TenzaOne Whitepaper

Part 3: Credits

Carbon Credits and SDG Certification Processes

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Introduction to Certification Processes

The Problems

1. Over-Claiming of Climate Benefits:

- Lack of Transparency and Granular Data: The difficulty in accurately quantifying the actual climate benefits of carbon offset projects due to infrequent, non-granular, and potentially manipulated monitoring methods. This makes it challenging for investors to ascertain the real-world impact.
- Weak Additionality Assessment: Concerns that many carbon credits are issued for activities that would have occurred anyway, diluting the true climate benefit and investor confidence.
- Inflated Baseline Scenarios: The use of exaggerated baseline emission scenarios can lead to an oversupply of credits that don't represent genuine additional reductions.

2. Absence of Rigorous Verification and Standardization:

- Inconsistent Verification Practices: Variations in the quality and rigor of verification processes across different standards and VVBs make it difficult for investors to assess the reliability of credits.
- Lack of Granular Traceability: Investors often lack a clear and auditable trail linking credits to specific projects and their actual impact, hindering due diligence and increasing fraud risk.
- Limited Standardization: Variability in project design, monitoring, and reporting even within the same standards makes risk assessment and comparison challenging for investors.

3. Fraudulent Activities and Double-Counting:

- Issuance of Credits for Non-Existent or Underperforming Projects: Investors risk purchasing credits that do not represent real emission reductions, eroding market trust.
- Double-Counting: The potential for the same emission reduction to be sold multiple times undermines the environmental integrity and value of carbon credits for investors.

4. Regulatory and Technological Challenges (Exacerbating Existing Problems):

- **Early Stages of Regulatory Efforts:** Current regulatory efforts aimed at creating a more secure carbon credit trading environment (like the World Bank's exploration

of insurance solutions and the EU's initiatives) are still in their infancy and have not yet provided comprehensive solutions to the aforementioned problems.

- **Challenges in Global Standardization and Acceptance:** The lack of globally standardized regulations and the slow pace of international acceptance of existing frameworks hinder the development of a secure and transparent carbon credit market, making it difficult for investors to navigate and trust the system.
- **Early Stages of Technological Solutions:** While technological solutions like blockchain for traceability (as exemplified by EY's OpsChain ESG initiative) hold promise, they are still in their early stages of development and adoption. Their effectiveness in addressing issues like over-claiming and double-counting on a global scale is yet to be fully realized.

The Solution(s)

Our Approach to Projects & Credits Certifications

Our Plan for VCS RECs and EECs (Voluntary Market, DePIN & Blockchain Enabled for Traceability, Highly Verified):

1. **Targeted VCS Project Development and Aggregation:** We will develop and aggregate high-quality renewable energy generation projects (solar, wind, small hydro) and energy efficiency initiatives (in buildings, industries, and transportation) that are eligible for certification under Verra's Verified Carbon Standard (VCS). Our aggregation strategy will group similar VCS-eligible projects based on technology type, scale, and geographical location to optimize VCS certification and transaction costs.
2. **DePIN for Decentralized and Verifiable Data Acquisition:** We will leverage Decentralized Physical Infrastructure Networks (DePIN) to establish a transparent and tamper-proof system for data acquisition from project sites. This involves:
    - **Decentralized Sensor Networks:** Deploying networks of independent, community-operated or incentivized sensors at renewable energy generation facilities and energy efficiency project sites to measure energy production/savings. These networks will be designed for redundancy and data integrity.
    - **Open Hardware and Software:** Utilizing open-source hardware and software protocols where feasible to enhance transparency and auditability of the data collection infrastructure.
    - **Cryptographic Verification of Data:** Implementing cryptographic methods within the DePIN framework to ensure the authenticity and integrity of the data

collected by the decentralized sensor networks, making it highly resistant to manipulation.

3. **Blockchain for Immutable Traceability and Record-Keeping:** We will integrate blockchain technology to create a secure and transparent record of the energy generated or saved and the corresponding RECs and EECs certified under the VCS program, focusing on traceability rather than direct tokenization of the credits:
    - **Immutable Audit Trail:** Utilizing the blockchain as an immutable ledger to record key information about the generation and verification of VCS RECs and EECs. This will include the project ID under VCS, the vintage year, the quantity of energy represented, verification details, and the chain of custody as the credits are transacted.
    - **Transparent Ownership History:** The blockchain will track the ownership history of each batch of VCS RECs and EECs, providing a clear and auditable trail from initial issuance in the Verra registry to retirement.
    - **Smart Contracts for Transaction Transparency:** Employing smart contracts to record and manage the transfer of ownership of VCS RECs and EECs, ensuring transparency and potentially automating aspects of the transaction process without directly representing the credit as a token.

    The hybrid architecture enhances verification transparency while ensuring regulatory compliance:

    - ERC-1155 tokens maintain immutable records of certification processes and results
    - ERC-3643 tokens handle the compliant trading and ownership of financial instruments based on these verifications
    - Smart contract bridges ensure that information flows seamlessly between the two token standards

4. **Strict Adherence to VCS Requirements:** All our projects and the associated data collection and reporting will strictly adhere to the requirements and methodologies outlined by Verra's Verified Carbon Standard. This includes:
    - **VCS Validation and Verification Bodies (VVBs):** Engaging only Verra-approved VVBs for the rigorous validation of our project design and the independent verification of the emission reductions (in the case of EECs) and renewable energy generation.
    - **VCS Registry Utilization:** Ensuring that all generated RECs and EECs are registered and tracked within the official Verra registry, which remains the

primary mechanism for issuance and retirement. The blockchain will serve as a complementary layer for enhanced traceability.

- **VCS Methodological Compliance:** Utilizing VCS-approved methodologies relevant to the specific renewable energy and energy efficiency project types.

5. **Transparent Data Access and Auditability:** The combination of DePIN and blockchain will provide enhanced transparency and auditability for all stakeholders. Verified data from the decentralized sensor networks, linked to the records on the blockchain detailing the VCS credits, will create an auditable and immutable history, increasing trust and reducing the risk of discrepancies.

By focusing on DePIN for robust data acquisition and leveraging blockchain for an immutable and transparent record of generation and ownership, we will build a highly credible and efficient system within the voluntary market, adhering strictly to Verra's standards. This approach prioritizes data integrity and enhanced traceability to maximize the environmental impact and market confidence in VCS-certified instruments.

Why Blockchain?

Blockchain technology holds the promise of mitigating many of these concerns, primarily by enhancing transparency and accountability in both carbon credit and cryptocurrency markets. Tokenization of carbon credits creates clear, immutable records of each credit's origination and transaction history, thereby reducing the risk of fraud and over-claiming.

EY's OpsChain ESG platform exemplifies the application of blockchain to provide indisputable traceability for emissions data and carbon credits, boosting investor confidence in the reported environmental benefits. With regulatory bodies like the EU introducing measures to trace crypto-asset transfers, blockchain can similarly bring accountability to cryptocurrency transactions, heightening market credibility and investor protection.

Integrated Project Cooperative & Investment DAO

Implementing a cooperative structure as a DAO within the TenzaOne ecosystem, utilizing NFTs with linked editions for immutable records, and integrating AI for automation provides a sophisticated, transparent, and scalable solution for funding and verifying carbon offset projects. This approach not only reduces certification costs through aggregation but also enhances the credibility, traceability, and marketability of the resulting credits. Integrating blockchain, DEPIN, and a custom LLM ensures data integrity, transparency, and enhanced decision-making capabilities.

