jacob A. Sadikman | Osler, Hoskin & Harcourt LLP**



Partner, Commercial

**Dana Saric | Osler, Hoskin & Harcourt LLP**



Partner, Banking and  
Financial Services

**Sander Duncanson | Osler, Hoskin & Harcourt LLP**



Partner, Regulatory,  
Environmental,  
Indigenous and Land

## OVERVIEW

- Introduction
- Basic Terminology
- Carbon Market Mechanisms
- Compliance Markets for Carbon Credits in Canada
- Voluntary Carbon Markets
- Canvassing Trends and Issues
- Discussion

# Introduction

## Introduction

- Carbon credits have long been viewed as one of the key tools to achieve material emissions reductions, particularly as Canada moves towards more aggressive emissions reductions targets/commitments
- Despite interest in emissions trading in Canada for almost 30 years, carbon credit markets across Canada are still fragmented and in their infancy
- Voluntary carbon credit markets are growing far more quickly than compliance markets, and threaten to remove key sources of supply for compliance markets in Canada
- While many challenges remain across the different market structures, there are significant opportunities for industry to leverage carbon credits to achieve emissions reduction goals

# Basic Terminology

## Basic Terminology

- “Environmental Attributes” is a primary focus in many commercial contracts relating to clean energy infrastructure or emission reduction technologies or projects
- Typically defined broadly to cover property rights that can be manifest in different types of products
  - e.g., Renewable Energy Credits (“RECs”), Clean Energy Credits (“CECs”), offset credits, carbon credits and other emission allowances, voluntary emission reductions (“VERs”), etc.
- Voluntary vs. Compliance “Environmental Attributes”
  - Government-issued regulatory instruments such as carbon credits and allowances: “compliance” instruments
  - Products derived from voluntary actions and defined by non-governmental standards bodies: “voluntary” products

# Carbon Market Mechanisms



## Primary Models of Carbon Market Mechanisms

- Two primary models (whether compliance or voluntary) used in Canada today
- (1) Cap-and-trade mechanisms
  - Regulated emitting facilities are allocated (or must purchase at public auctions) an “allowance” of a certain quantity of emissions, where the underlying commodity is an emission “allowance” representing the right to emit one Mt of covered emissions
- (2) Output-based pricing systems
  - Do not set a fixed cap on the volume of emissions, but rather limit emissions per unit of economic output
  - Regulated emitting facilities must reduce emissions to a prescribed baseline, and may use emission credits to achieve compliance

# Compliance Markets for Carbon Credits in Canada

## Overview

- Following the Supreme Court of Canada's decision in *References re Greenhouse Gas Pollution Pricing Act*, every province and territory needs to establish carbon pricing standards or a cap-and-trade regime that meets the federal government's minimum standards, or they will be subject to the federal *GGPPA* (fuel charge and output-based pricing systems for large emitters)
  - Current price is \$50/tonne of CO<sub>2</sub>e, proposed to increase to \$170 by 2030
- Only cap-and-trade jurisdictions are Quebec and Nova Scotia
- Other provinces have output-based pricing systems for large emitters (either federal or provincial)

## CARBON PRICING ACROSS CANADA



Source: Government of Canada webpage: “Carbon pollution pricing systems across Canada”

## Common Theme: Sectors and Thresholds

- Output-based pricing systems establish:
  - Emitting sectors and activities covered by the system
  - Threshold for emitters to be regulated emitters (e.g., 50,000 MT/yr)
  - Threshold for non-regulated emitters to voluntarily opt-in to the system
  - Annual output-based emissions baseline which a regulated emitting facility will be required to reduce its emissions to

## Common Theme: Compliance Options

- The federal regime and most provinces allow for creation of “surplus” or “performance” credits and “offset credits”, which can be generated and traded within the province as compliance options
  - “Surplus” or “performance” credits are issued to regulated emitters that reduce emissions below their baseline
  - “Offset” credits are issued to non-regulated emitters who can verify they have reduced, avoid or sequester emissions under an approved offset protocol
- Compliance options for regulated emitting facilities if they emit over their annual limit:
  - Pay emissions surcharge (or fund credit) to government
  - Remit performance/surplus credits or offset credits

## Common Theme: Offset Credits

- Conceptually represents the notional reduction of one Mt of emissions that would not otherwise occur (i.e., beyond “business as usual”)
- Must be generated through an approved protocol and independently verified
- Protocols can be withdrawn over time, meaning that credits can no longer be generated under them (including during offset project’s development)
  - e.g., Alberta’s former Quantification Protocol for Conservation Cropping
- Federal regime recognizes provincial offsets (if ECCC recognizes them), but most regimes require offsets to be generated in the same province they are used in

Federal Offset Protocols (In Development)	
Landfill methane recovery (finalized June 8, 2022)	Enhanced soil organic carbon (in development)
Improved forest management (in development)	Reducing GHG emissions from refrigeration systems (in development)
Livestock feed management (in development)	Direct air carbon capture and sequestration (to be initiated in summer of 2022)
Provincial Offset Protocols	
BC	Energy conservation, energy efficiency, and switching to lower carbon fuels (others in development for forestry and methane management)
Alberta	18 Protocols (including for biogas, biomass, CCS, renewable energy generation, energy efficiency projects, EOR, vent gas reduction and waste heat recovery)
SK	None (in development)
ON	None
NFLD/LAB	None



