UPROOTY

Power The Future, Value The Carbon

Renewable Energy Carbon Reduction Solution

Renewable Energy | Carbon Reduction | MRV | International Carbon Market

- **UPROUTY CO., LTD. Republic of Korea**
  Head Office : 239, Geomdansan-ro, Hanam-si, Gyeonggi-do, Republic of Korea
  Research Institute : 204, Convensia-daero, Yeonsu-gu, Incheon, Republic of Korea
- **UPY-ECO LLC (Kyrgyz Republic), CEO MinSik Kim / E-Mail : info@upy.co.kr**

Web-Site : https://uprooty.net

Green Energy Data & Carbon Platform

New opportunities created by the energy transition

Climate action now goes beyond simply cutting emissions — it is shifting toward renewable energy expansion, energy transition, and the conversion of mitigation outcomes into assets.

We combine renewable power generation with carbon mitigation to build an integrated solution spanning **generation → quantification → verification → credit issuance → market sale.**



22 Oct 2025 Sheraton Hotel, Bishkek — host of the Integrated International Mitigation Briefing · ca. 80 legislators and government officials

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New Demand for Carbon

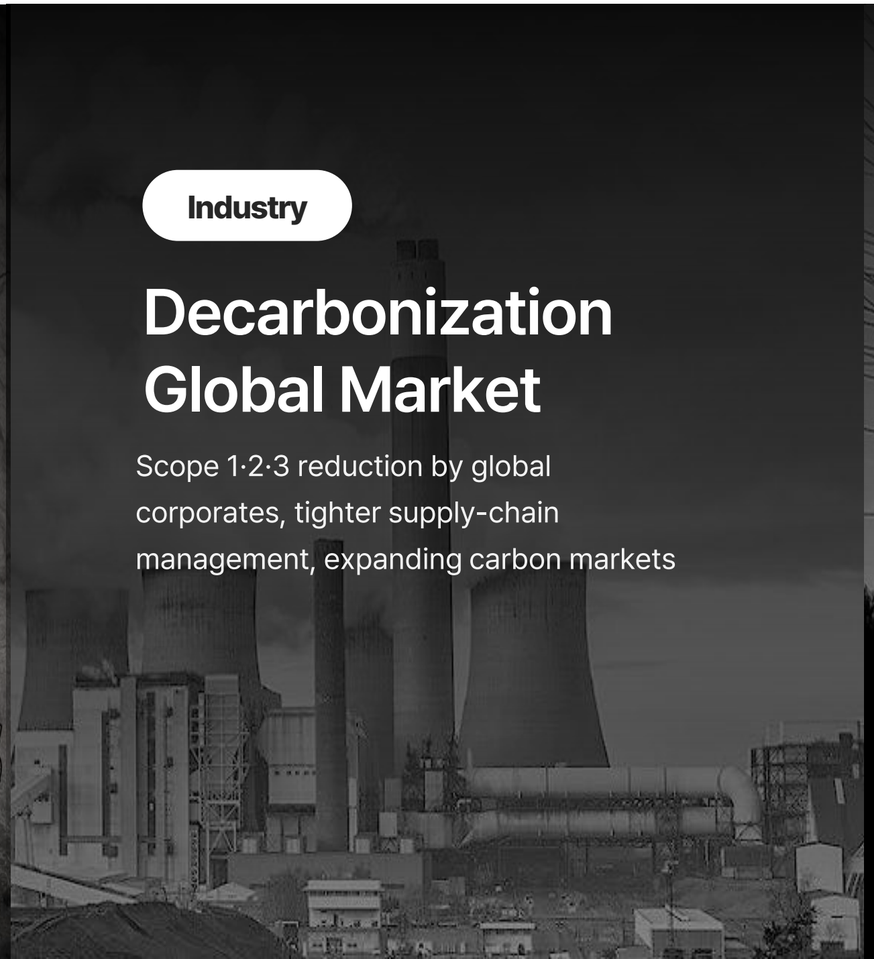
In the era of energy transition, carbon reduction is no longer an optional ESG activity.
Energy transition and carbon mitigation are converging into **a single industry**.