By leveraging these innovative technologies and governance models, the TenzaOne ecosystem can create a robust platform for managing and investing in sustainable projects, ultimately contributing to global efforts to combat climate change and promote environmental sustainability. The use of a DAO structure, supported by AI and

blockchain, offers a pioneering approach that can serve as a model for other regenerative finance

Regenerative Finance (ReFi)

Regenerative Finance (ReFi) is a new approach to finance that aims to create systems that restore, renew, and revitalize their own sources of capital. It seeks to align with and support the regenerative capacity of the earth's ecosystems and the vitality of its human communities. In the context of blockchain and cryptocurrencies, ReFi can be seen as an attempt to create more sustainable and equitable financial systems.

DePIN

DePIN's role in enhancing existing structures and introducing new paradigms of operational efficiency and secure, transparent transactions could be crucial in a two-token model. For instance, it could help automate the execution of contracts when predefined conditions are met, leading to faster turnaround times, reduced human error, and enhanced security for transactions.

Token Economy Resulting from the Two-Token Model

The token economy resulting from the two-token model, combined with the principles of ReFi and the technological capabilities of DePIN, will deliver a more accessible, divisible, and tradable market, with the target of opening up the market to a broader range of investors and integrate with decentralized finance (DeFi) ecosystems.

Moreover, the two-token model empowers both clients and investors with a voice in governance matters, enhancing trust and fostering community-led development. This is particularly beneficial in a ReFi context, where the goal is to create more sustainable and equitable financial systems.

In combination with the TenzaOne two-token model, ReFi, and DePIN will lead to a token economy that is more efficient, secure, and equitable.

Why TenzaOne?

The convergence of carbon credits and cryptocurrency through blockchain technology presents a promising solution to the challenges faced by both markets. By tokenizing carbon credits and enhancing transparency in cryptocurrency transactions, blockchain technology can foster a circular crypto economy that not only benefits investors but also contributes significantly to the fight against climate change.

Our project library, on our website, contains our detailed research document reviewing the state of the markets and used to determine the problems that TenzaOne needed to fix.

Project Certification Preparation

In the voluntary carbon market, technology-enabled carbon credit projects focused on fossil fuel avoidance and energy efficiency can generate credits under various categories. The market does not adhere to a single form of credit for such projects with multiple options and categories appropriate to Tenza clients.

Each of these categories aligns with specific methodologies and standards established by recognized certification bodies like the Verified Carbon Standard (VCS), the Gold Standard, and the Climate Action Reserve (CAR). The choice of category and standard depends on the project's nature, location, and specific technology used, including projects which may qualify for the EU ETS standards.

For primary illustration, TenzaOne Version 1.0 focuses on the Voluntary Markets and their alignment to SDG credits, although our design allows for EU, CAR and other standards as well.

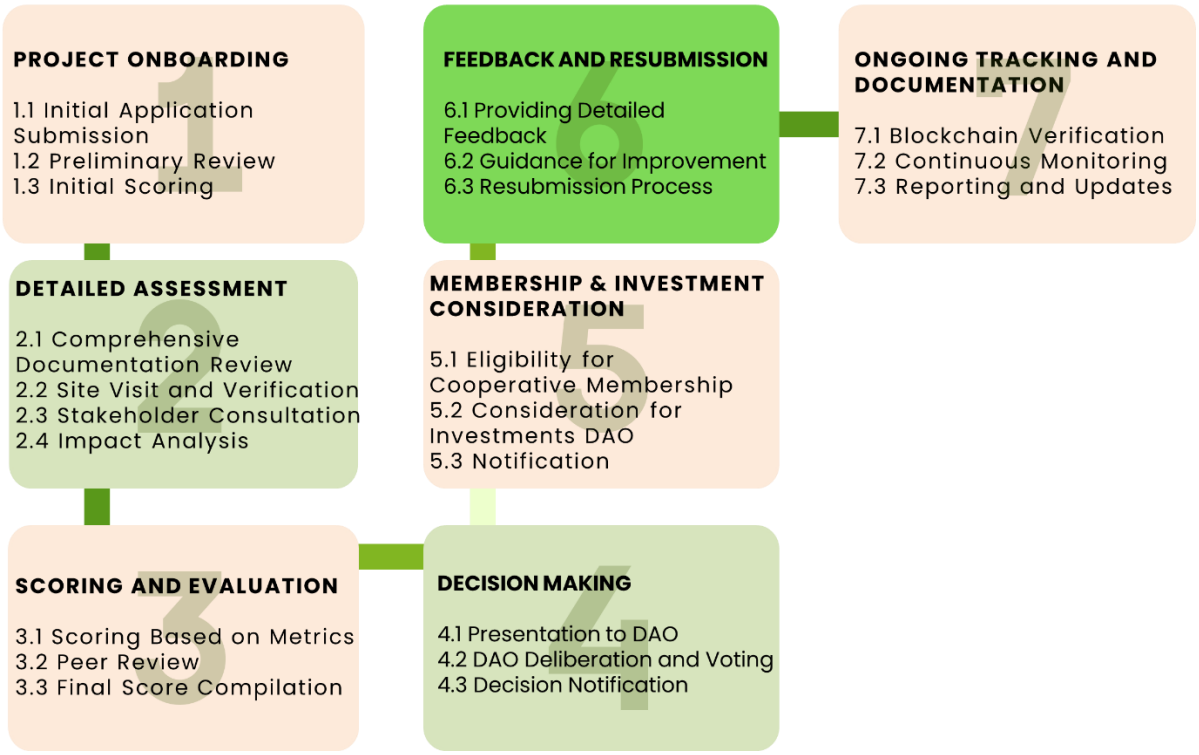
1. **Renewable Energy Credits (RECs)**:
    - Projects that generate energy from renewable sources (e.g., solar, wind, hydro) typically earn RECs. These credits represent the environmental benefits of displacing fossil fuel-based power generation.
2. **Energy Efficiency Credits**:
    - These are earned by projects that improve energy efficiency in industrial processes, buildings, or transportation. They focus on reducing overall energy consumption and associated emissions.
3. **Avoided Emissions Credits**:
    - These credits are issued to projects that directly avoid emissions that would have otherwise occurred. This category includes initiatives such as switching from coal to natural gas or deploying clean cookstoves in regions where biomass is the primary fuel.
4. **Carbon Capture and Storage (CCS) Credits**:
    - Projects that capture and store carbon emissions before they reach the atmosphere can generate CCS credits. This technology can be applied to power plants, industrial facilities, and even direct air capture initiatives.

Objectives of Certifications

The main goals for the carbon credit certification process for these projects are:

1. **Generate revenue and support additional projects**: By selling the generated carbon credits, the project owner can earn revenue that can be reinvested into the project itself or used to fund new carbon reduction initiatives.
2. **Comply with regulatory requirements**: In some regions, companies may be required to offset their emissions or meet specific carbon reduction targets. Obtaining carbon credits through certified projects helps them comply with these regulations.
3. **Use for positive marketing and branding**: Successful certification demonstrates the project owner's commitment to sustainability and environmental stewardship. This can be used to enhance the company's reputation and appeal to environmentally conscious consumers and investors.
4. **Contribute to global emissions reduction goals**: By generating high-quality carbon credits, projects support the global effort to combat climate change and meet targets set by international agreements like the Paris Agreement.
5. **Promote sustainable development and co-benefits**: Many standards like the Climate, Community & Biodiversity (CCB) Standards certify projects that deliver social, economic, and environmental co-benefits beyond just emissions reductions, aligning with the UN Sustainable Development Goals (SDGs).
6. **Attract investment and support the transition to a low-carbon economy**: Carbon credits provide a financial incentive for companies to invest in clean technologies and sustainable practices, driving the shift to a greener economy.
7. **Raise awareness and encourage others to take climate action**: By showcasing the benefits of carbon credits, projects and service providers can inspire others to join the fight against climate change.

