



CARBON-X™
Carbon Accounting & eXchange

**Regulatory Grade
Intelligence for
Net-Zero Futures**



Carbon-X™ is an AI-powered, modular carbon management platform purpose-built for upstream energy regulators. It empowers governments and regulators to drive carbon accountability with precision, speed, and transparency. Designed to simplify compliance and enable market readiness, Carbon-X™ unifies all key workflows, monitoring, verification, accounting, and trading under one intelligent system.

What Carbon-X™ Enables:

Seamless Emissions Monitoring

- Track flaring, methane, and CO₂ emissions across upstream operations and value chains.

Automated MRV Verification

- AI-driven validation of reduction claims using field data, logs, and third-party systems.

Reliable Carbon Accounting

- Maintain verifiable ledgers of emissions, reductions, and credit issuances.

Real-Time Credit Issuance

- Instantly generate digital carbon credits with audit trails and full transparency.

Regulatory & Financial Compliance

- Ensure alignment with global standards like Verra, SEC, OGMP, and national protocols.

Carbon Market & Offsetting Readiness

- Enable both regulated and voluntary trading, including internal offsetting frameworks.

Introducing Carbon-X™

Platform Differentiators



Built for industries (**Oil & Gas**, Metals, Mining & Manufacturing)



Plug-and-play for regulators, verifiers & carbon markets



AI-driven data validation, no-code workflows



Dynamic carbon wallet and audit trails



Interoperability with local + global registries

- ✓ Industry-aligned registry submission support
- ✓ Modular design for gas flaring, CCUS, Scope 1+2+3 accounting
- ✓ Blockchain-enabled ledger for flare penalty reconciliation

Intelligent Architecture

Data Ingestion: IoT, Satellite, Sensor, Excel, APIs

MRV Engine: Automated validation, anomaly checks, QA/QC

Credit Engine: GHG Protocol aligned CO₂e calculations

Carbon Wallet: Issue, store, transact verified credits

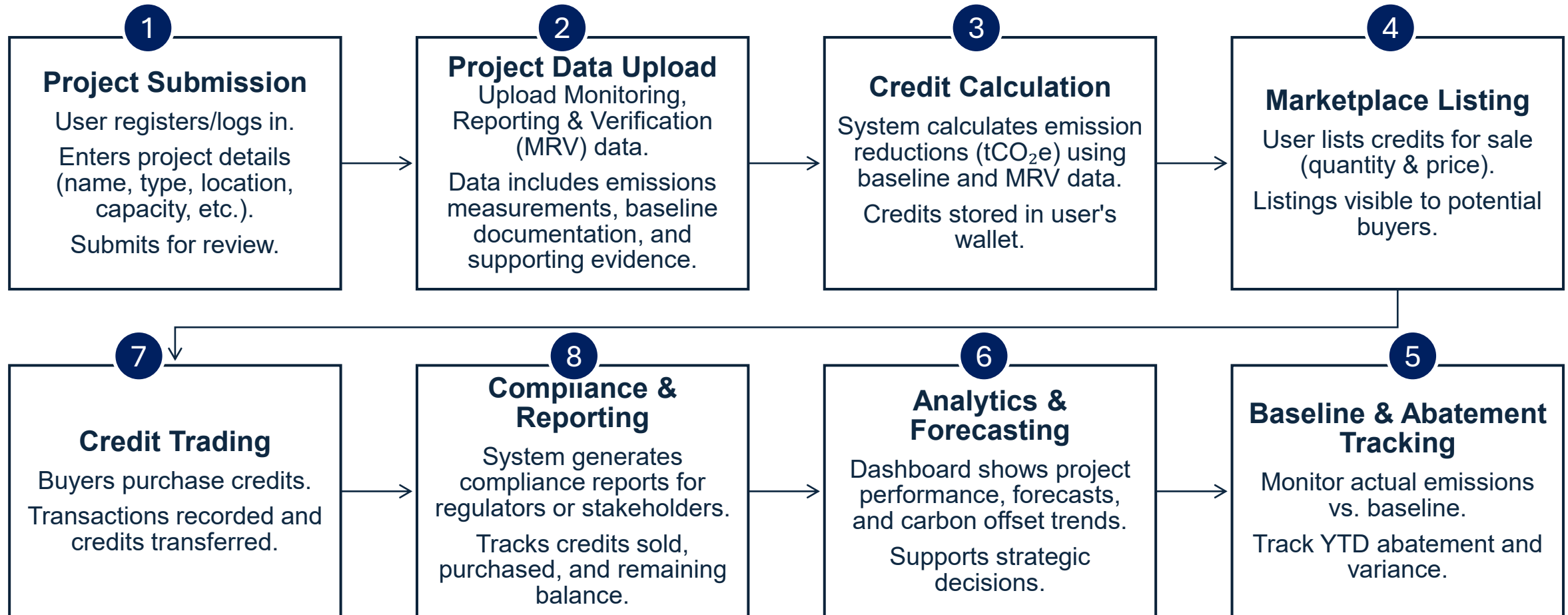
Compliance Layer: GRI, IFRS, SEC, PIA 2021, ISO 14064