Government

NDC Responsibility

Meeting national greenhouse gas reduction targets and rising demand for international mitigation



Industry

Decarbonization Global Market

Scope 1·2·3 reduction by global corporates, tighter supply-chain management, expanding carbon markets



Investor

ESG & Green Financing

Growing investment into renewable energy and carbon mitigation assets

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Generation data becomes a carbon asset

Bankability

Securing carbon assets

from renewable generation

Converting mitigation outcomes into verifiable **environmental assets**

High-Integrity

Credible carbon reduction

Measurable, transparent outcomes based on MRV and third-party validation/verification



Additionality

The need for additional projects

Developing new mitigation projects with demonstrated additionality

Mainstreaming

Expansion into the international carbon market

Voluntary carbon market linked with **UNFCCC and ICAO** frameworks

A new asset-creation structure is emerging : renewable generation → carbon reduction → verification → carbon credits → revenue.

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Renewable generation alone is not enough

Project → Carbon → MRV → Market

01 PROJECT
Projects exist, but
Abundant renewable resources overseas

→

02 CARBON
Conversion expertise
Methodology application · PDD development

→

03 MRV
Measurement system
Reliability of generation and reduction data

→

04 MARKET
Who buys?
Securing offtake is the decisive factor

WHO BUYS THE CREDITS?

Five demand segments for issued credits

RE credit share	RE credit price	Korea 2030 international mitigation target
29%	$1–5/t	37.5 $MtCO_2e$

Corporate voluntary offsetting
CORPORATE VCM

182 Mt

2024 retirements · 10 standards

Shell 14.1 Mt · **Eni** 6.0 Mt
Microsoft 5.5 Mt

Aviation compliance offsetting
CORSIA · AVIATION

130–180 Mt

First phase 2024–26 obligations

Emirates · **Korean Air**
Lufthansa · **United**

States and governments
ARTICLE 6 · ITMO

190 projects

4 countries across 22 host nations

Japan 147 · **Switzerland** 29
Singapore 17 · **Korea** 2

Emissions trading systems
ETS LINKED

10 % cap

K-ETS offset (international 5%)

K-ETS allocation 562.5 Mt
EU ETS 3% proposal for 2040

Financial and investment institutions
FINANCE

4.7 %

Finance share among top offtakers

Citi · **JPMorgan**
AXA · **Allianz**

Sources : Ecosystem Marketplace / Forest Trends SOVCM 2025 · AlliedOffsets Corporate Buyers Report (Jul 2025) · Carbon Market Watch (Feb 2025) · MSCI Carbon Markets CORSIA (Nov 2024) · Sylvera State of Carbon Credits (2025) · ICAP Korea ETS Factsheet (2025) · MOTIE Revised NDC (2023)

UPROOTY connects renewable energy to the carbon market.

UPROOTY

Renewable Energy × Carbon Credit

As **energy transition and NDC implementation** accelerate worldwide,
renewable projects and the international carbon market are increasingly integrated.



HYDRO

Small Hydro

Stable 24-hour renewable output from **run-of-river small hydro**



SOLAR

Solar Energy

Distributed model pairing solar output with **local demand centres**



HYBRID

Renewable Hybrid

Small hydro + solar + ESS — **optimised for local conditions**



CARBON

International Carbon

Carbon credits and mitigation outcomes
under **Paris Agreement Article 6**

Extending generation revenue into carbon revenue.

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Developing carbon mitigation projects on renewable generation assets to issue international carbon credits

"Renewable generation as the mitigation activity, developed into **international carbon mitigation projects** (applying Verra VCS and Paris Agreement Article 6 methodologies)"

Renewable energy · Central Asia international mitigation · UPROOTY Kyrgyz Republic project



A 10 MW small hydropower plant can generate approximately 16,000 tCO_2e of annual reductions, and linking it to international mitigation converts this into high-integrity carbon credits.

On-grid margin displacement (generation × grid emission factor 0.217 tCO_2/MWh)

Off-grid diesel displacement (generation × emission factor 0.6 tCO_2/MWh) · Company estimate; project-specific factor to be determined per methodology

UPROOTY

7-Step Carbon Project Development

We execute the full cycle of development, validation, verification and issuance under international methodologies.