Cooperative DAO Project Evaluation Overview



Project Evaluation for Cooperative and Investors Consideration

The overall goal of the assessment process is to evaluate projects and provide them with a score that determines their eligibility for membership in our project cooperatives and, optionally, for consideration by the TenzaOne Investments DAO. This evaluation is crucial for ensuring that projects meet the necessary standards and criteria for participation in our cooperative network and for attracting potential investments.

Scoring and Evaluation:

- **Comprehensive Assessment:** Each project undergoes a thorough assessment based on predefined criteria, including environmental impact, community benefits, adherence to sustainability goals, and financial viability.
- **Scoring Metrics:** Projects are scored using a standardized metric system that evaluates their overall performance and potential for success. This includes factors such as emissions reduction, alignment with UN SDGs, and financial sustainability.

Eligibility for Cooperative Membership:

- **High-Scoring Projects:** Projects that achieve high scores are eligible for membership in our project cooperatives. Membership provides access to

resources, networking opportunities, and collaborative support from other members.

- **Resource Sharing:** Cooperative members benefit from shared resources, including expertise, technology, and funding opportunities, which enhance the overall success and impact of their projects.

Consideration by TenzaOne Investments DAO:

- **Investment Opportunities:** High-scoring projects are also considered for investment by the TenzaOne Investments DAO. This decentralized autonomous organization (DAO) pools resources from multiple investors to support impactful and sustainable projects.
- **Funding and Support:** Selected projects receive financial support, strategic guidance, and access to a broader investor network through the DAO, enabling them to scale and maximize their impact.

Feedback and Resubmission for Insufficient Scores:

- **Detailed Feedback:** Projects that do not achieve the required score for cooperative membership or DAO consideration are provided with detailed feedback. This feedback highlights areas of improvement and specific actions needed to enhance their evaluation.
- **Opportunity for Improvement:** These projects are encouraged to address the identified gaps and resubmit their applications. The resubmission process allows them to refine their approach, implement improvements, and potentially achieve a higher score upon reevaluation.

By providing a clear and structured assessment process, we ensure that only high-quality and impactful projects are admitted into our cooperatives and considered for investment. This approach not only maintains the integrity and effectiveness of our cooperative network but also supports projects in achieving their full potential through continuous improvement and access to valuable resources.

Determination: Project Certification or Readiness?

A key and critical objective in the carbon credit certification process is to provide the project owner and developer with sufficient information, post-assessment, to determine the financial viability of certifying the project and its credits. This decision-making process can occur either directly or via the TenzaOne Project Cooperative.

By carefully evaluating the financial viability, potential revenue, and alternative value generation, project owners and developers can make informed decisions about pursuing certification or maintaining readiness for future certification opportunities. This strategic approach ensures that projects can maximize their impact and value, whether through

certified carbon credits or by leveraging blockchain-verified information for broader benefits.

Additionally, this project assessment is part of the Investment offer from Owners / Developers within the TenzaOne DAO marketplace.

The main points of the evaluation are:

1. **Financial Viability Assessment:**

    - **Cost-Benefit Analysis:** Post-assessment, a comprehensive cost-benefit analysis should be conducted. This involves comparing the costs of obtaining certification (including validation, verification, and registration fees) against the potential revenue from selling certified carbon credits.
    - **Revenue Projections:** Estimate the potential revenue from carbon credits, taking into account current market prices and demand. This helps in determining if the revenue generated will offset the certification costs and provide a profitable return on investment.
    - **Funding Opportunities:** Explore available funding and support mechanisms, including grants, subsidies, and partnerships through platforms like TenzaOne, which can help in reducing upfront costs and enhancing financial feasibility.

2. **Certification Pathway:**

    - **Direct Certification:** If the financial assessment indicates that immediate certification is viable, the project can proceed with the necessary steps to achieve certification under the chosen standards (e.g., VCS, CCB, EU ETS).
    - Continued Operation and Documentation: If immediate certification is not viable, the project can continue to operate and meticulously document its activities and impacts. This approach ensures that the project can achieve retroactive certification at a later stage when it becomes financially feasible.
    - Blockchain Verification: Implement blockchain technology to securely record and verify project information. Blockchain verification ensures transparency, traceability, and immutability of project data, which is valuable for future certification and enhances the credibility of the project.

3. **Alternative Value Generation:**

    - **UN SDG Impact:** Projects that align with the United Nations Sustainable Development Goals (SDGs) generate significant social and environmental benefits. Documenting these impacts can attract investors and stakeholders who prioritize sustainability and corporate social responsibility.
    - Less Tangible Values: Even without immediate certification, blockchain-verified project information can hold substantial value. This includes

enhancing the project's reputation, attracting potential buyers and investors, and contributing to corporate sustainability reports.

4. **Decision-Making Support:**

    - Expert Consultation: Engage with industry experts, financial advisors, and certification bodies to obtain professional guidance on the best course of action. These consultations can provide valuable insights into market trends, regulatory changes, and certification benefits.

Stakeholder Engagement: Involve key stakeholders, including investors, community members, and regulatory authorities, in the decision-making process. Their input can provide a broader perspective on the project's impact and potential.

How Our Solutions Work

How Our Approach Addresses These Problems:

Our proposed DePIN and blockchain-enabled system for VCS RECs and EECs directly tackles these issues:

- **Enhanced Transparency and Granular Data (Addressing Over-Claiming):** DePIN provides a network of independent and cryptographically verified sensors, ensuring continuous and granular data collection on renewable energy generation and energy efficiency performance.[8] This reduces reliance on potentially biased or infrequent manual reporting, providing investors with more accurate and trustworthy data on the actual climate impact.
- **Immutable and Auditable Data (Addressing Over-Claiming and Lack of Rigorous Verification):** The cryptographic verification within the DePIN framework ensures the integrity and tamper-proof nature of the data. This provides a highly auditable record of the underlying asset (energy generated or saved), strengthening the validity of the associated VCS RECs and EECs.
- **Decentralized Verification Potential (Addressing Lack of Rigorous Verification):** While still relying on VCS-approved VVBs, the transparent and verifiable data from the DePIN network can enhance the verification process, potentially allowing for more efficient and data-driven audits.
- **Blockchain for Immutable Traceability (Addressing Lack of Granular Traceability and Double-Counting):** By recording key information about the VCS RECs and EECs (project ID, vintage, quantity, verification details, ownership history) on an immutable blockchain, we create a transparent and auditable trail. This significantly reduces the risk of double-counting and allows investors to trace the credits back to their origin with greater confidence.

- **Adherence to a Reputable Standard (Addressing Lack of Standardization):** Our explicit focus on Verra's VCS ensures adherence to a well-established and widely recognized standard, providing a baseline level of quality and comparability for investors.
- **Increased Trust and Reduced Fraud Risk (Addressing Fraudulent Activities):** The combination of transparent data from DePIN and the immutable record on the blockchain makes it significantly harder to issue credits for non-existent or underperforming projects and reduces the potential for fraudulent activities.[9]

In essence, our technology-driven approach aims to inject greater transparency, verifiability, and traceability into the voluntary carbon credit market for RECs and EECs under the VCS framework. By leveraging the strengths of DePIN for reliable data acquisition and blockchain for secure record-keeping, we strive to address the core

NFT Project Tracking

By utilizing NFTs with linked editions, all currently based on the ERC-1155 standard in Phase 1, the TenzaOne ecosystem ensures that every project maintains its identity and independent value over time. This leverages the data immutability of blockchain technology to create a transparent, tamper-proof record of all project-related data, enhancing the credibility and traceability of each project's contributions to sustainability and carbon offset markets.