## Data on Compliance Options in Alberta

Compliance Year	Emission Offset Credits Submitted (Mt CO <sub>2</sub> e)	EPCs Submitted (Mt CO <sub>2</sub> e)	Fund Credits Submitted (Mt CO <sub>2</sub> e)	Total Compliance (Mt CO <sub>2</sub> e)	Fund Payment (\$Million)
2007 (half year)	0.9	0.2	3	4.1	45.2
2008	2.9	0.6	5.9	9.4	88.3
2009	3.8	1.5	4.4	9.7	66.3
2010	3.9	1.9	5.3	11.1	78.9
2011	5.4	0.8	4.2	10.4	62.9
2012	3	0.7	5.9	9.5	93.7
2013	2.2	1.3	6.3	9.8	94.4
2014	2.3	1.3	5.6	9.3	84.3
2015	0	0.3	9	9.3	135.7
2016	0.8*	1	10.3	12.2	206.5
2017	9.2*	6.2	3.1	18.5	94
2018	8.0*	3.9	17.8	29.7	533.5
2019	9.9*	5.3	15.9	31.1	476.1
<b>Total</b>	<b>52.3</b>	<b>25.0</b>	<b>96.7</b>	<b>174.1</b>	<b>2059.8</b>

Note: Mt = Million Tonnes

\*Includes 2.6 Mt total from 2016-19 of additional credits issued under section 7(1.2) of the SGER and section 16(3) of the CCIR

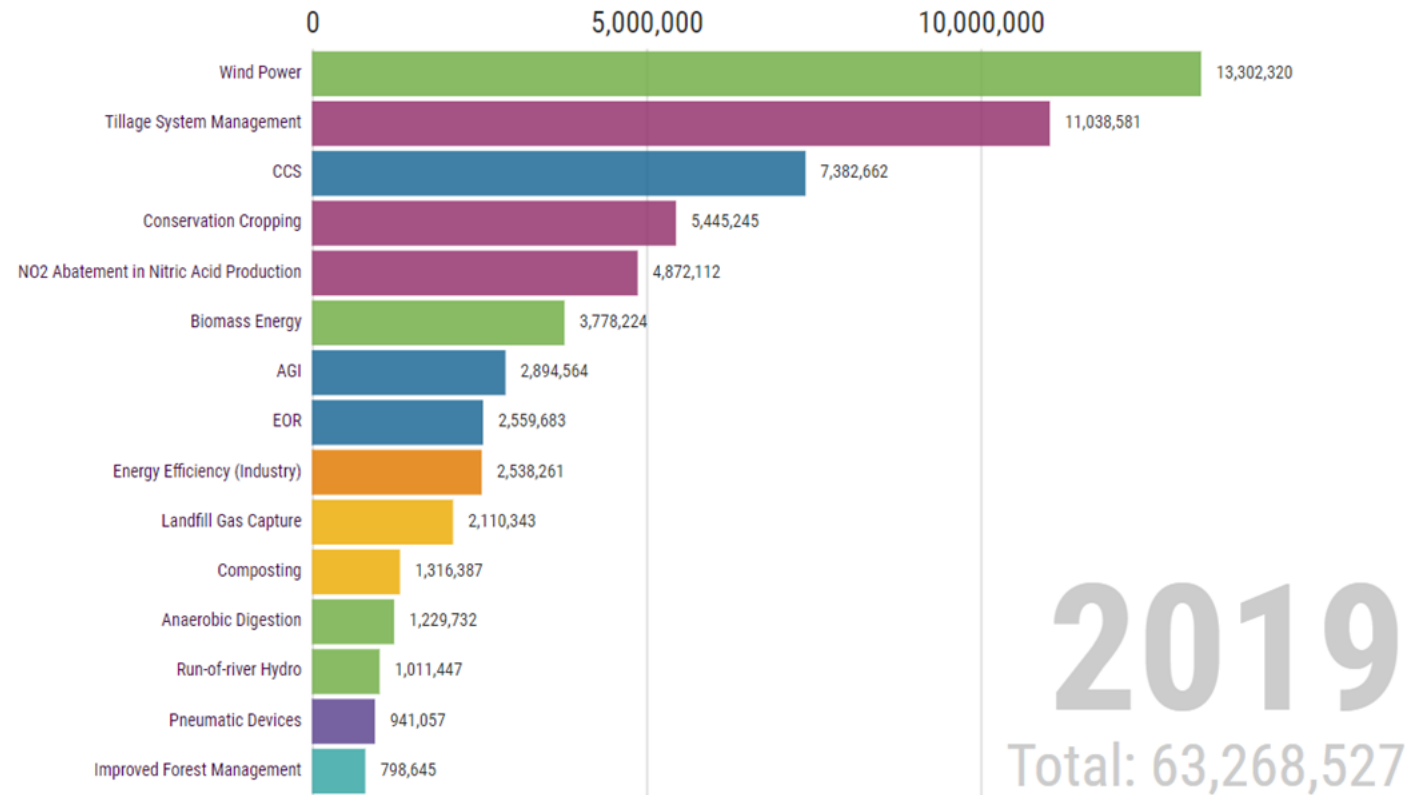
Figures are subject to change as a result of auditing and are rounded for presentation purposes.

Updated November 4, 2020

Source: Government of Alberta, "Specified Gas Emitters Regulation and Carbon Competitiveness Incentive Regulation Result" (2020)

## Emission Offsets Registered in Alberta, by Vintage Year and Protocol Category

■ Geological Sequestration 
 ■ Waste Management 
 ■ Renewable Energy 
 ■ Agriculture 
 ■ Forestry 
 ■ Energy Efficiency 
 ■ Vent Gas Reduction



Source: Alberta Emission Offset Registry data; Graham Harris: “Where have Alberta's emission offsets come from? (A bar chart race)”

## Some Concluding Thoughts on Compliance Markets

- Compliance markets are developing in a patchwork across provinces, which comes with challenges
- Many offset regimes are still in their early infancy
- To achieve material emissions reductions in accordance with current targets (such as the Clean Electricity Standard), offset credits will be a key tool for regulated emitters to achieve compliance
- For various reasons discussed in the following slides, many offset project developers in Canada are selling into the voluntary market instead of the compliance markets, which removes a key source of potential offset credits in the compliance markets

# Voluntary Carbon Markets

## Impetus Toward Voluntary Markets

- Voluntary carbon market =
  - non-regulated
  - geographically unconstrained
  - means of directing \$ to projects which deliver independently verified and additional emissions reductions (or other environmental attributes)
- Environmental Attributes (EAs) are an independent commodity, tradeable independently of other products
- Hypothetical supply of EAs is unlimited
  - global reach
  - uncapped price