Prior Consideration

Pre-feasibility assessment

Project Design

Project Description (PD / PDD) development

* Verra VCS Project Description Template

Validation

Validation by accredited third party (VVB)

* VVB : Validation & Verification Body

Registration

Listed on the Verra Registry

Project Monitoring

Monitoring of emission reductions

Verification

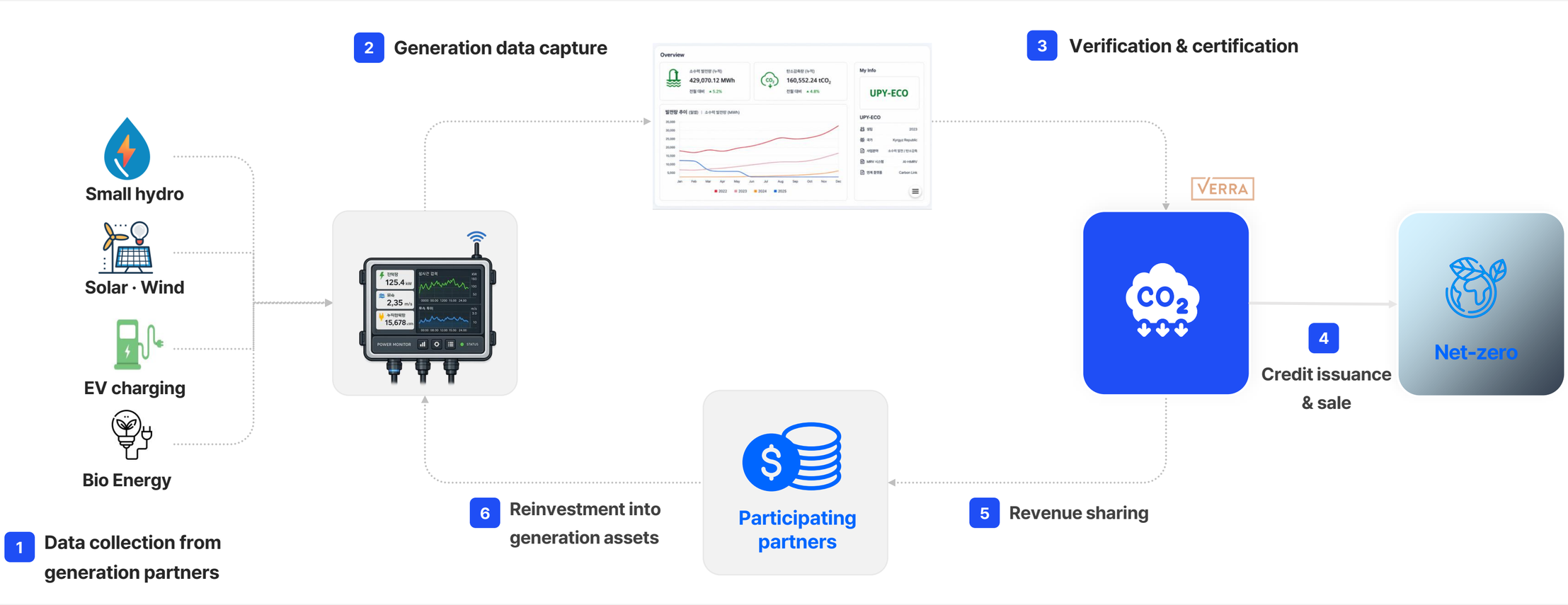
Verification of monitoring data by the VVB

Issuance

VCU issuance

Revenue model

“ Collecting generation data from renewable partners and creating revenue through high-integrity international carbon credits ”