TenzaOne utilizes a hybrid token architecture to track projects and certifications:

- **Project Data (ERC-1155)**: Master NFT (Edition 0), Certification NFTs (Edition 1.x), Performance NFTs (Edition 2.x), and Gate Token NFTs (Edition 3.x) use the ERC-1155 standard for efficient data management
- **Investment Instruments (ERC-3643)**: Financial Instrument NFTs (Editions 4.x - Carbon Credit Futures and 5.x - Royalty Assets) leverage the compliance-focused ERC-3643 standard designed specifically for regulated assets"

A future transition to ERC-3643 is planned for specific financial instrument editions in Phase 2 contingent on licensing..

1. NFTs for Immutable Records (Phase 1: ERC-1155 for all Editions)

Unique Project Tokens:

- **NFT Creation**: Each project is represented by an ERC-1155 NFT (Master PDA, Edition 0) that holds metadata about the project. Subsequent editions for Certification (1.x), Performance (2.x), Gate Access (3.x), and Financial Instruments (4.x, 5.x) are also currently ERC-1155 tokens in Phase 1.

- **Immutable Metadata:** The metadata stored within these ERC-1155 NFTs is immutable, meaning once it is written, it cannot be altered. This ensures that all information about the project remains transparent and tamper-proof.

Linked Editions:

- **Connected Editions**: For projects that generate continuous data or require multiple updates (e.g., annual performance reports, verification results), linked editions of the main NFT can be created. All these editions (0 through 5.x) currently use the ERC-1155 standard. These editions reference the original NFT, maintaining a chain of updates and historical records.
- **Edition Tracking:** Each edition contains specific updates or additional data, such as verification results, emission reductions, energy output, etc., ensuring that every piece of data is uniquely identifiable and traceable back to the original project NFT.

2. Implementation of NFTs for Project Tracking

Initial Minting:

- **Project Submission**: When a project is submitted and approved by the DAO, an initial ERC-1155 Master NFT (Edition 0) is minted representing the project. This NFT includes all base metadata required for identification and initial valuation.
- **Smart Contract Integration:** The minting and management processes are governed by smart contracts that enforce rules and standards for the data that must be included in the NFT.

Data Updates and Linked Editions:

- **Continuous Updates:** As the project progresses, new data such as performance metrics, verification results, and audit reports are collected.
- **Minting Editions:** Each new data update is minted as a new ERC-1155 NFT edition linked to the original project NFT. This applies to all editions, including Financial Instrument PDAs (4.x, 5.x) in Phase 1. These editions ensure that every update is recorded on the blockchain, maintaining an immutable history.
    - Fractionalization of Editions 4.x and 5.x is handled via linked ERC-20 tokens.
- **Edition Metadata**: Each edition includes metadata specifying the type of data (e.g., annual performance report), date of the update, and a cryptographic hash of the report for verification.

3. Maintaining Identity and Independent Values (Phase 1)

Unique Identifiers:

- **NFT IDs**: NFT IDs: Each ERC-1155 NFT, including the original and its editions, has a unique identifier on the blockchain. This ensures that every project and its updates are uniquely distinguishable.
- **Metadata Standards**: Implement standardized metadata formats for all project NFTs and editions to ensure consistency and comparability.

Valuation and Characteristics:

- **Independent Valuations**: The NFT metadata can include dynamic fields that track valuations based on project performance, market conditions, and verification results. These valuations are updated with each new edition.
- **Characteristic Tracking**: Specific characteristics such as technology type, geographic location, and sustainability impact are included in the metadata, allowing for precise valuation and assessment of each project's unique attributes.

Phase 2 Plan for Financial Instrument PDAs (Editions 4.x & 5.x)

In Phase 2, subject to licensing, TenzaOne plans to transition the Financial Instrument PDAs (Editions 4.x - Carbon Credit Futures, and Edition 5.x - Royalty/Financing Assets) from ERC-1155 to the ERC-3643 standard. This will provide these specific tokens with built-in compliance features suited for regulated assets, such as identity management, on-chain KYC/AML checks, and permissioned transfers. Fractionalization would then be managed in a manner consistent with ERC-3643.

Value Proposition of NFT and Blockchain Verification

The hybrid token architecture enhances the value of carbon credit certifications by:

- Maintaining data integrity through ERC-1155 project tokens
- Ensuring regulatory compliance for investment aspects through ERC-3643
- Creating trusted connections between verification data and investment instruments
- Enabling broader market participation while maintaining security and compliance"

Enhanced Transparency:

- **Immutable Records**: Blockchain ensures that all data (recorded on ERC-1155 NFTs in Phase 1) is immutable and transparently recorded, providing a high level of trust and reducing the risk of data manipulation.

Increased Traceability:

- **Linked Editions**: The use of linked ERC-1155 editions means every update and performance report is traceable, providing a comprehensive historical record of project progress and impact.

Improved Investment Appeal:

- **Credibility and Verification**: Blockchain verification and standardized ERC-1155 NFT metadata enhance the credibility of the projects, making them more attractive to investors who can trust the reported data and impact metrics.
- **Future Compliance Enhancement (Phase 2):** The planned transition of Financial Instrument PDAs to ERC-3643 in Phase 2 will significantly boost investor confidence further by providing built-in compliance mechanisms for these specific investment tokens.
- **Marketability**: Tokenized financial instruments (ERC-1155 Editions 4.x, 5.x and their fractional ERC-20s) can be traded, providing liquidity and additional revenue streams for investors.
- **Phase 2 Marketability**: Trading of future ERC-3643 based instruments will occur on platforms supporting this standard and its compliance features

The financial instruments (Editions 4.x and 5.x) utilize ERC-3643's built-in compliance features:

- **Identity Verification**: All investors undergo KYC/AML verification before accessing investment tokens
- **Permissioned Transfers**: Transfers restricted to verified participants meeting regulatory requirements
- **Fractional Ownership**: Native ERC-3643 functions manage fractional ownership with full compliance
- **Smart Contract Integration**: Distribution of benefits to token holders occurs within the compliance framework

Example Workflow:

1. Project Approval and NFT Minting:
   - Project A is approved by the DAO and an initial NFT (TokenID: 001) is minted.
   - Metadata includes: project description, location, technology, expected CO2 reductions, initial valuation, etc.
2. Data Collection and Edition Creation:
   - Year 1: Project A submits its first annual performance report. An ERC-1155 NFT edition (TokenID: 001.1) is minted, linked to the original NFT (TokenID: 001), containing the performance data and verification results.

- Metadata includes: year of report, CO2 reductions achieved, energy output, verification results, updated valuation.
- Investment Opportunity: An Edition 4.x Carbon Future instrument for Project A is created as an ERC-1155 token (e.g., TokenID: PFA-001-CF-1155). This can be fractionalized using ERC-20s. Continuous Updates (Phase 1):

3. Continuous Updates (Phase 1)
    - Year 2: Another performance report and verification result are submitted. A new ERC-1155 NFT edition (TokenID: 001.2) is minted, linked to the original NFT, with updated data. This process continues annually or as required by project milestones.
    - Potentially more ERC-1155 financial instruments are created. A new NFT edition (TokenID: 001.2) is minted, linked to the original NFT, with updated data.
4. (Future - Phase 2): the Edition 4.x ERC-1155 token (PFA-001-CF-1155) would be planned for transition to an ERC-3643 equivalent (e.g., PFA-001-CF-3643) with full compliance features.