## Impetus Toward Voluntary Markets

- Many motivations to participate in voluntary carbon trading:
  - ESG targets or net-zero commitments
  - commitments to counterparties
  - responses to investors and public
  - meeting covenants in green bonds or other ESG-linked debt instruments

- Many Canadian examples of market participants
  - Oil Sands Pathways to Net Zero



- Many Canadian examples of market participants:
  - Net Zero Banking Alliance





- Many Canadian examples of market participants:
  - Public Companies



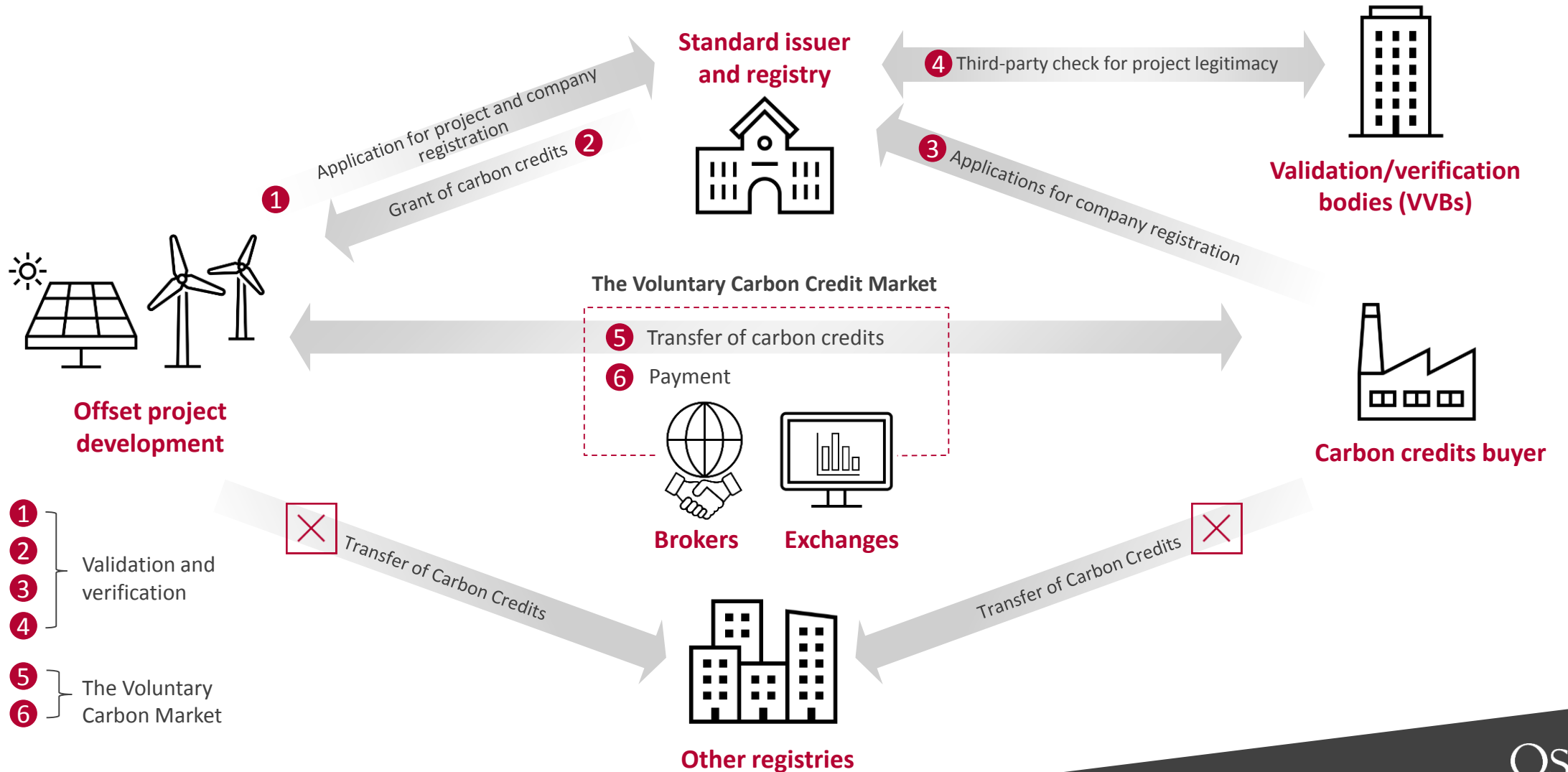
- Educational Institutions



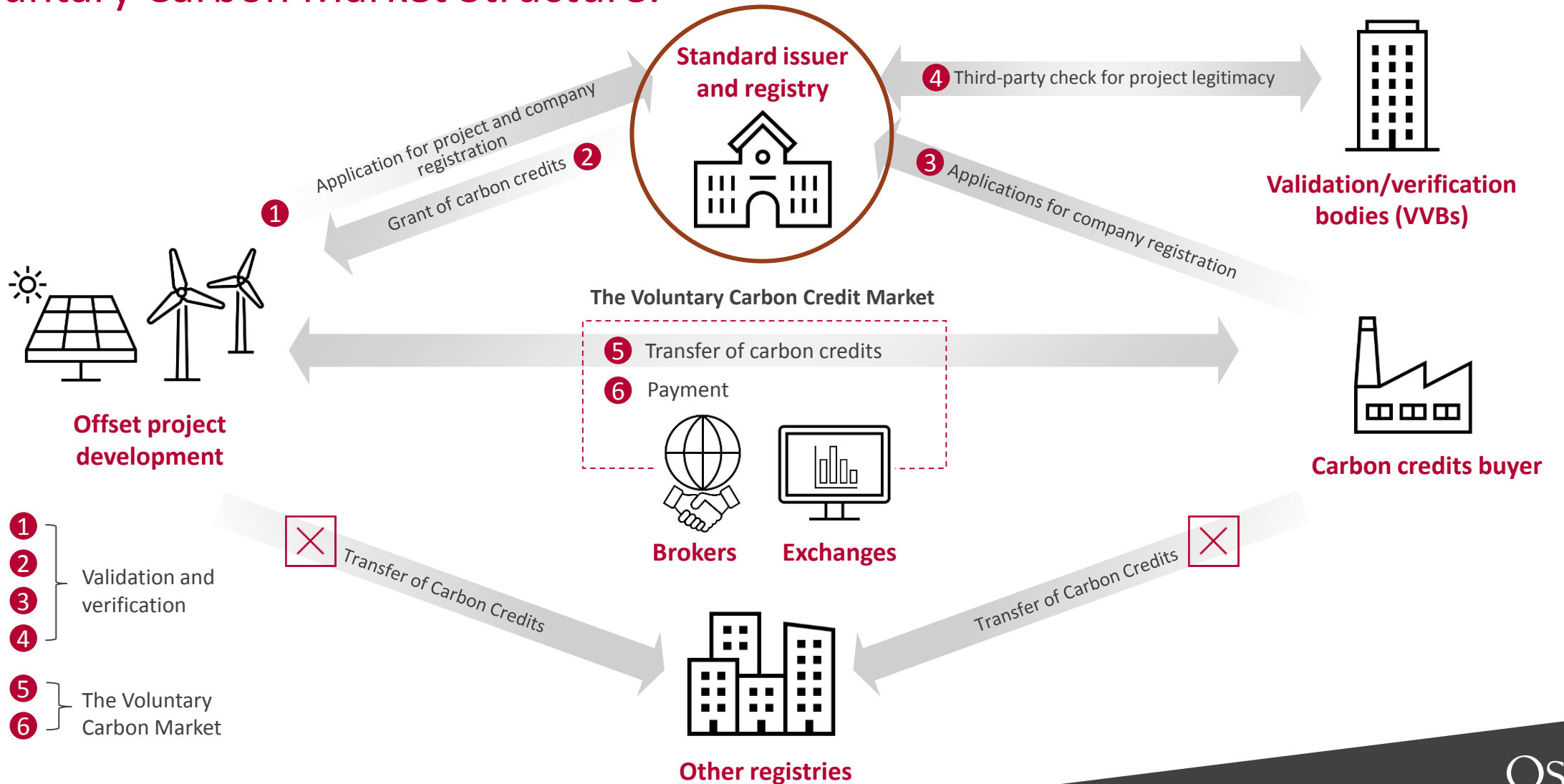
- Many Canadian examples of market participants:
  - Other industry organizations, such as Carbon Offsetting and Reduction Scheme for International Aviation



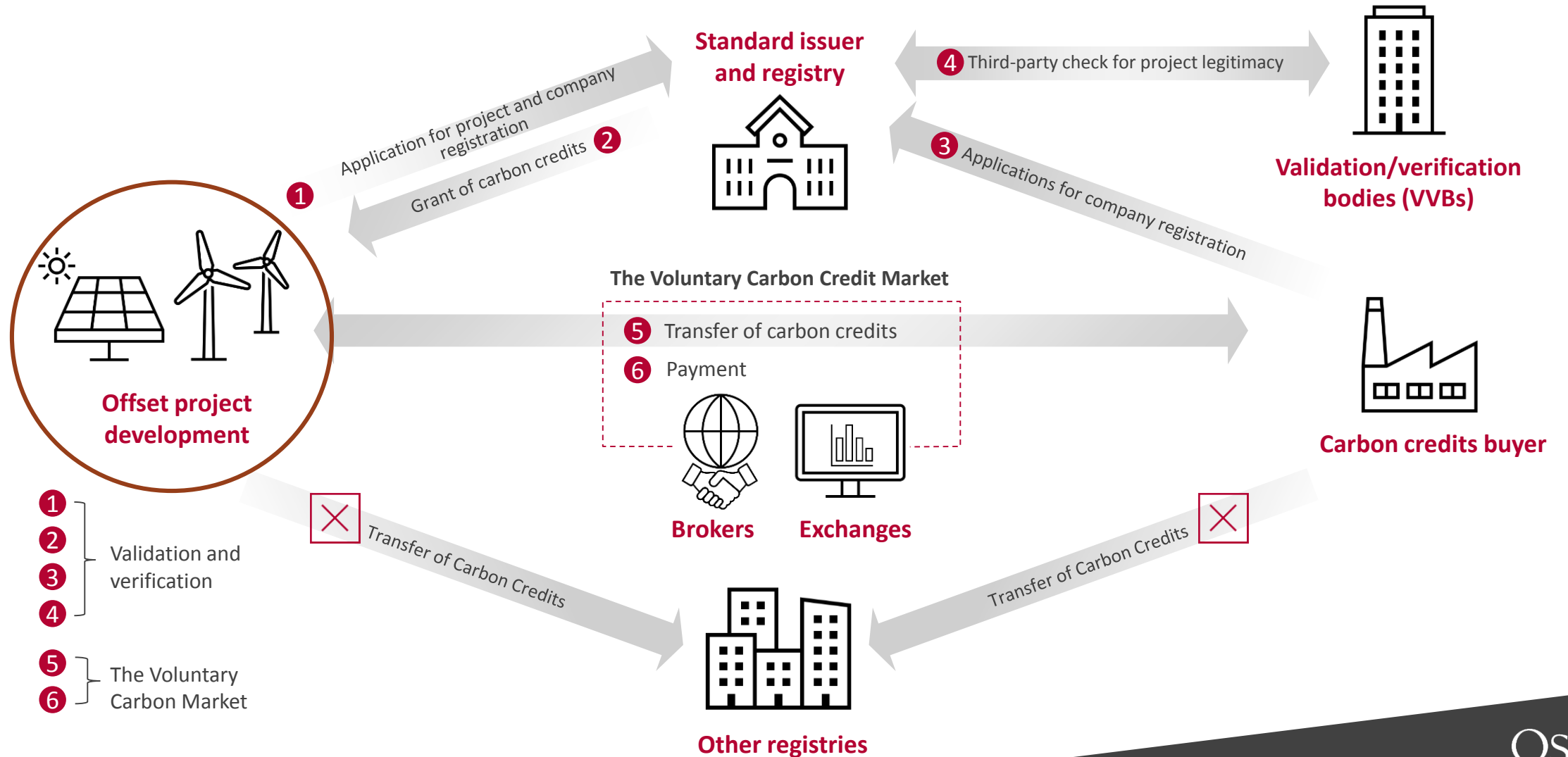
# The Voluntary Carbon Credit Market – Structure:



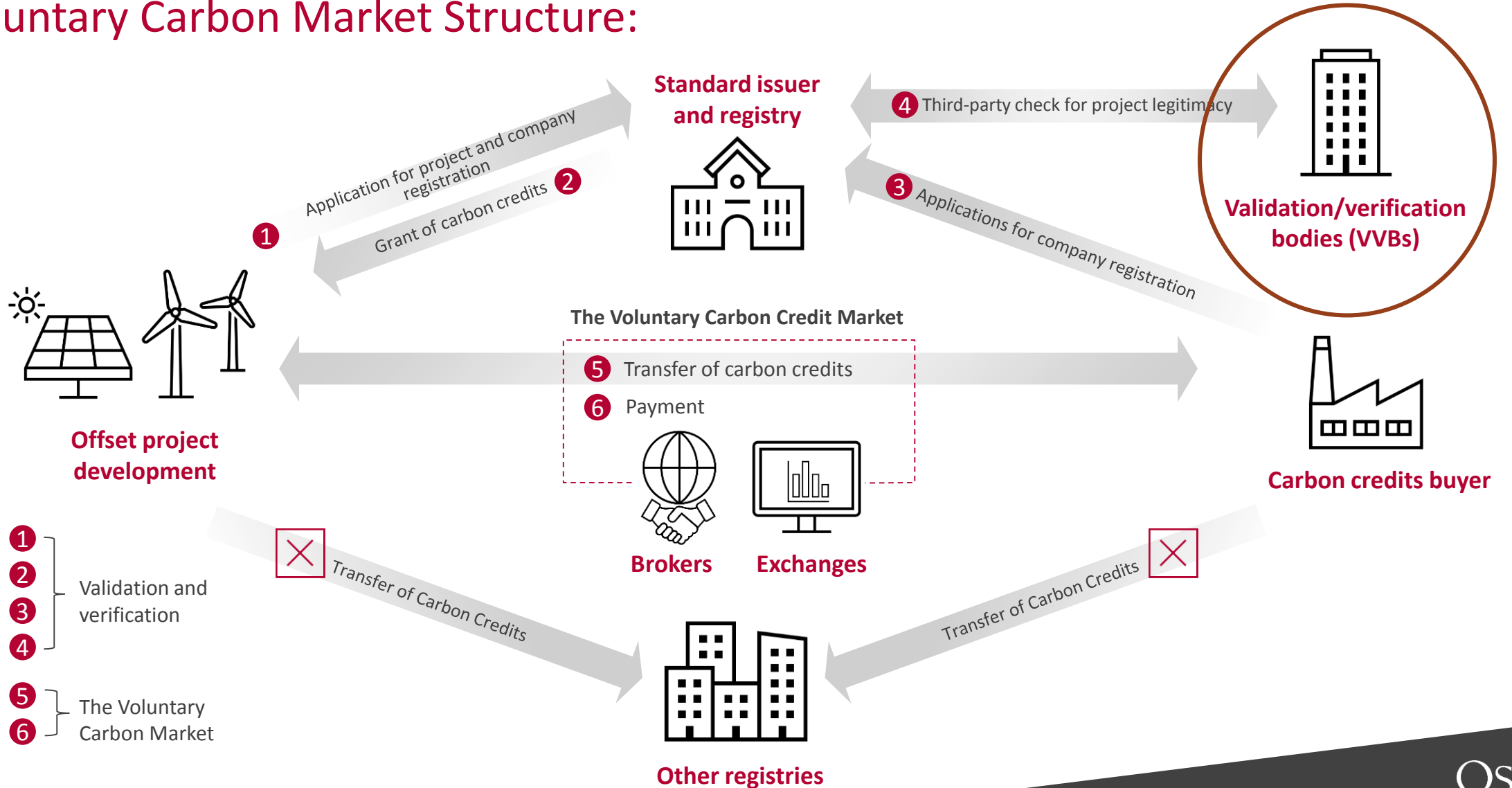
# Voluntary Carbon Market Structure:



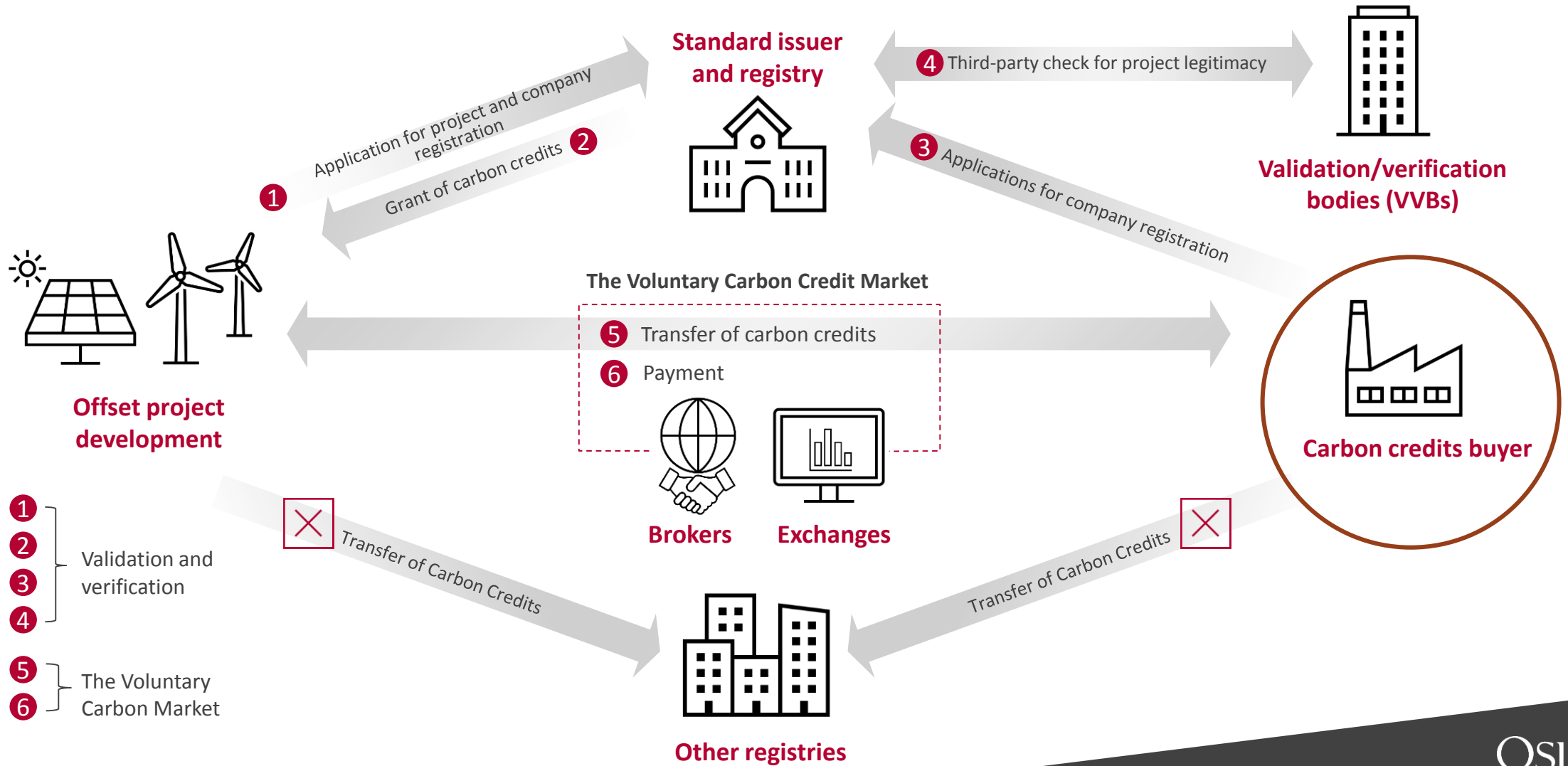
# Voluntary Carbon Market Structure:



# Voluntary Carbon Market Structure:



# Voluntary Carbon Market Structure:



## Who are the Players?

- The Big 4 Standards:

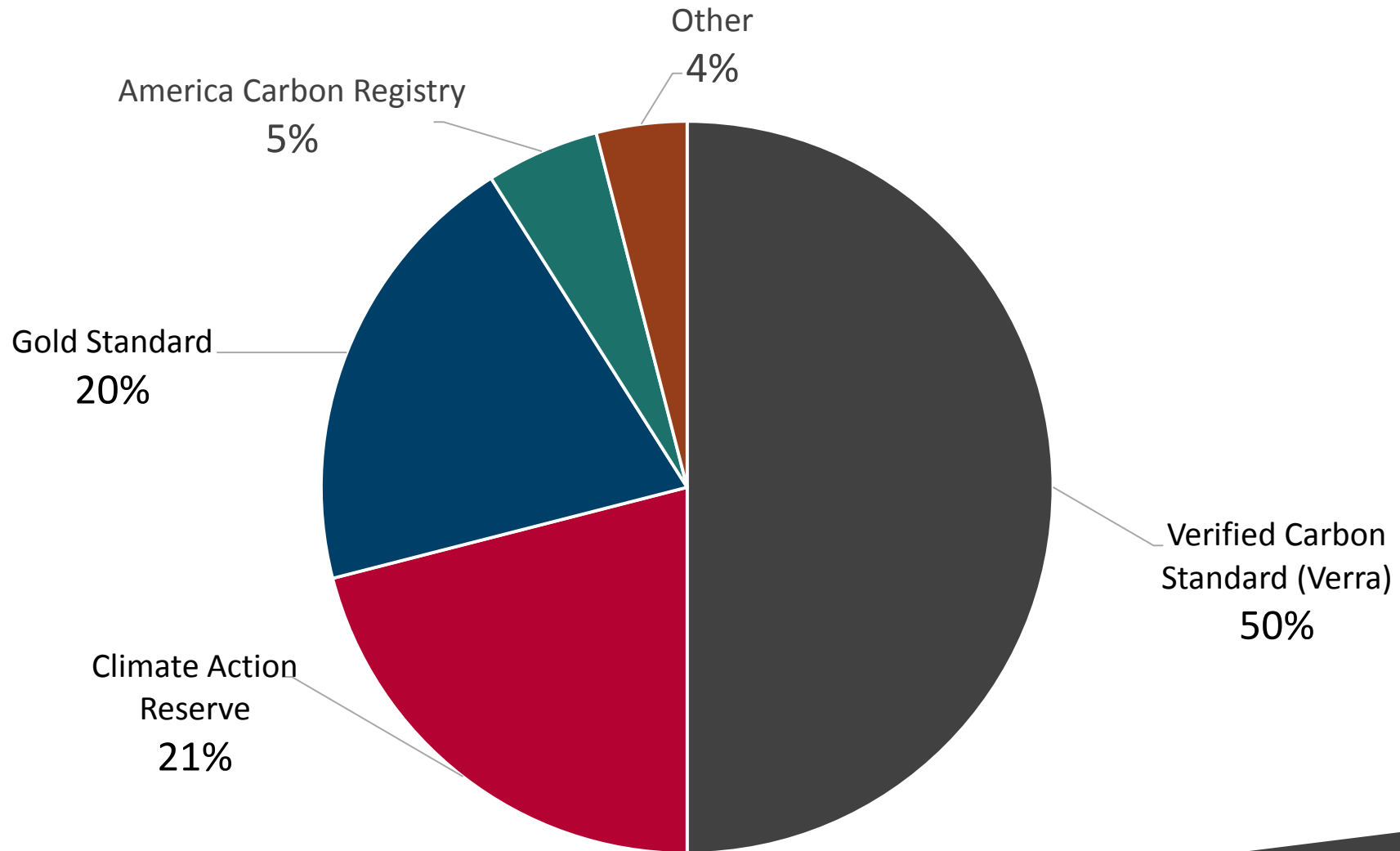


- Others:

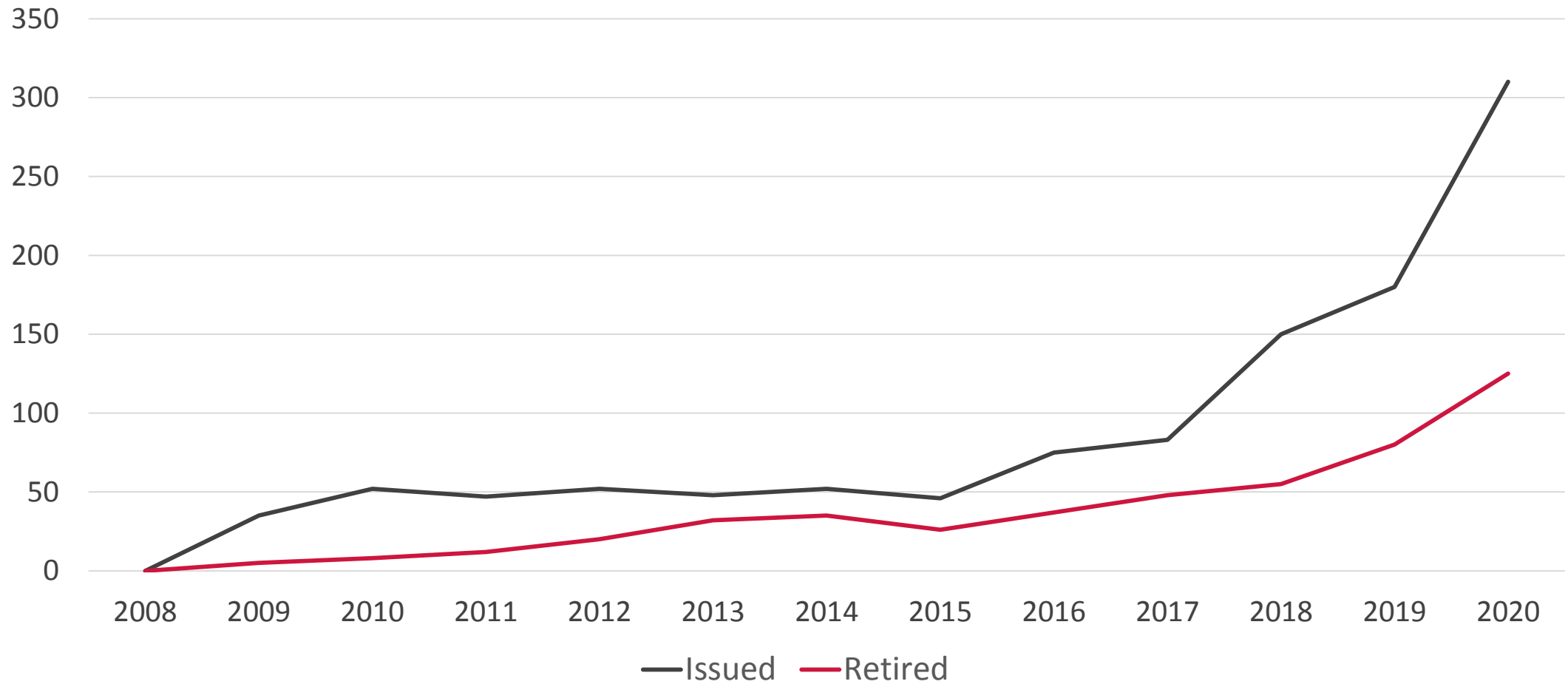




## Contracted Voluntary Credits by Certification Standard



### Scale of Voluntary Credit Market



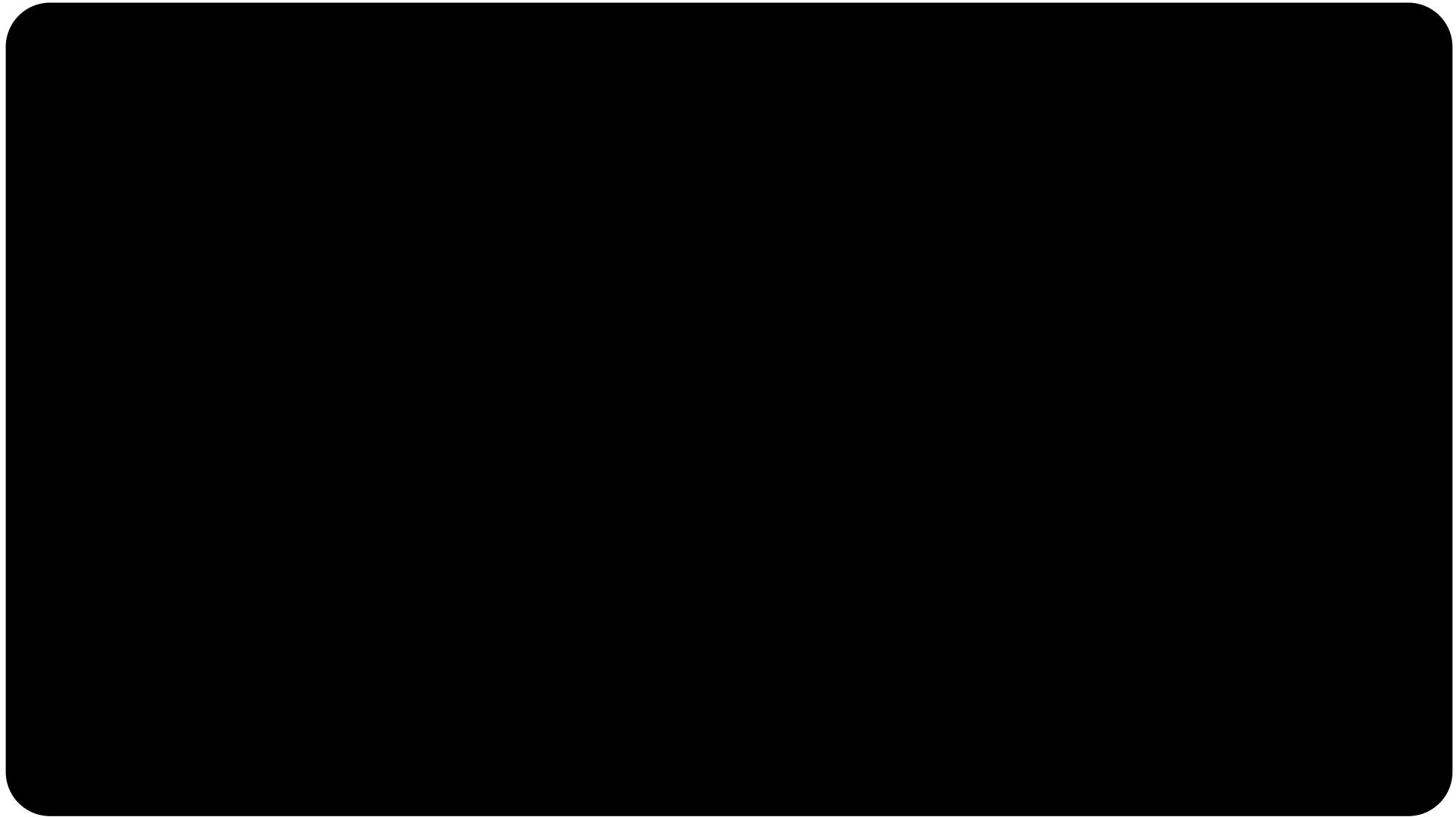
## Selected Features of Voluntary Carbon Credits

- Quality standards aligned with core principles of additionality, transparency, quantifiability and verifiability
- Wide geographic scope
- Wide sectoral scope
  - 80% protocols/methodologies in agriculture, forestry, other land use, as well as renewable energy
  - Unlimited potential for other industry sectors and methodologies to earn protocol recognitionf
- Wide range of prices
  - Spot vs forward contracts
  - Technological focus of project type
- Growing demand for voluntary carbon credits
- Potential co-benefits

## Compliance vs Voluntary Carbon Products and Markets: Observations

	COMPLIANCE	VOLUNTARY	COMMONALITY
Representative Financial Product	1 tonne CO <sub>2</sub> e	Usually 1 tonne CO <sub>2</sub> e	✓
Quality Control	Government sanction Independent verification	ISO 14067 standard Independent verification	✗
Methodology Scope	↓ Set by statute Often limited	↑ Approved by Standard Tend to be broader	✗
Geographic Constraints	↑	↓	✗
Carbon Credit Price	Capped (e.g. TIER) or uncapped (e.g. Cap & Trade)	Highly variable No ceiling/cap Gold Std. min. pricing	✗
Fungibility	Fragmented markets; reliance on bilateral contracts or alternative products	More fluid exchange but cross-registration of projects difficult Derivative securities/ regulatory issue	✗

# Canvassing Trends and Issues



## Impact of Current State of Compliance and Voluntary Markets

- Fragmentation and liquidity constraints are limiting broader participation in Canadian compliance markets
  - Significant offset protocol harmonization and mutual recognition across Canada appears unlikely in the foreseeable future
    - Few ECCC GGPPA approved offset protocols (compared with TIER)
  - Acceleration of net-zero and other ESG targets are impacting the critical factor of additionality (financial and regulatory) inherent in the value proposition of credits
    - “Business as usual” becoming harder to define and defend in the rapidly transforming carbon economy.