UPROOTY

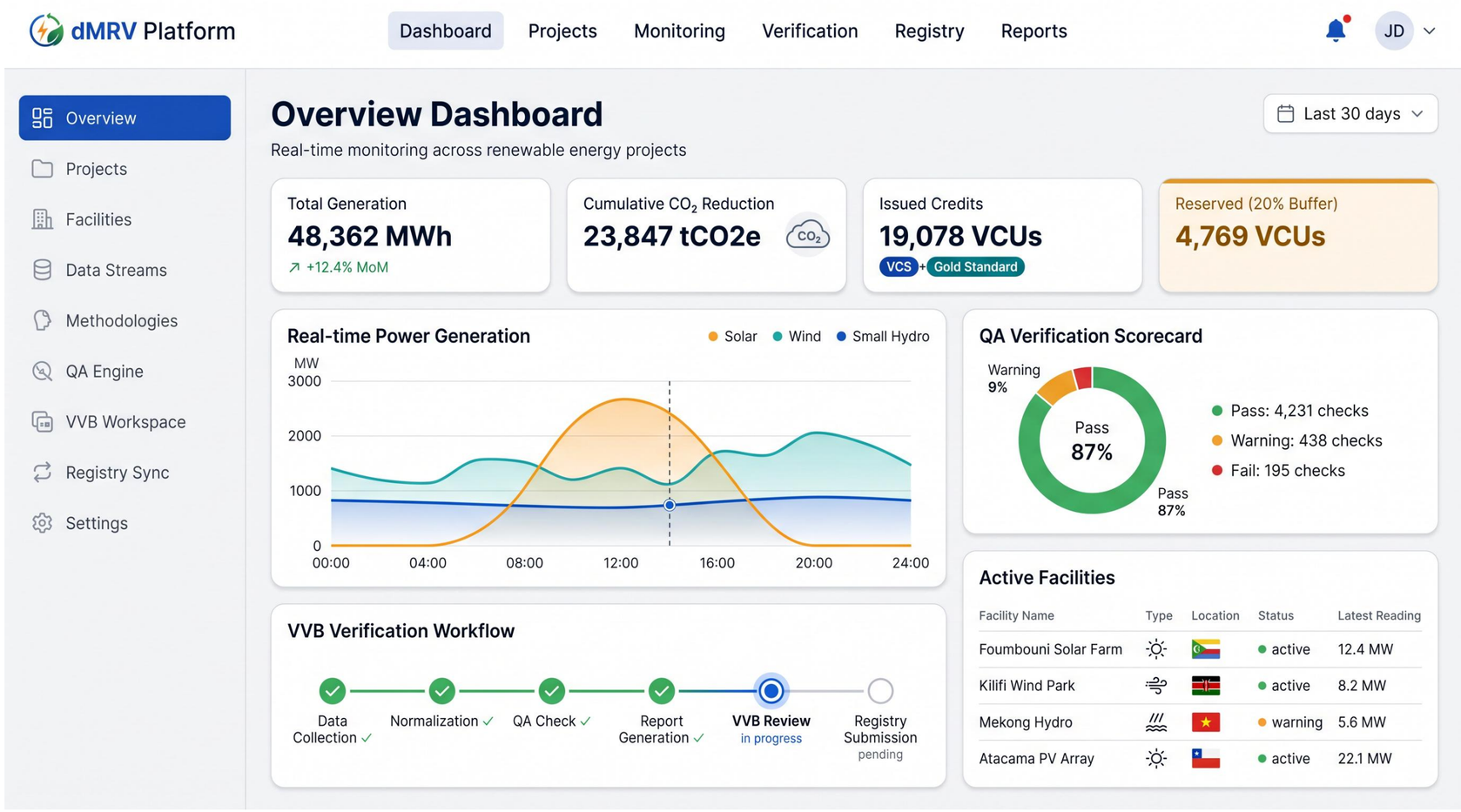
INDUSTRY-LEADING

Integrated AI-MRV solution built on renewable generation

We build an **AI-MRV Infrastructure** that runs from real-time generation data through to the issuance of international carbon credits.

- **Real-time data capture · integrity management**
- **Automated reduction calculation per project**
- **Verification framework aligned to global standards**

M · R · V = Measurement · Reporting · Verification



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Generation data delivers insight across carbon mitigation and energy operations

01

PROJECT MONITORING

Real-time monitoring

Live tracking of generation output and operating status per project

02

GENERATION ANALYSIS

Output analysis & availability

Hourly, daily, monthly and annual output analysis; efficiency and capacity factor management

03

CARBON REDUCTION

Emission reduction quantification

Reductions quantified from generation data under international methodologies

04

CARBON ASSET MGMT

Carbon asset portfolio

Managing reduction records and credit issuance status by project

05

PORTFOLIO INTELLIGENCE

Integrated portfolio

Unified management of small hydro, solar and hybrid projects

Data is the foundation of carbon asset credibility.