Enhanced Transparency with Custom LLM

By implementing project-specific Language Model (LLM) to investors and the cooperative adds value in terms of providing transparent, accurate, and up-to-date information about project performance, verification results, and financial metrics for both communities. This enables enhanced due diligence, easy access to data to support better informed decision-making, increased confidence and data management.

Custom LLM for Data Queries:

- **Model Training**: Train a custom Language Model (LLM) using data from the projects. This model will be capable of understanding and answering queries related to the project data.
- **Public Queries**: Enable public access to query the LLM to enhance transparency. Stakeholders can ask questions about project performance, verification results, and other relevant metrics.
- **Enhanced Decision-Making**: The LLM can assist in analyzing project data and generating insights for better decision-making by DAO members.

Integration with Blockchain and NFTs:

- **Immutable Data Source**: The LLM entries, as data stored on the blockchain, ensures that the information provided is accurate and tamper-proof.
- **Dynamic Updates**: As new NFT editions are minted and data is updated, the LLM can be retrained to incorporate the latest information, providing up-to-date responses.

AI-Supported Certification and Business Automation

AI Integration:

- **Automated Data Collection**: Use AI to automate the collection and processing of project data from IoT devices and other sources.
- **Intelligent Verification**: AI algorithms can assist in verifying the accuracy and consistency of the data before it is recorded on the blockchain and minted into NFTs.
- **Predictive Analytics**: Utilize AI for predictive analytics to forecast project performance, credit generation, and market trends.

Business Process Automation:

- **Smart Contracts**: Automate business processes such as project submissions, approvals, fund disbursements, and reward distributions using smart contracts.
- **Workflow Optimization**: AI can optimize workflow management by identifying bottlenecks and suggesting improvements for efficiency.

Project Certification Strategy: Credits & SDGs

The CCB certification process aligns with the UN Sustainable Development Goals (SDGs) by ensuring projects deliver significant social and environmental benefits beyond just climate change mitigation. The CCB Standards cover a range of SDGs, including poverty alleviation, gender equality, clean water and sanitation, decent work, and biodiversity conservation.

By combining the CCB Standards with the Verra VCS, projects can demonstrate their holistic positive climate impact and generate high-quality carbon credits as well as their positive contributions to sustainable development, community empowerment, and biodiversity conservation that are labelled as CCB-verified. This dual certification strengthens the credibility and value of the carbon credits while supporting the achievement of the UN SDGs.

Tenza Projects: Driving Sustainability with Recognition

Tenza is a leader in innovative solutions, with projects spanning renewable heat generation (TenzaHeat) and energy-efficient HVAC systems (TenzaHVAC). Both contribute significantly to sustainability goals, and this presentation outlines how Tenza leverages certifications and verification to solidify their environmental impact.

TenzaHeat and Renewable Energy Certificates (RECs)

TenzaHeat's Commitment: Our renewable heat generation systems, including solar thermal heating, directly contribute to a cleaner energy mix by displacing fossil fuel use. This displacement translates to quantifiable emission reductions.

Maximizing Impact with RECs: Tenza will pursue RECs for TenzaHeat projects through reputable verification bodies like Verra or Gold Standard. Verification will assess:

- Project design and operation for efficiency and adherence to renewable energy principles.
- The quantifiable amount of fossil fuel displaced by TenzaHeat systems, determining the RECs generated.
- Alignment with specific requirements of chosen regional REC programs.

Next Steps:

- **Regional REC Program Research:** Tenza will research and identify the most suitable REC programs in your region, focusing on programs acknowledging renewable heat generation.

- **Verification Body Consultation:** We will collaborate with verification bodies to ensure TenzaHeat projects meet REC eligibility criteria and navigate the verification process.

Benefits: By obtaining RECs, Tenza showcases the environmental impact of TenzaHeat projects and strengthens its position as a sustainability leader.

TenzaHVAC and Energy Efficiency Certificates (EECs)

TenzaHVAC's Innovation: Our AI-powered controls optimize energy use in HVAC systems, leading to significant and measurable energy savings and are

EEC Recognition for Efficiency: Tenza will pursue EECs for TenzaHVAC projects through verification bodies. Verification will demonstrate:

- The effectiveness of AI controls in optimizing energy use for heating and cooling.
- The quantifiable energy savings achieved by TenzaHVAC solutions, a critical factor for EEC eligibility.
- Compatibility of AI-based efficiency improvements with the verification body's methodology.

Moving Forward:

- **Clear Project Documentation:** Tenza will ensure comprehensive documentation of project specifics, including system design, operation data, and energy savings to facilitate clear communication with verification bodies.
- **Verification Body Engagement:** We will actively engage with verification bodies throughout the process to ensure TenzaHVAC projects meet EEC requirements.

Outcomes: EEC certification strengthens the credibility of TenzaHVAC's energy-saving claims and opens doors for official recognition of their contribution to energy efficiency.

Strategic Recommendations for Maximising Credits Value

Factors Influencing Value of Credits

- **Certification Standard**: Credits certified by reputable standards such as the Verified Carbon Standard (VCS), Gold Standard, and Climate Action Reserve (CAR) generally command higher prices due to the rigorous verification processes.
- **Market Trends**: Current market trends and buyer preferences play a significant role. For instance, credits from projects with strong co-benefits (social, environmental) are increasingly in demand.

- **Geographic Location**: Projects in certain regions, particularly those contributing to sustainable development goals in least developed countries, may receive higher valuations.

Renewable Energy Credits (RECs)

1. **High-Quality Certification**: Ensure your project is certified by a reputable standard such as the Verified Carbon Standard (VCS) or the Gold Standard. These certifications are trusted by buyers and often fetch higher prices.
2. **Project Scale and Impact**: Larger projects with significant emission reductions tend to attract higher values. Demonstrate the scale of impact clearly in your project documentation.
3. **Geographic Location**: Projects in regions with higher renewable potential or in developing countries can be more attractive due to additional development benefits. Highlight regional advantages in your project pitch.
4. **Co-Benefits**: Emphasize additional benefits such as job creation, energy access for underserved communities, and reduced air pollution. These social and environmental co-benefits can increase the perceived value of the credits.
5. **Innovative Technologies**: Use cutting-edge or innovative technologies that improve efficiency or storage. These can differentiate your project from others in the market.
6. **Transparent Reporting and Monitoring**: Maintain high standards of transparency in monitoring, reporting, and verification (MRV). Regular updates and detailed impact reports build buyer confidence.