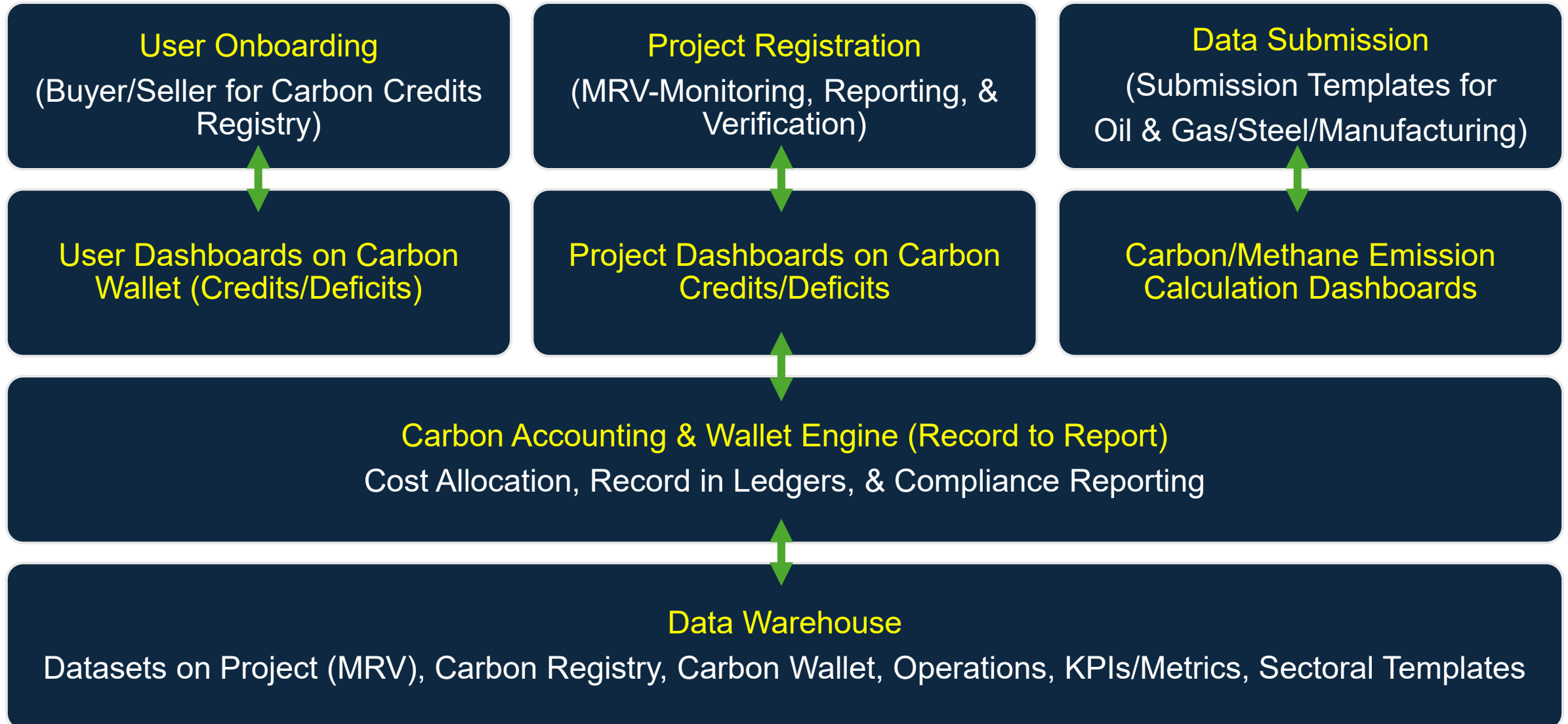
Integration APIs: Verra, Climate TRACE

Deployment Options: On-Premises or Cloud (MS Azure)

- ✓ Industry portal → API/API Gateway
- ✓ Flare volume source (via SCADA or Excel upload)
- ✓ Monetization models for flare gas, CCUS, and offsets
- ✓ Generates digital ledger linked to emissions and penalties

Carbon-X™ Workflow Steps





Carbon-X™ Modules



Features / Sub-Modules	Description
Project Registry + Onboarding	Registry for CCUS, methane, flaring, renewable offset projects
MRV Dashboard (Monitoring, Reporting, Verification)	Data ingestion (IoT, ERPs), validator dashboard, audit trails
Credits Calculation Engine	GWP-adjusted logic, Scope 1–3 quantification, verifier-linked approvals
Carbon Wallet & Credit Ledger	Wallet per user/org with issuance, redemption, retirement workflows
Compliance Reports Dashboard	CDP, GHG, SECR mandates mapped; automated reporting
Carbon Marketplace Module	Matchmaking engine (buyers/sellers), analytics-driven pricing and smart contract execution
Verifier Management & Accreditation	Role-based verification, accreditor APIs, scorecards
Flaring & Venting Dashboard	Gas Flaring & Venting Dashboards
Analytics & Forecasting Engine	Emissions forecasting, credit utilization trends, risk scores
Registry Integration (Carbon Exchange APIs, Gas Commercialization Registry)	Plug-ins to Gold Standard, Verra, UNDP, and regional exchanges

