Trust Over IP Foundation
OpenClimate Network and the Digital Trust Marketplace

British Columbia and OpenEarth Foundation Climate Accounting Pilot

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Framing the climate aspects of the 'Digital Trust Marketplace' within a holistic framework is needed to ensure positive network effects, feedback loops and win-win scenarios among the different stakeholders. Hosting multiple climate accounting mechanisms connected through shared protocols, allows contractual automation in the link between finance and climate value flow based on agreed physical parameter of the Earth system (eg. 1.5°C warming).
1. NESTED CLIMATE ACCOUNTING IN A SPATIAL WEB

Capture the collective climate efforts, integrating PUBLIC (National and Subnational) and PRIVATE entities while preventing double counting.
Integrating climate accounting from non-state actors to support an independent exercise for the Paris Agreement’s Global Stocktake

Learn more: wiki.climatedata.network/
The development of GHG Profiles for Mining Corporations using Verifiable Credential, should consider the full scope of the supply chain and integrated into an ESG framework.

Whilst ESG data is relevant for investors, regulators and end-users will need to also have transparency over the climate data.
Applying Hyperledger’s Decentralized Identifiers and Verifiable Credentials to climate action

From: Schletz et al 2022, Nested Climate Accounting for our atmospheric commons. Frontiers in Blockchain

DID trust connections between nested jurisdiction

Decentralized trust web amongst network actors through verifiable credentials & DIDs
Transparency alongside privacy with the Zero Knowledge Proof from Verifiable Credentials

From: Schletz et al 2022, Nested Climate Accounting for our atmospheric commons. Frontiers in Blockchain
CLIMATE DATA PROVIDER NETWORK AND CLAIMABLE CREDENTIALS

Need TOIP community help to define this technical solution architecture!
This system diagram intends to clarify scope and further outline complementary approaches for how credentials under the Trust Over Ip specifications can be applied to nested climate accounting. The below diagram also follows the mechanism by which Open Climate has been using the semantics on the hyperspace transfer protocol (hstsp) for establishing spatial contracts.
CLIMATE DATA VALIDATION #1 / GOV ISSUER

MRV Methodology
MINING REGULATION DATA

CORPORATION (eg. Copper Mountain)

Issuer
CLIMATE ACTION SECRETARIAT

Holder

Emissions Unit (Scope 1)

Trust the issuer and the validation process

DID, Schema, Credential definition, revocations
Blockchain Ledger (Indy)

Machine readable governance document
- includes data validation processes

GOVERNMENT
CLIMATE DATA VALIDATION #2,3

CORPORATION SELF-ISSUER

INDEPENDENT VALIDATOR (SATELLITE + ML)
CREDENTIAL-OF-CREDENTIALS FOR TRIPLE VERIFIED DATA
Allows the exploration of verified open climate data of state and non-state actors (eg. pledge, emissions and mitigation). Multi-source verification and consensus by compiling different ‘signed’ datasets and creating a homogenized value.

Primary users:
- General public
- Climate Researchers
- Policy makers

Allows climate accounting officials of non-state actors to compile their data from their trusted sources, tracking emissions and mitigations, define disclosure settings and ‘roll-up’ their data to the corresponding jurisdictions (thus informing the explore section).

Primary users:
- Sustainability officers
- Data managers
- Compliance officers
- ESG officers
Canada

Emission Inventory

763.44 - 12.9 = 750.54
Total GHS Emissions Mt CO2e/year
Land Use Sinks Mt CO2e/year
Net GHS Emissions Mt CO2e/year

Climate treaties & Agreement

UNFCCC Paris Agreement
Status: Signed & Ratified
See Country Dashboard

Credentials

Certificate ID
Type
Unit
Status
06542-308834
Emission
CO2e
Inventory

Pledges

Nationally Determined Contribution (NDC)
GHS EMISSIONS +30% by 2030 relative to 2005

Trades & Transfers

From To Type
Copper Mountain Mitsubishi Copper
Summary view

Emissions

350 MtCO2e/year

Scope 1
Fuel combustion, company vehicles, fugitive emissions

200 MtCO2e/year
Signed by British Columbia
MAY 25 2019
Verified by PwC

Scope 2
Purchased electricity, heat and steam

100 MtCO2e/year
Signed by Cleartrace
JUNE 01 2019
Verified by PwC

Scope 3
Purchased goods and services, business travel, commuting, etc.

50 MtCO2e/year

50 MtCO2e/year

Offsets

100 MtCO2e/year

50 MtCO2e/year
Signed by British Columbia
JUNE 01 2019
Verified by PwC

Add

9
Signed by Patch.io
MAY 01 2019
Verified by PwC

Add Offset
Why participate in OpenClimate?

1. **Private - Public** integration and digital trust interface:
   - Roll-up accounting for inventory
   - Preparedness for accounting and policy requirements (e.g., data-driven subsidies and taxes)
   - Market approvals

2. Differentiated commodities (B2B interactions)
3. Climate accounting integration (scope 1, 2, 3 and offsets)
4. **Paris** Agreement Independent Global StockTake