

# From Farm Waste to Verified Carbon Credits

*How AI is Closing the Loop in the Circular Bioeconomy*

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**Our AgriCCUSTech**

*AI Platform*

**ISO 14064**

GHG Verified

**EU ETS**

API Integrated

**ADM1 / IWA**

Live Model

**CSRD Ready**

Audit Trail

# The Bioeconomy Is One of the Largest Untapped Economic Shifts of Our Era

**\$4T/yr**

**Bio-based innovation potential**

*McKinsey Global Institute,  
'The Bio Revolution', 2020*

**€2.7T**

**EU bioeconomy current value**

*European Commission,  
Bioeconomy Strategy 2025*

**17.1M**

**Jobs in EU bioeconomy today**

*European Commission,  
Bioeconomy Strategy 2025*

## BCG × CO<sub>2</sub> AI CARBON SURVEY 2024 — KEY FINDINGS

- ▶ Only 9% of ~2,000 surveyed companies comprehensively report Scope 1, 2 & 3 emissions
- ▶ 82% of companies report economic benefits from decarbonization — avg. net benefit \$200M/year
- ▶ Companies using AI for emissions measurement are 4× more likely to benefit from decarbonization

## EU VOLUNTARY CARBON CREDIT MARKET

- ▶ €160M in 2024 → €2.2B by 2033 (CAGR 34%) — Market Data Forecast, 2025
- ▶ EU Carbon Removals & Carbon Farming Regulation (CRCF) creates binding certification standards
- ▶ European Investment Bank: CRCF could mobilise €8B in private capital for carbon removal by 2030

# Agricultural Waste: Billions of Euros of Carbon Value — Left on the Table

**900M+**

**Tonnes of agricultural**  
waste generated annually in Europe

**€12B+**

**Value locked in unmonetised**  
biogas & biofertiliser potential

**14 Wks**

**Average carbon credit**  
issuance lead time — without AI

## THE TRUST GAP

Farmers and bioeconomy operators cannot monetise carbon value because there is no trusted, real-time verification infrastructure. Carbon credits are left on the table. Revenue is lost. The circular economy stalls.

**Deloitte (2024):** Robust CDR credit sales and elevated pricing highlight market confidence — but stringent integrity and verification standards are now the decisive differentiator for institutional buyers. | **McKinsey Global Institute:** 60% of global physical inputs could be produced through biological means — agriculture & food represents the largest single opportunity domain.

# AgriCCUSTech — Closing the Circular Bioeconomy Loop with AI

## INPUTS

Manure & Slurry

Crop Residue

Agricultural Biomass

IoT Sensor Data

## AgriCCUSTech AI Platform

**01** ADM1 Bioprocess Modelling  
*IWA Standard*

**02** ISO 14064 MMRV Engine  
*GHG Accounting*

**03** EU ETS Registry Integration  
*API Direct*

**04** Predictive Yield Optimiser  
*ML Pipeline*

**05** Carbon Credit Verification  
*Blockchain Anchored*

## OUTPUTS

Biogas / Energy

Biofertiliser

Carbon Credits

ESG Reports

# Five Integrated Mathematical/AI Engines — Standards-Backed, Audit-Ready

## 01 ADM1 Bioprocess Modelling

Real-time simulation of biogas yield, substrate efficiency and process stability. Built on the IWA Anaerobic Digestion Model No. 1 — the global reference standard for biogas process modelling.

IWA ADM1 / ISO 15380

## 02 ISO 14064 MMRV Engine

Automated Monitoring, Measurement, Reporting & Verification. IoT sensors + satellite feeds + lab data — unified into a single auditable pipeline aligned with ISO 14064-1:2018.

ISO 14064-1:2018

## 03 EU ETS Registry Integration

Direct REST API linkage to the EU Emissions Trading System Union Registry. Automated credit issuance & retirement reduces lead time from 14 weeks to 72 hours.

EU ETS Directive 2003/87/EC

## 04 Predictive Yield Optimiser

ML pipeline (gradient boosting + LSTM) trained on Norwegian slurry compositions. Outperforms generic ADM1 baseline by 23% in biogas yield prediction accuracy.

MLOps / Continuous Retraining

## 05 Decision Intelligence Layer

Waste-to-value pathway orchestration engine aligning circular economy outputs with financial returns, EU CSRD reporting requirements, and carbon credit qualification.

EU CSRD / CRCF Ready

# Live Platform Results — 12-Week Validated Data

**3,200t**

**Waste Processed**  
per Quarter

**87%**

**Biogas Yield**  
Efficiency Rate

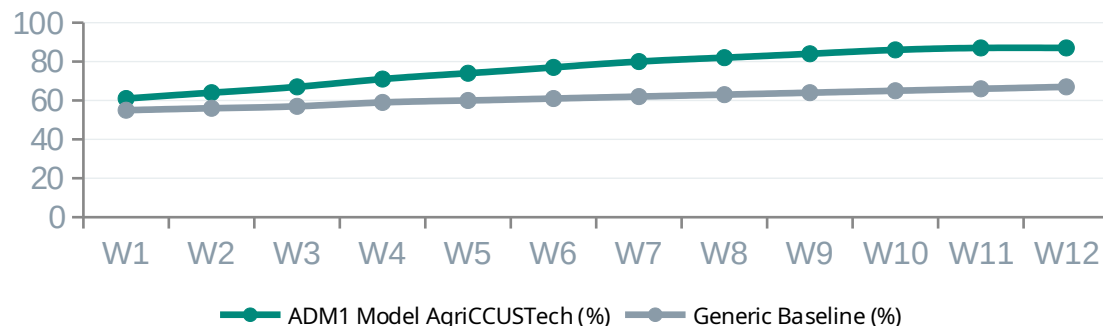
**1,450**

**Carbon Credits Issued**  
ISO 14064 Certified

**-38%**

**Cost Reduction**  
vs. manual verification

Biogas Yield Efficiency (%) — Rogaland Pilot



## KEY FIELD LESSONS

- ▶ Data integration from IoT + lab is the critical success factor — not the model
- ▶ Farmers engage when carbon revenue is visible in real-time dashboards
- ▶ EU ETS API: 14 weeks → 72 hours credit issuance
- ▶ ADM1 trained on Norwegian slurry outperforms generic by 23%