Carbon Wallet - The Heart of Carbon Transactions

A secure, real-time wallet that allows every verified project developer or organization to:

Store: Verified carbon credits (in tonnes of CO₂e)

Transact: Send/receive credits across networks or registries

Track: Issuance, usage, expiry, and audit trail of each credit

Offset: Use credits internally or sell them to buyers

Feature	Description
Unique Wallet ID	Tied to user & project
Timestamped Credits	Tracks issue date & expiration
Audit Trail	Full transaction history
Regulatory Compliance	Aligned with GHG Protocol & PIA 2021
Interoperability	Connects to registries like Verra, Gold Standard

Digital store of verified tCO₂e emissions and carbon credits for upstream operators - supports credit transfer, penalty tracking, and voluntary offset retirement.

Business Value for Stakeholders

Stakeholder	Benefits
Regulators	Upstream MRV, policy compliance, flare penalty audits, real-time audit trails, emissions oversight
Operators (Oil & Gas, Metals, Manufacturing)	Cost-effective MRV, credit monetization, Reduce penalty liabilities, monetize offsets
Verifiers/Regulators	Automated validation, reduced manual load, Enable ESG-linked lending using digital carbon ledgers
Carbon Markets	Verified credit source, traceable issuance
Sustainability Teams	Instant reports for CSRD/SEC/ESG needs

Strategic Partnerships



GPU-enabled MRV
simulations & data
inference



Unified data
exchange with carbon
registries



Local Gov/Regulators



Academia & UNDP:
GHG methodology
alignment



PROD



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Submit a New Carbon Reduction Project

This form lets you register projects such as CCUS, Gas Flaring Reduction, or Geothermal repurposing.

Field Descriptions:

- **Project Name:** Unique title for the project
- **Project Type:** Type of climate action
- **Latitude/Longitude:** Project location
- **Capacity Unit:** e.g., tonnes of CO₂ captured, MW of geothermal energy
- **Grid Emission Factor:** e.g., 0.82 for India, 0.4 for US
- **Status:** Project lifecycle stage
- **Start/End Dates:** Project timeline

 Credits = Capacity Unit × Grid Emission Factor



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Calculate Carbon Credits from MRV Data

 Filter by Project Name

Project_CCUS_001


 Select MRV Record


9d615ed6-a32f-4361-844f-ea4c7216b691

 Project Name: Project_CCUS_001

 Data Type: Energy Production

 Raw Value: 565000.0 tCO₂e

 Date: 2025-08-13 09:46:59.593627

 Calculated Credits: 565000.0 tCO₂e

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Credit Transactions

Displays all credit transactions (issuance, transfer, usage) for all users.

PROD

	Transaction ID	Wallet ID	Credit ID	Direction	Amount	Transaction Type
0	975d9a80-cc2a-425f-a28e-a1e66e001f2e	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	1f63b256-f2cb-4953-ba34-d933c7443208	↓ IN	565000	internal
1	1e3bab70-fb6c-4a1e-900b-fdc4b310966e	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	aaefd223-fe27-4ced-8c15-899061d47cbf	↓ IN	4355999999.95	internal
2	f21f3892-99d4-4705-a1f6-2d40d4768e42	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	f96a7a51-150c-4e5f-ab1b-b4b14a23fc40	↓ IN	759999999.99	internal
3	e3d6c1f7-dd4e-4d2c-95a5-40bc2cc86dc1	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	5ee3dc6a-a955-4d50-a9d0-a5f393684df4	↓ IN	45000000	internal
4	0f4f05d0-c21c-456c-a033-f8b1849d5e44	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	faf52d8b-6659-43f8-9d0e-1fa0e448ee4f	↓ IN	45000000	internal
5	506765e0-6928-474f-a3c2-2b62f65db593	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	60739082-6229-4992-b964-37d6164ab27d	↓ IN	5300000	internal
6	517be9b8-5734-4028-bb68-51144836415e	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	463d6bfd-b58f-4bca-9628-a2f267a7eba9	↓ IN	5250000	internal
7	d429efa1-e24f-4bc5-aca6-4d3c41a91085	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	1d2e87d7-177e-40e1-8f4f-aec830709229	↓ IN	4499999.98	internal
8	e07ac509-c2b7-4f67-a33a-adb36f8ffb16	ff7c2a28-fb67-45a1-8bb1-5a1a718ecb25	e125b614-6bfc-4e94-b5be-8e440ae0435e	↓ IN	45000000	internal

Summary by Transaction Type

Thank You

Driven by Data. Designed for Industry.

