Digital Infrastructure for Carbon Markets

June 2023

WORLD BANK GROUP

Climate Warehouse

PMIF
PARTNERSHIP FOR MARKET IMPLEMENTATION FACILITY

Two-Tiered Approach - World Bank Climate Warehouse Program

Building an End-to-End Digital Ecosystem for Carbon Markets

Pillar 1: Piloting and Developing Global Public Goods

Making digital infrastructure for carbon markets available to client countries through development, testing and prototyping of innovative digital infrastructure for carbon markets.

Work Streams:

- **Digital for Climate (D4C) Working Group**. Collaboration with EBRD, UNDP, UNFCCC, and WB for a modular and interoperable end-to-end digital ecosystem for carbon markets.
- **Digital Monitoring, Reviewing and Verification (dMRV) systems.** Piloting the connection between dMRV systems with national carbon registries and national MRV systems.
- **National Carbon Registries.** Development of opensource off- and on-chain transaction registries.
- **Tokenization instruments.** Development of tokenization instruments to tokenize carbon markets.
- **Climate Action Data Trust** (CADT)

Pillar 2: Global Knowledge and Capacity-Building

Support countries and jurisdictions to in implementation of digital infrastructure for carbon markets needed for GHG mitigation and NDC implementation.

Work Streams:

- **Develop** knowledge base on digital infrastructure and facilitate information exchange through technical discussions and knowledge dissemination
- **Assist** countries to identify and implement best practice approaches and, where relevant, achieve compatibility in design to support the development and linking of digital infrastructure for carbon markets
- **Encourage** international and national cooperation, and inform the domestic and global policy discussions on GHG mitigation by sharing lessons learned and providing a platform for collective innovation on digital infrastructure products

Data and trade infrastructure is a precondition to scale a transparent and inclusive carbon market

Climate Warehouse End-to-end digital ecosystem for carbon markets

Digital Methodology

Digitalization of Methodologies: smart contract toward the digitization of the mitigation activity cycle

Physical Layer (MRV)

Program Level MRV

- Equipment
- Sensors
- Meters
- Satellite

Facility Level MRV

Database Layer (MRV)

Centralized Database/ optionally to **National MRV System**

Registry Layer

- Independent Standards
- Country registries
- UNFCCC registries
- WB registries

Verification of units

Tokenization Engine

Digital Carbon Assets

Transaction Layer

- Exchange A
- Exchange B
- Exchange X

Metadata Layer

Climate Action Data Trust

Climate Warehouse Digital Ecosystem

Service Layer

- Compliance reporting
- Benchmarking
- Due diligence
- Ratings
- Forecasting

Reporting for markets, UNFCCC

Digital work-flow

Project preparation from document development, approval, validation to registration in applicable standards