# Three Verified Revenue Streams from One Waste Input

## 40%

### Biogas & Energy

€45–80 / MWh

Grid-export or on-site consumption. AI optimises production timing against energy spot prices in real time.

*EU ETS carbon price €60–85/tCO<sub>2</sub> (AFRY / Cepi, 2025)*

## 35%

### Biofertiliser

€120–180 / tonne

Verified nutrient profiles replace synthetic fertilisers. Premium pricing unlocked for certified organic farms.

*EU Bioeconomy Strategy: priority secondary biomass stream*

## 25%

### Carbon Credits

€55–95 / tCO<sub>2</sub>e

ISO 14064 compliant. EU CRCF eligible. Blockchain-anchored for institutional buyers — full audit trail, CSRD-ready.

*EU voluntary carbon market CAGR 34% to 2033 (Market Data Forecast)*

**Combined platform ARR per installation: €1.2M – €2.4M | Target gross margin: 70%+**

***“The bioeconomy’s missing link is not technology — it is trust. AI that can verify, quantify, and report environmental impact in real time is what turns circular ambition into bankable outcomes.”***

— John 'Femi Abe, CPO, Ablny Technologies AS

**REGULATORY & STANDARDS STACK UNDERPINNING AGRICCUSTECH**

**ISO 14064-1:2018**

GHG Accounting & Verification

**EU ETS Dir. 2003/87**

Emissions Trading Registry

**IWA ADM1**

Bioprocess Modelling Standard

**EU CRCF**

Carbon Removals Certification

**EU CSRD**

Sustainability Reporting Ready

**GDPR / NIS2**

Data & Cyber Governance

# From Rogaland Pilot to European Platform

**EU Tailwind:** EU Bioeconomy Strategy 2025 targets €10B Bio-based Europe Alliance purchase by 2030 · EU CRCF creates standardised certification · Horizon Europe €200M allocated for 2026–2027 · 17.1M jobs, €2.7T economy

## Phase 1 2024–2025

### Pilot & Validation

- Rogaland installation
- ADM1 calibration
- ISO 14064 audit

 Complete

## Phase 2 2025–2026

### Norway Rollout

- 5 additional farms
- EU ETS live API
- Partner onboarding

 In Progress

## Phase 3 2026–2027

### Nordic Expansion

- Denmark & Sweden
- Municipal waste streams
- SaaS licensing

 Planned

## Phase 4 2027–2028

### EU Platform

- Pan-European scale
- Carbon market JVs
- CRCF API integration

 Target

# Every Claim Backed by Authoritative Research

## McKinsey Global Institute

### The Bio Revolution (2020)

- ▶ Bio-based innovation pipeline: \$2–4 trillion direct economic impact p.a. over next 10–20 years
- ▶ 60% of global physical inputs to the economy could be produced biologically
- ▶ Agriculture & food: \$0.8–1.2T/yr impact domain — the single largest non-health opportunity

*mckinsey.com/industries/life-sciences — The Bio Revolution*

## BCG × CO<sub>2</sub> AI

### Carbon Survey 2024 (n=1,924 companies)

- ▶ Only 9% of large companies comprehensively report Scope 1, 2 & 3 emissions
- ▶ 82% of surveyed companies capture economic benefits from decarbonization
- ▶ Companies using AI for measurement are 4× more likely to achieve decarbonization ROI

*bcg.com — Climate Leaders Boost Bottom Line, Sept 2024*

## European Commission

### EU Bioeconomy Strategy 2025 & CRCF

- ▶ EU bioeconomy valued at €2.7 trillion, employing 17.1M people — significant untapped potential
- ▶ EU Buyers' Club: €10B in bio-based material purchasing commitments by 2030
- ▶ Carbon Removals & Carbon Farming Regulation (CRCF): binding certification for carbon credits

*Additional references: Deloitte (2024) — Carbon CDR Market Confidence Report · EU CRCF Regulation (EC 2024/1991) · European Commission AFRY/Cepi EU ETS analysis (2025) · IWA Anaerobic Digestion Model No.1 technical report*

## Market Data Forecast / EIB

### EU Voluntary Carbon Credit Market 2025

- ▶ EU voluntary carbon credit market: €160M (2024) → €2.2B by 2033, CAGR 34%
- ▶ European Investment Bank: CRCF could mobilise €8B in private capital for carbon removal by 2030
- ▶ EU ETS carbon price: €60–85/tCO<sub>2</sub> (2025, per AFRY / Cepi analysis)

# The Circular Bioeconomy Starts with Trust.

*AgriCCUSTech is live. The data is real. The credits are verified.*

## PILOT PARTNERSHIP

Join Phase 2 in Norway

## INVESTOR DIALOGUE

Scale to EU platform

## TECHNICAL DEMO

See the platform live

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