Energy Efficiency Credits

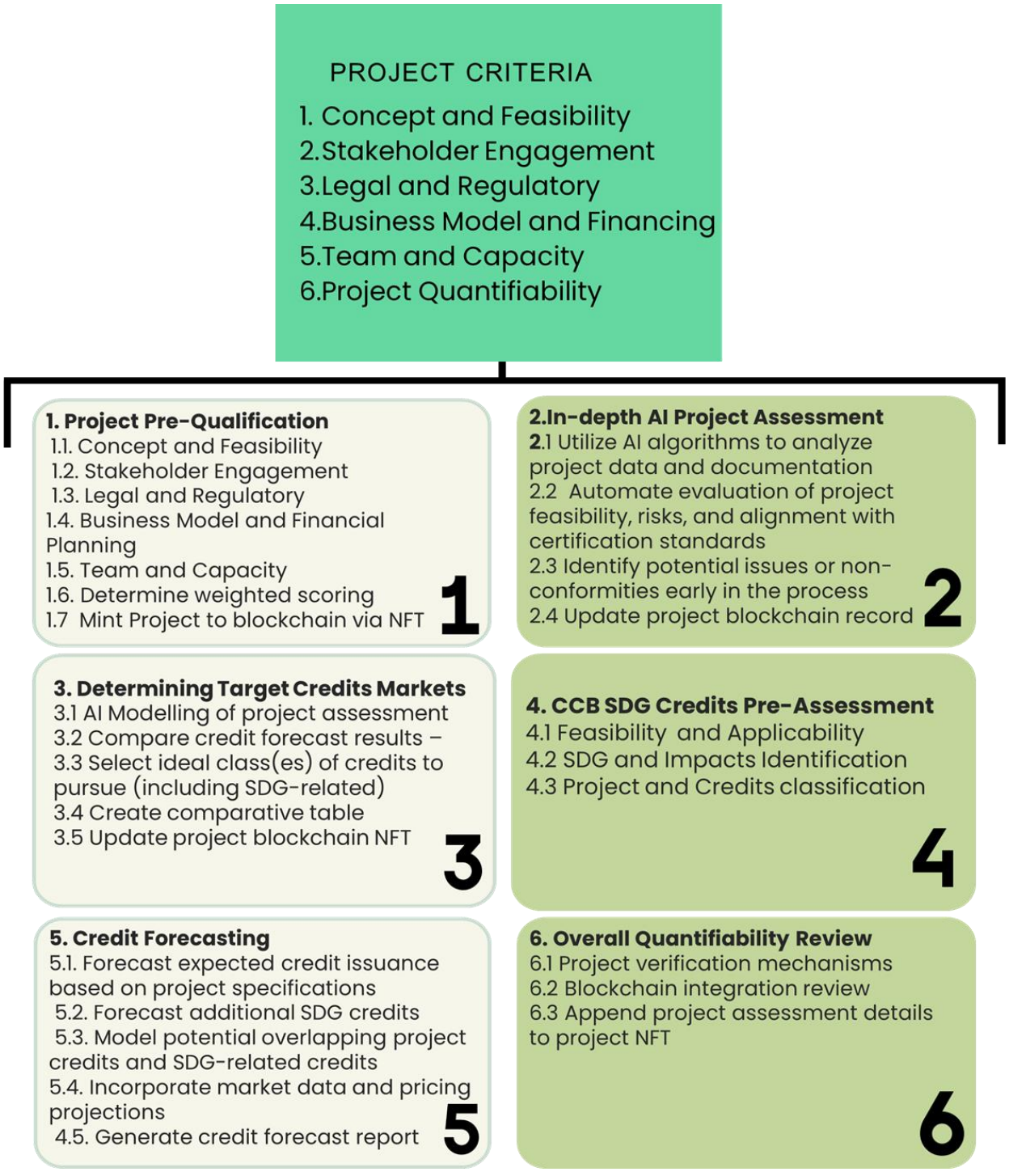
1. **High-Quality Certification**: Similar to RECs, obtaining certification from trusted standards like VCS or Climate Action Reserve (CAR) can enhance the value of your credits.
2. **Demonstrable Savings**: Clearly quantify the energy savings and corresponding emission reductions. Projects with easily measurable and verifiable impacts tend to be more valuable.
3. **Sector and Technology**: Focus on sectors with high energy consumption and apply advanced, proven technologies for efficiency improvements. Industrial projects often have high impact potential.
4. **Cost-Effectiveness**: Highlight the cost-effectiveness of the energy efficiency measures. Buyers are interested in projects that deliver significant reductions for relatively low investment.

5. **Stakeholder Engagement**: Engage with local communities and stakeholders to ensure the project's social acceptance and support. Projects that show strong community involvement often have additional appeal.
6. **Scalability and Replicability**: Design projects that can be scaled or replicated in other regions or industries. This can attract buyers looking for broader impact opportunities.

By focusing on these high-value categories and implementing strategic measures, you can maximize the marketability and financial returns of your carbon credit project

Assessment & Certification Overviews

Internal Pre-Assessment for EEC & REC Projects



Project Assessment Framework

Elements of project assessments, for both Cooperative entrance and for Investor consideration, will be dynamic as results from the project data, project owner requirements, Cooperative criteria and the stated portfolio profile of investors, following these principles:

Project Alignment: project types that generate high-quality, verifiable carbon credits:

- Renewable energy (solar, wind, geothermal). For Solar, need to create baseline for Solar thermal and bring them under high-quality verifiable Carbon Credits
- Energy efficiency (building retrofits, industrial process optimization)
- Carbon Capture & Storage Project Developers and Water related Projects
- Waste management (methane capture and utilization)

Project Location: Look for projects in regions with supportive policies for clean energy and carbon reduction, as well as strong governance to ensure project sustainability.

Project Developer Experience: a hybrid mix of established developers with a proven track record and innovative startups with disruptive technologies, with at minimum a commercial scale Pilot being developed within Industry or Research Labs and have clear IP's and test reports to verify their claims. Tenza would require at least 1 year of Historical Data to potentially support Project Developers.

Additional Considerations:

- **Investment Horizon:** Some carbon credit buyers may be looking for immediate offsets, while others may be interested in longer-term investments in carbon reduction projects.
- **Risk Tolerance:** Buyers may have varying risk tolerances for different types of carbon credits and project locations.
- **Technology Adoption:** Target project developers who are open to using blockchain technology for project management and carbon credit issuance.
- **DePIN / Blockchain** offers opportunities to align financial investments with sustainable development goals effectively.
- **Comprehensive Costs Review** of the significant PDD creation and verification costs, followed by annual fees by project

Selected Third-Party Project Verification

A streamlined, continuously improving generative AI project assessments and carbon offset modeller with a value and viability algorithm to select optimal market positioning, mitigating risks to owners, developers and investors.

Carbon Credits: EU ETS, CAR, etc.

First assessment seeks businesses, with appropriate projects qualifying for certification on the regulated markets such as EU ETS Carbon Markets or the USA CAR, will follow the appropriate and most suitable certification process due to the inherent values in-built to these businesses. Initial validation is based on assessment of the PDD for viable listing on a regulated market at which time the most appropriate third-party verification

Carbon Credits: Verra VCS (Voluntary Markets) [3]

Verra is a global non-profit organization that develops and manages standards to help the private and public sectors achieve their sustainable development and climate action goals.

TenzaOne blockchain integrated DePIN projects will generate credits known as Verified Carbon Credits (VCU) in Verra VCSm the world's most widely used voluntary greenhouse gas (GHG) emissions reduction program. Verra also manages the Climate, Community & Biodiversity (CCB) Standards for Sustainable Development credits.