DIGITAL FOR CLIMATE

Climate Warehouse

End-to-End Digital Infrastructure for Carbon Markets

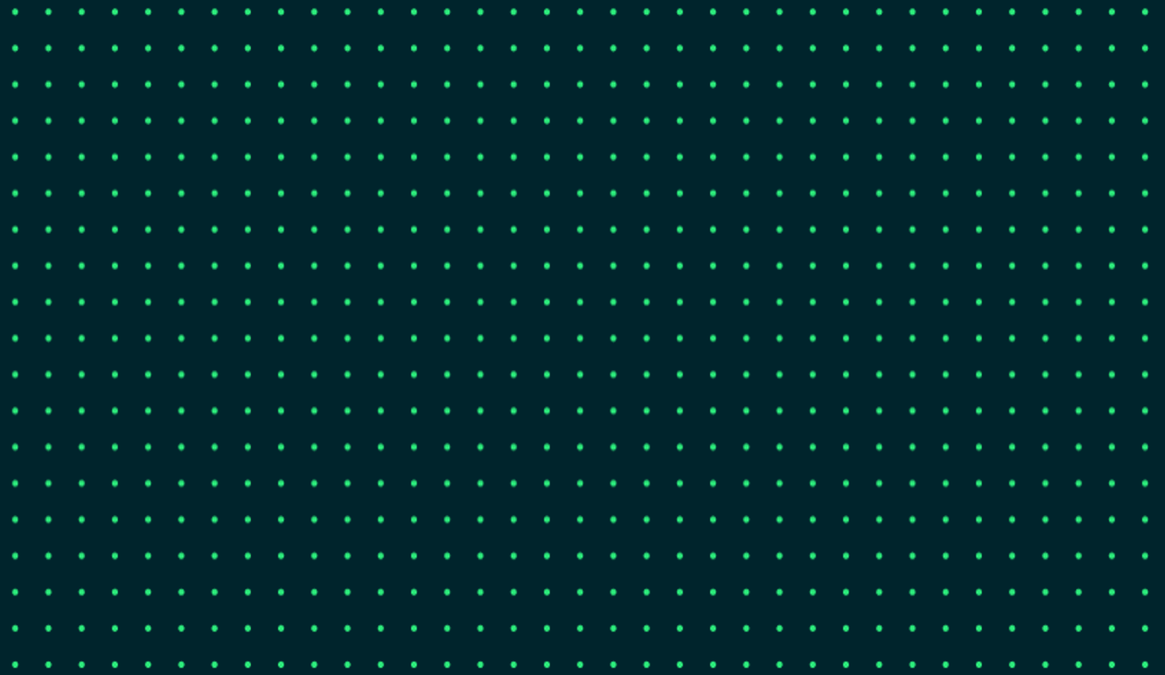
Climate Action
Data Trust

Connecting carbon markets through open data

Climate Warehouse
End-to-End Digital Ecosystem
for Carbon Markets

Current Challenges

- Fragmentation across standards
- Lack of centralised registries between voluntary and compliance markets
- No joint reference data
- Lack of pricing transparency
- Limited visibility of project lifecycle
- Unclear link of credits to the NDCs



We need a common data system is needed

to collect and structure all openly accessible

data on the lifecycle of carbon credits to

enhance transparency, trust,

and integrity.

Climate Action Data Trust (CAD Trust) is a decentralised metadata platform that links, aggregates and harmonises all major carbon registry data to enhance transparent accounting in line with Article 6 of the Paris Agreement.

The CAD Trust open-source metadata system uses blockchain technology to create a decentralised record of carbon market activity with the aim to avoid double counting, increase trust in carbon credit data and build confidence in carbon markets.

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IETA
I IS FOR INTEGRITY

NCCS
NATIONAL CLIMATE CHANGE SECRETARIAT
SINGAPORE
STRATEGY GROUP
PRIME MINISTER'S
OFFICE

Ensuring Environmental Integrity under Article 6 Mechanisms

The new markets being set up under the Paris Agreement offer the opportunity for countries to cooperate to reduce their greenhouse gas emissions, employing a market-based approach to capture the massive economies of scale that global action can achieve. The Climate Action Data Trust acts as a common data system that serves all stakeholders and aims to provide the foundation to build a transparent, verifiable, inclusive and cost-effective carbon market that promotes genuine high environmental integrity.

Key Features

Open-Source

The Climate Action Data Trust is delivered as open-source software. This means there are no fees associated to obtain the CAD Trust application. (There is a very low XCH blockchain fee to submit transactions).

Standard/Registry Managed

Each Independent Standard and/or Registry has their own copy of the CAD Trust application. This provides each entity full control of their deployment decisions.

Blockchain Based

The CAD Trust leverages blockchain technology that allows each individual entity to keep full sovereignty of their data will sharing that information into the CAD Trust to fulfill the goal of global transparency of climate issuances.

What is the value proposition?

SUPPLY SIDE

A DEFINITIVE GLOBAL THRESHOLD STANDARD FOR HIGH-QUALITY CARBON CREDITS

iC | THE INTEGRITY COUNCIL FOR THE VOLUNTARY CARBON MARKET

MARKET

A MARKET BASED ON RIGOROUS STANDARDS AND MARKET INFRASTRUCTURE

Climate Action Data Trust

DEMAND-SIDE

ACCEPTED STANDARDS FOR USING CREDITS AS PART OF A CREDIBLE NET-ZERO PATHWAY

VCMI Voluntary Carbon Markets Integrity Initiative

A common data taxonomy that enables reconciliation of data from registries. Through blockchain technology, it facilitates a peer-to-peer connection among decentralized registries with the aim to link, aggregate and harmonize the underlying data

Provide visibility into corresponding adjustment procedures and the lifecycle of carbon offsets from issuances to retirement, which will safeguard against double counting and ease reporting requirements.