TRACK RECORD · ACHIEVEMENTS

Renewable energy and carbon project development

ACHIEVEMENT 01

International mitigation project development

Kyrgyz Republic Project

Central Asia renewable-based international mitigation project · reduction model built on small hydropower generation data

ACHIEVEMENT 02

Bishkek canal small hydro · solar pilot

Small Hydro · Solar

Pilot → commercialisation → scale-up · integrated projects linked to local demand

ACHIEVEMENT 03

1 million VCU pipeline target (2024–2032)

VCS registration pathway · AI-dMRV development

AI-based digital MRV · international mitigation project consulting

PROJECT REGISTRY · PARTNERS

Project development and partnerships aligned to global standards

INTERNATIONAL CARBON STANDARDS

STANDARD
Paris Article 6

STANDARD
ICAO / CORSIA

Verra Registry — target registry

VERRA

PROJECT DEVELOPER

UPROOTY

Renewable Energy · Carbon Reduction Developer

PROJECT PARTNERS

mocha

Carbon Reduction Consulting

UPROOTY PARTNERS

KOWEPO Korea Western Power	**SKKU** Sungkyunkwan University Research & Business Foundation	**mocha company** Mocha Company	**Growise** Growise Inc.
KOTRA Korea Trade-Investment Promotion Agency	**GBSA** Gyeonggido Business & Science Accelerator	**KIBO** Korea Technology Finance Corporation	**KOSME** Korea SMEs and Startups
Ministry of SMEs and Startups Republic of Korea (MSS)	**Ministry of Energy** Kyrgyz Republic	**Ministry of Water Resources, Agriculture & Processing Industry** Kyrgyz Republic	**Agro Holding JSC** Kyrgyz Republic

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Renewable Energy Carbon Reduction Methodology

Quantifying emission reductions from renewable generation

Reductions are quantified from the grid emissions displaced by renewable generation, using the **standard equation of the applicable international methodology**.

$$ER_y = BE_y - PE_y$$

BASELINE → GENERATION → EMISSION FACTOR → REDUCTION

01

BE_y

BASELINE EMISSION

Baseline emissions

Emissions from the electricity system displaced by the project

02

EG_y

RENEWABLE GENERATION

Net electricity supplied

Metered output from small hydro, solar and other renewables

03

EF_{grid}

GRID EMISSION FACTOR

Combined margin

Operating margin and build margin per CDM TOOL07 / Verra VT0011

04

ER_y

EMISSION REDUCTION

Reductions achieved

Verified reductions eligible for VCU issuance

METHODOLOGY

Approved methodology

ACM0002 / AMS-I.D, transitioning to **VMR0017 v1.0** for registrations from 1 Jan 2027

EMISSION FACTOR

Grid factor development

No CDM standardised baseline exists for the Kyrgyz Republic — factor derived per **TOOL07 / VT0011**

3RD-PARTY VERIFICATION

Independent assurance

Equations and factors validated and verified by an accredited **VVB**

Methodology and tool versions applied per host country and project type. Sources : Verra VCS Program Details · UNFCCC CDM methodology database (accessed Sep 2026)

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Designing the project to meet VCS Program requirements

PROGRAM RULES APPLIED

VCS Standard v4.7 (current) → **v5.0** for project start dates from 1 Jan 2027

Requirement	VCS Program provision	UPROOTY approach
Project type	Sectoral scope 1 — Energy industries (renewable sources)	**Run-of-river small hydro and solar, grid-connected**
Methodology	ACM0002 / AMS-I.D; VMR0017 v1.0 mandatory for registration requests from 1 Jan 2027	**Methodology selected at PD stage; VMR0017 applied where the timeline requires**
Scale threshold	CDM small-scale limit of 15 MW for AMS-I.D applicability	**Capacity confirmed per site before methodology selection**
Additionality	CDM TOOL01 / TOOL02, or Verra VT0008 / VT0009 — alternatives, barrier, investment and common practice analysis	**Investment and barrier analysis per project, with country-specific benchmarks**
Baseline	Grid emission factor via CDM TOOL07 v7.0 and Verra VT0011 — combined margin (OM + BM)	**No CDM standardised baseline exists for the Kyrgyz Republic; factor calculated from national data**
MRV	Monitoring plan per methodology; monitoring report on the current VCS template	**AI-dMRV platform for metered generation data and integrity control**
Stakeholders	Local stakeholder consultation prior to validation; Stakeholder Engagement Plan under VCS Standard v5.0 §3.17	**Consultation with host-country ministries and local communities**
Safeguards	ESG risk assessment under VCS Standard v5.0 §3.18; regulatory surplus under §3.13	**ESG risk assessment and regulatory surplus documented in the PD**
Non-permanence	AFOLU buffer pool applies to AFOLU scopes only — not to energy projects	**Not applicable — no buffer contribution required**

Sources : Verra VCS Program Details · VMR0017 v1.0 methodology page · Verra Validation & Verification · UNFCCC CDM methodology and tool database (all accessed September 2026). Versions to be reconfirmed at the time of submission.