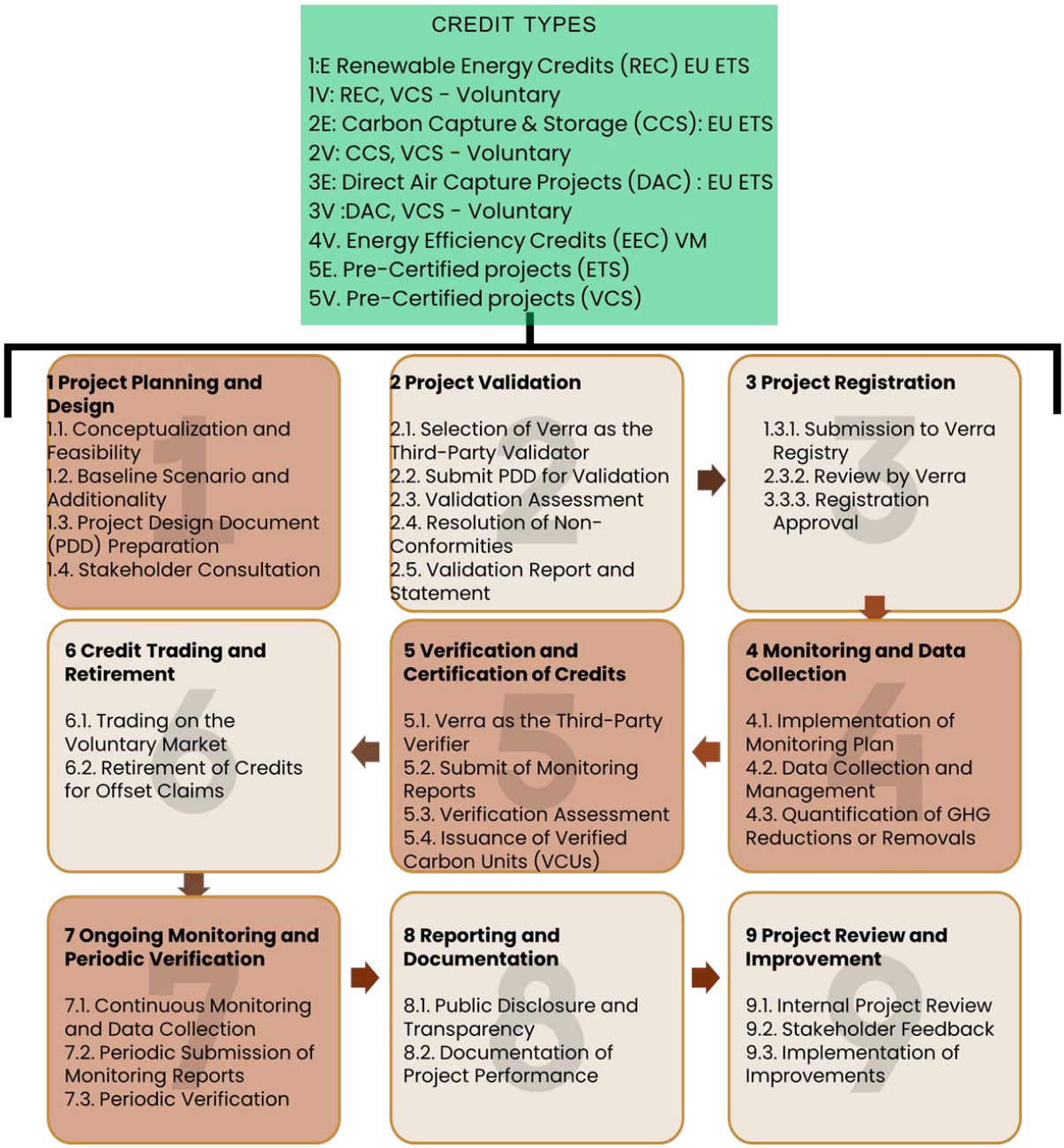
UN SDG Credits: CCB and Verra[123]

Offering an additional, parallel carbon credits earning opportunity for some Tenza Climate projects which may be positioned to earn Climate, Community & Biodiversity (CCB), a set of voluntary standards designed to promote the development of projects that deliver significant climate, community, and biodiversity benefits.

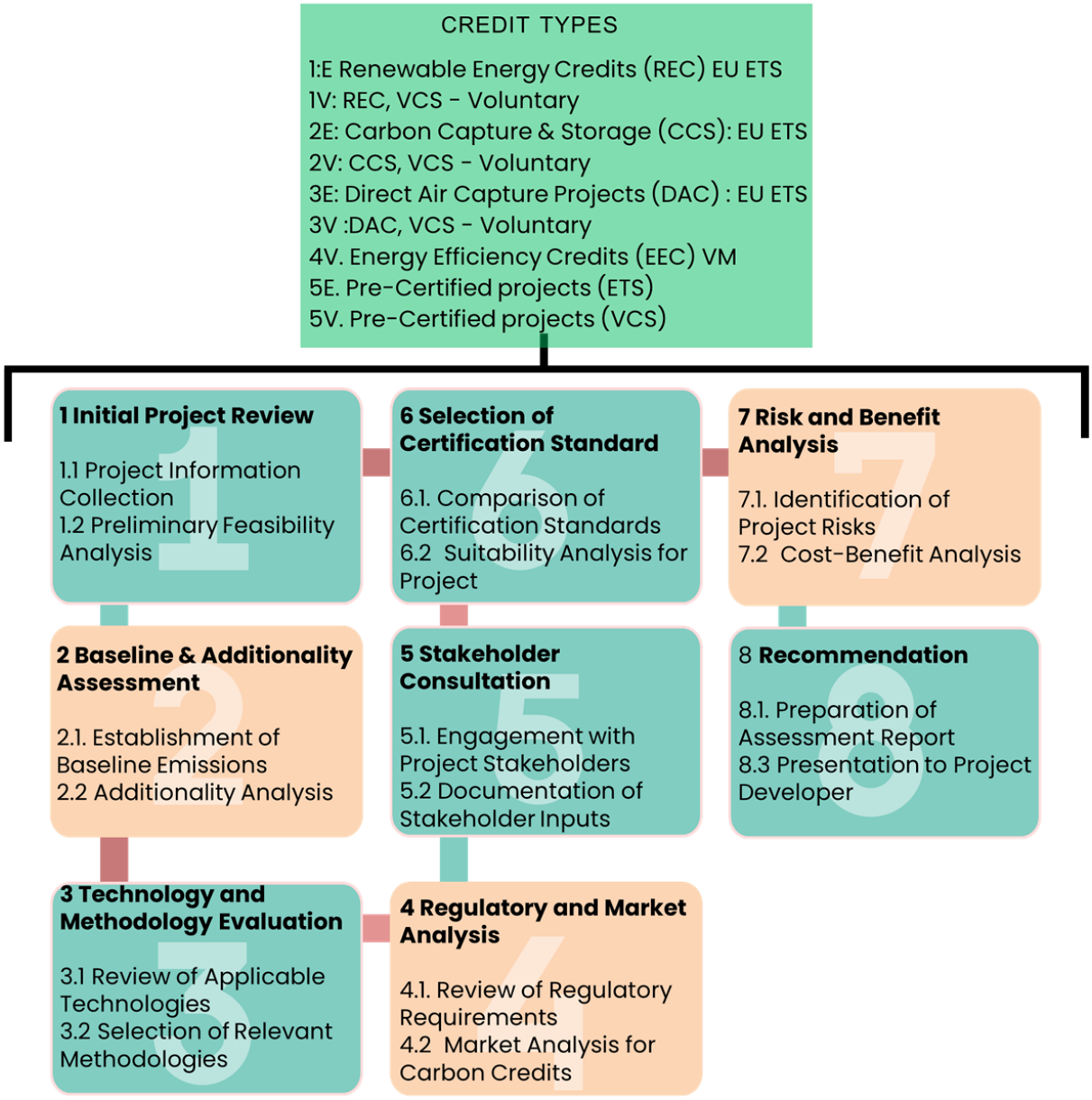
TenzaOne automates the two step two-step process of validation and verification by and selects appropriate independent, third-party auditors for Validation and Verification.

The CCB Standards can be used in conjunction with Verra's VCS Program, allowing projects to demonstrate their climate impact through the VCS and their community and biodiversity benefits through the CCB Standards.