Surface publicly-available information on MOs and record status changes to provide information on how MOs are used.

Enhance transparency and trust among market participants and enable tracking of MOs and reduce double counting risk. The CAD Trust would not hold assets or directly facilitate.

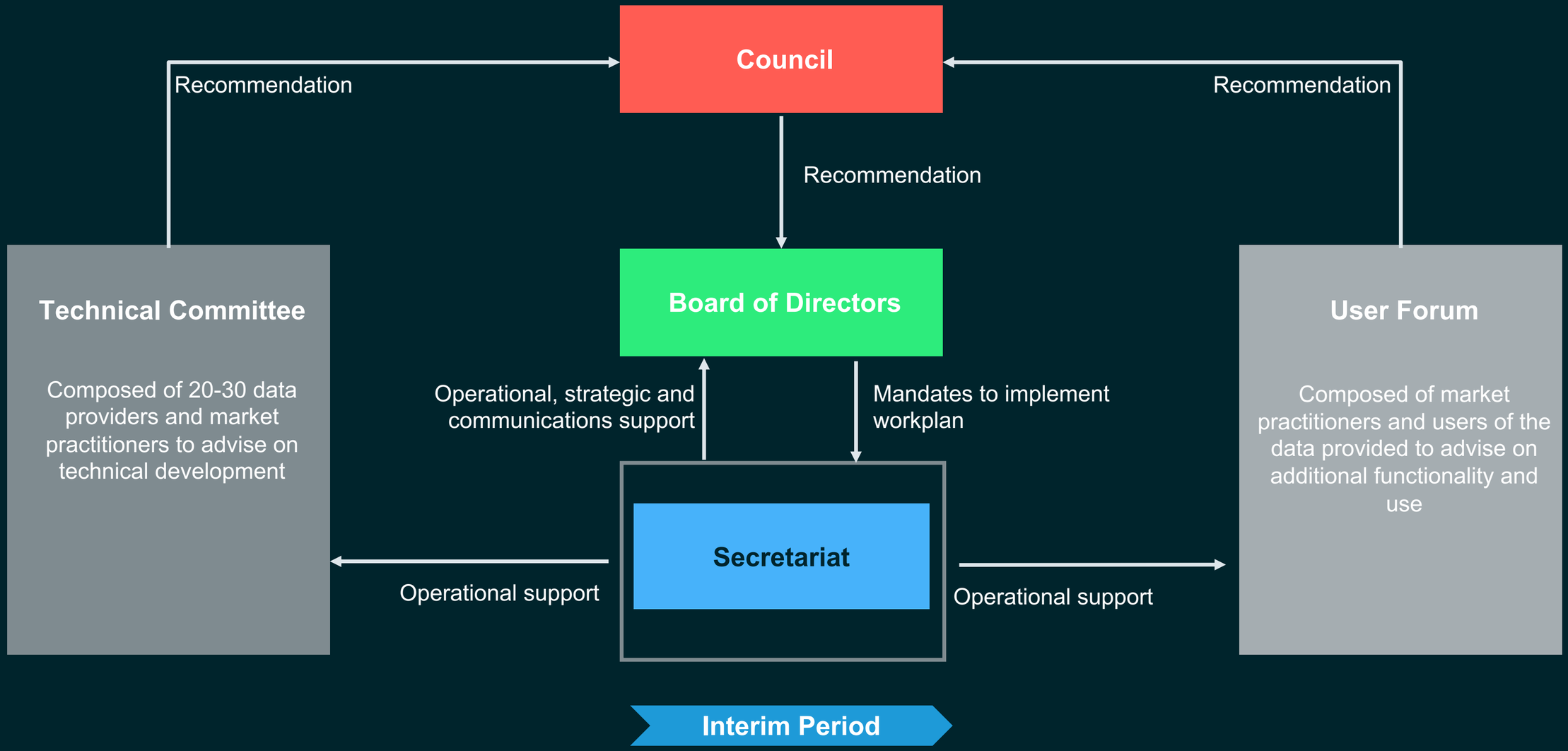
How can national registries connect?