      - Wind and solar projects in AB getting built and financed regularly via RECs, without compliance GHG offsets

## Voluntary and Compliance Markets for the same Attributes

- Double counting risk a significant concern where multiple forms of environmental attributes can arise from the same activity
  - Most REC registries requiring 100% of the metered output to avoid double counting with other programs (e.g. WREGIS operating rules)
    - Import/export capabilities (mutual recognition) of REC registries expanding
  - TIER program allows renewable energy project offset developers to attest to the portion of the facility's capacity that generate RECs rather than TIER offsets
  - Most corporate VPPAs pay the renewable energy project owner the same, regardless of whether the project produces RECs or TIER offsets
  - Sales of government-procured environmental attributes from publicly funded PPAs being considered



## Long Term Assets vs. Changing Regulatory Landscape

- Emission reduction projects and other clean energy infrastructure require long-term revenue certainty for financeability
  - Risk of regulatory change looms large
    - Ontario cap-and-trade cancelation experience
    - Changing offset protocol history in AB
    - Proposed national clean energy standard, impacts on additionality
    - GGPPA Excess Emissions Charge (Sch 4) only published through 2022, despite announcements of planned future increases
      - Federal 2030 emissions plan proposing Federal contracts-for-differences for offsets to support forward pricing

## Where do we go from here?

- Fungibility, standardization of products and contracts and price transparency requires harmonization of regulatory frameworks for carbon
- GGPPA has thus far failed to address market and regulatory fragmentation and forward pricing remains elusive
- Voluntary markets and ESG targets pushing to fill the void of regulatory certainty
- Government efforts and subsidies to achieve net-zero faster working against prospect of sustainable long-term carbon finance markets
  - 2050 is not that far off relative to the 30+ history of carbon market design

Discussion / Questions