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From project description to VCU issuance

Each stage is delivered by the project proponent, an accredited VVB, or Verra.

VERIFIED CARBON UNIT

One VCU represents **one tonne of CO_2e** reduced or removed by the project.

STEP 01

Project Description

PROJECT PROPONENT

Methodology selection and drafting of the Project Description on the current VCS template.

STEP 02

Pipeline listing & public comment

PROPONENT · VERRA

Listing on the Verra Registry pipeline, followed by a mandatory 30-day public comment period.

STEP 03

Validation

ACCREDITED VVB

Independent validation of the project design by a VVB accredited for sectoral scope 1 (Energy).

STEP 04

Registration

VERRA REVIEW

Verra completes a risk-based review and registers the project on the Verra Registry.

STEP 05

Monitoring

PROJECT PROPONENT

Generation and reduction data monitored per the approved monitoring plan, reported on the VCS template.

STEP 06

Verification

ACCREDITED VVB

The VVB verifies the emission reductions achieved during the monitoring period.

STEP 07

VCU issuance

VERRA REGISTRY

Following verification approval, VCUs are issued into the proponent's registry account.

PROGRAM FEES

Verra fee schedule

Pipeline listing	**USD 1,500**
Registration review	**USD 3,750**
Verification review	**USD 5,000**
Issuance levy	**USD 0.23 / VCU**

Sources : Verra — Develop a VCS Project · Registry Overview · Validation & Verification · Verra Program Fee Schedule (accessed September 2026). Fees shown are the published rates in effect and are subject to Verra's current schedule at the time of submission.

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Paris Agreement

ARTICLE 6 CORSIA

Securing internationally transferable carbon assets

The project is designed to meet UNFCCC and ICAO principles so that verified units can carry an **Article 6 authorization label** where the host country provides a Letter of Authorization.

CORSIA PILOT
2021–2023
VCS Program eligible

CORSIA FIRST PHASE
2024–2026
VCS Program eligible

UPROOTY ARTICLE 6 ELIGIBILITY

Meeting international requirements · pathway to a Letter of Authorization

Item	International requirement	UPROOTY
Framework	Paris Agreement Article 6	**Project developed under Article 6**
Project	Renewable energy project	**Small hydro / solar**
Host Country	Host country approval required	**In consultation with the relevant ministries**
Additionality	Demonstration of project additionality	**Assessed on a per-project basis**
MRV	Measurement, reporting and verification	**AI-dMRV platform deployed**
Verification	Independent third-party verification	**Verification by an accredited VVB**
Authorization	Letter of Authorization (LoA)	**LoA process under way with the host country**
Transfer	Corresponding adjustment by the host Party	**Conditional on the host country's Article 6.2 arrangements**

Sources : Verra — VCS under CORSIA · Article 6 Letter of Authorization Template · Article 6 Label Guidance (accessed September 2026).
Note : CORSIA first-phase eligibility excludes grid-connected renewable projects above 15 MW installed capacity.

Turning renewable generation data into internationally recognised carbon assets.

A first step toward a sustainable tomorrow

“ Create new carbon revenue alongside your electricity sales ”

The electricity a small hydropower plant produces is itself an **emission reduction outcome**.
Working with generation partners, we collect and verify generation data, issue and sell international carbon credits, and **share the revenue with participating partners**.
Operators secure **new carbon revenue** without additional capital investment.



UPROOTY Co., Ltd.
Technology Enterprise Center, Songdo International City, Incheon
(204, Convensia-daero, Yeonsu-gu, Incheon, Republic of Korea)

01
Generation data capture

02
Verification & certification

03
Credit issuance & sale

04
Revenue sharing

Phone +82 10-6406-0318 **Email** info@upy.co.kr **Website** https://uprooty.net

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