Interested national registries or governments are welcome to inquire about the connection via Contact form on our website. Once connected, each registry has their own copy of the CAD Trust application. This provides each entity full control of their deployment decisions.

Modes of Integration (For Registries)

		RECOMMENDED
1. Manual Upload	2. API Integration (Batch)	**3. API Integration (Real Time)**
Easily submit your carbon credit data by uploading files directly onto the CAD Trust Application, ensuring data accuracy and transparency for all stakeholders.	Seamlessly connect and synchronise your registry data in batch mode, enabling efficient data transfer and streamlined updates.	Integrate your systems to enable real-time data exchange, providing instant carbon credit updates and fostering trust in market activity.

GOVERNING BODIES



The CAD Trust Council

Climate Action Data Trust

Rui Yun Gan (Singapore)

Chris Shipley (UK)

Mbaye Diagne (Senegal)

Sonam Tashi (Bhutan)

Juan Pedro Searle (Chile)

Kentaro Takahashi (Japan)

Lauren Nichols

Andrew Howard

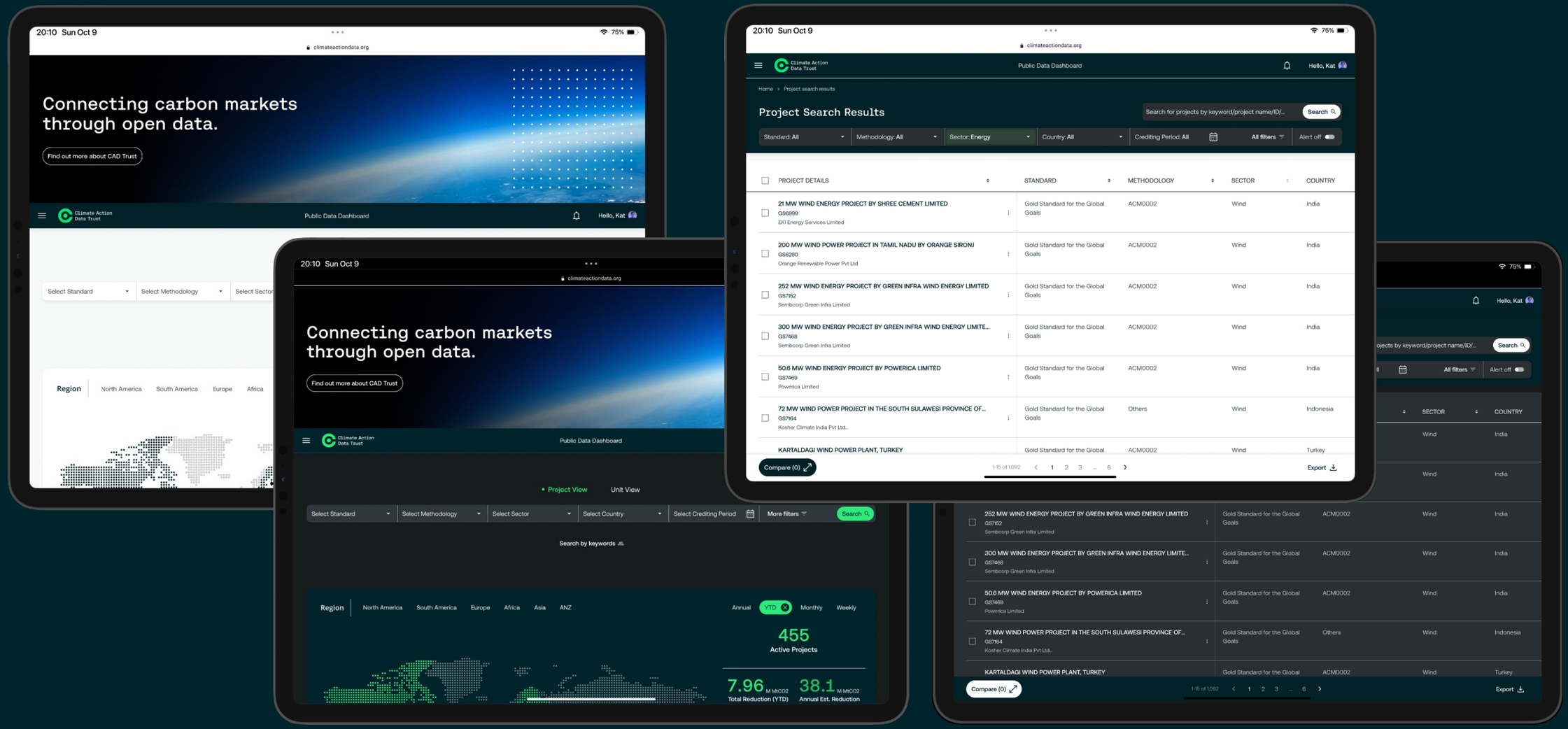
Kishor Rajhansa

Hugh Salway

User Forum appointee

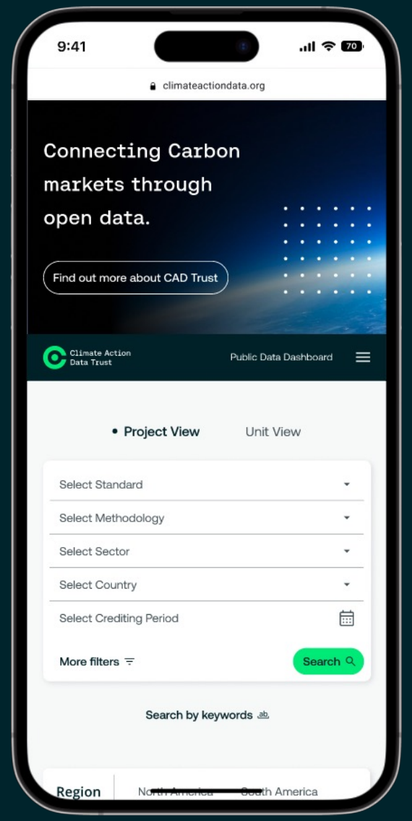
User Forum appointee

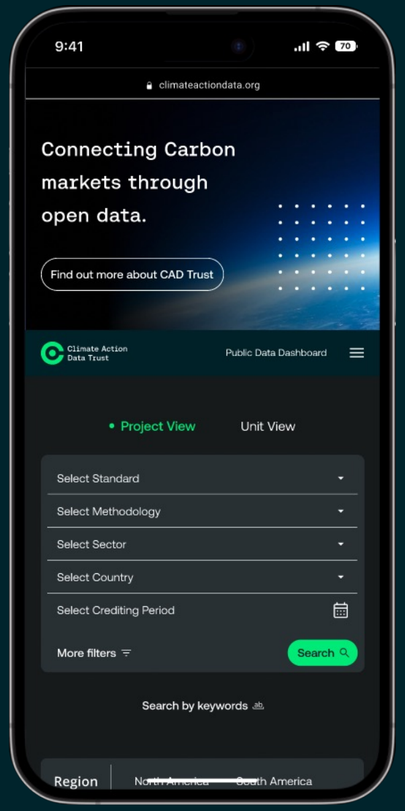
User-friendly Format

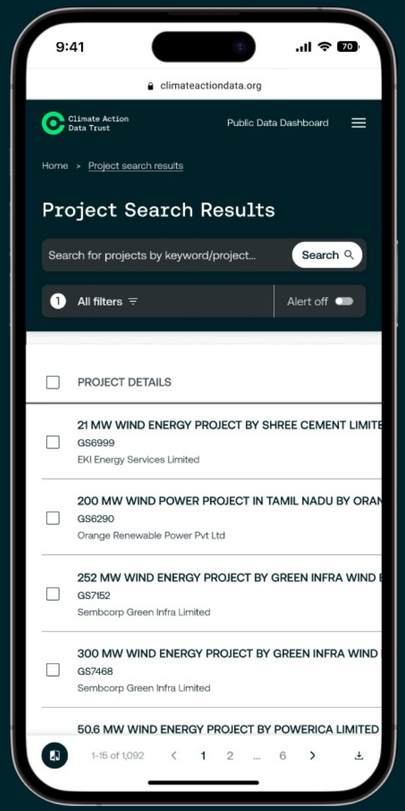


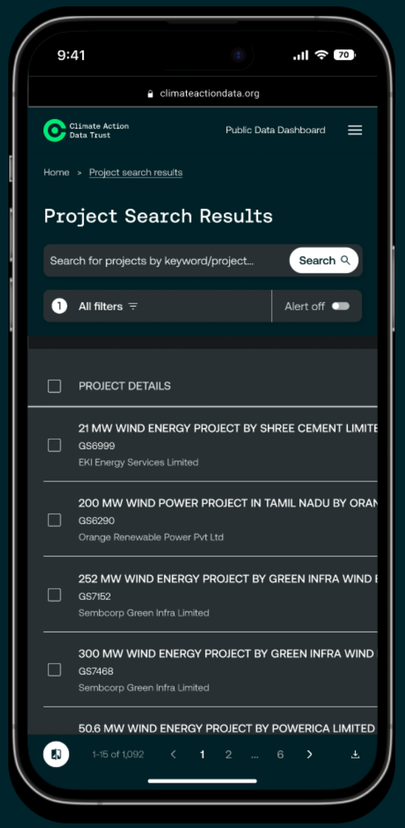
*Prototype / Subject to change /Contains sample data

Mobile & Tablet Friendly









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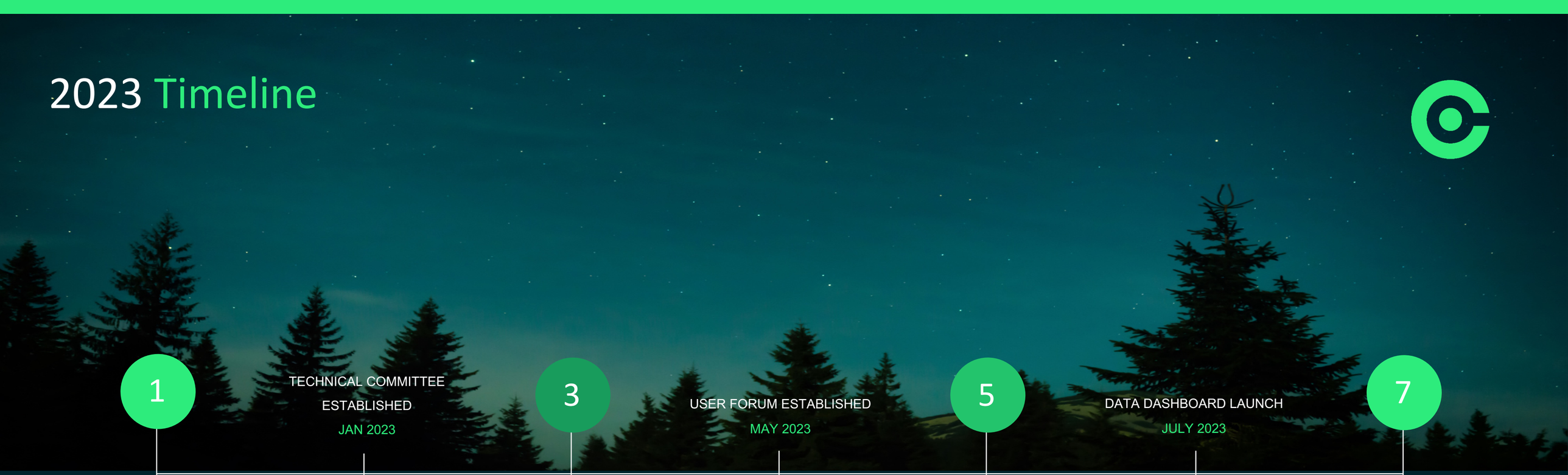
2023 Timeline



1

LAUNCH OF THE INITIATIVE
FIRST MEETING OF THE COUNCIL
DEC 2022

2

TECHNICAL COMMITTEE ESTABLISHED
JAN 2023

3

DATA DASHBOARD DEVELOPMENT
MARCH 2023

4

USER FORUM ESTABLISHED
MAY 2023

5

REGISTRIES ONBOARDING
APRIL-JULY

6

DATA DASHBOARD LAUNCH
JULY 2023

7

ADOPTION BY INDEPENDENT STANDARDS AND NATIONAL REGISTRIES
Q4 2023 / 2024

Climate Action
Data Trust

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