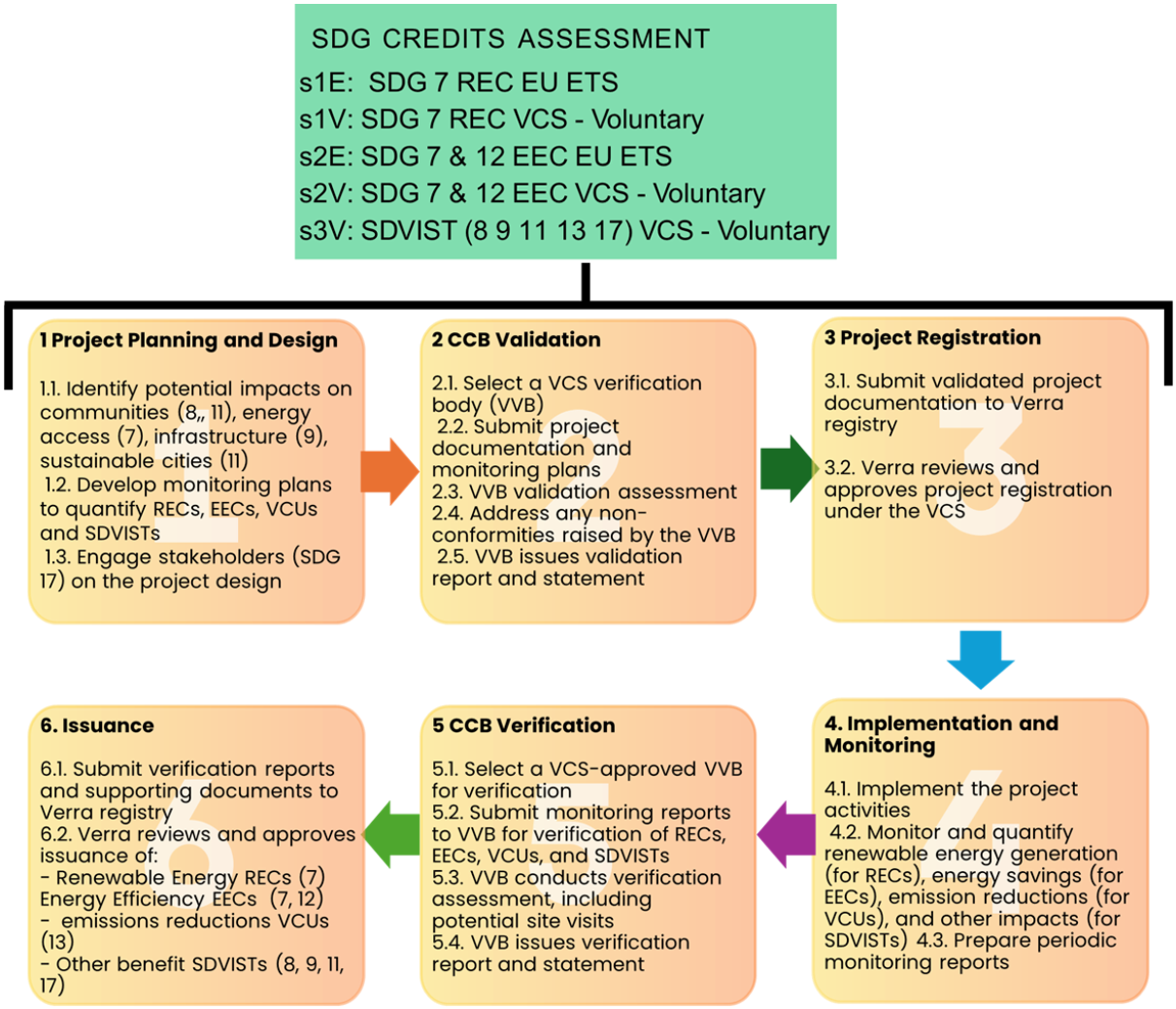
This combined certification provides assurance of the project's holistic benefits and enables the issuance of VCUs with a CCB label


CREDIT TYPES
1:E Renewable Energy Credits (REC) EU ETS
1V: REC, VCS - Voluntary
2E: Carbon Capture & Storage (CCS): EU ETS
2V: CCS, VCS - Voluntary
3E: Direct Air Capture Projects (DAC) : EU ETS
3V :DAC, VCS - Voluntary
4V. Energy Efficiency Credits (EEC) VM
5E. Pre-Certified projects (ETS)
5V. Pre-Certified projects (VCS)
1 Project Planning and Design
1.1. Conceptualization and Feasibility
1.2. Baseline Scenario and Additionality
1.3. Project Design Document (PDD) Preparation
1.4. Stakeholder Consultation
2 Project Validation
2.1. Selection of Verra as the Third-Party Validator
2.2. Submit PDD for Validation
2.3. Validation Assessment
2.4. Resolution of Non-Conformities
2.5. Validation Report and Statement
3 Project Registration
1.3.1. Submission to Verra Registry
2.3.2. Review by Verra
3.3.3. Registration Approval
4 Monitoring and Data Collection
4.1. Implementation of Monitoring Plan
4.2. Data Collection and Management
4.3. Quantification of GHG Reductions or Removals
5 Verification and Certification of Credits
5.1. Verra as the Third-Party Verifier
5.2. Submit of Monitoring Reports
5.3. Verification Assessment
5.4. Issuance of Verified Carbon Units (VCUs)
6 Credit Trading and Retirement
6.1. Trading on the Voluntary Market
6.2. Retirement of Credits for Offset Claims
7 Ongoing Monitoring and Periodic Verification
7.1. Continuous Monitoring and Data Collection
7.2. Periodic Submission of Monitoring Reports
7.3. Periodic Verification
8 Reporting and Documentation
8.1. Public Disclosure and Transparency
8.2. Documentation of Project Performance
9 Project Review and Improvement
9.1. Internal Project Review
9.2. Stakeholder Feedback
9.3. Implementation of Improvements

EU ETS Markets: Project and Credit Certification



UN SDG CCB Certification



Verra VCS and CCB Process Overlaps / Parallels

The key differences are the CCB Standards' focus on community and biodiversity benefits, in addition to climate impacts. Following is a detailed view of the overlaps and parallels.

1. **Project Planning and Design**
   - Develop project design document (PDD) aligning with both VCS and CCB requirements
2. **Validation**
   - Select a validator approved for both VCS and CCB
   - Submit PDD for validation against both standards
   - Validator conducts assessment for VCS and CCB compliance
   - Address non-conformities for both standards
3. **Project Registration**
   - Submit validated documentation to Verra Registry
   - Verra reviews and approves registration for both VCS and CCB
4. **Monitoring and Reporting**
   - Implement monitoring plan covering GHG, social and biodiversity impacts
   - Periodically submit monitoring reports to Verra for both VCS and CCB
5. **Verification**
   - Select verifier approved for both VCS and CCB
   - Submit monitoring reports for verification against both standards
   - Verifier conducts assessment and issues verification report for VCS and CCB

Annex A: Cooperative DAO Project Evaluation Overview

Project Evaluation and Membership Process

The Project Evaluation and Membership Process is designed to provide a rigorous assessment of projects seeking membership in our project cooperatives and potential consideration by the TenzaOne Investments DAO. This process ensures that projects are evaluated based on comprehensive criteria, promoting transparency, accountability, and alignment with sustainability goals. The process also aims to provide project owners and developers with sufficient information to determine the financial viability of certification, either directly or through the TenzaOne project cooperative, or to continue operations with potential for retroactive certifications.

1. Onboarding

1.1 **Initial Application Submission**

- Project owners submit an application detailing their project, including objectives, methods, expected outcomes, and alignment with sustainability goals.
- Submission includes basic project documentation such as project design documents, initial environmental impact assessments, and preliminary financial plans.
- The application must also include a self-assessment of the project's compliance with relevant sustainability standards.

1.2 **Preliminary Review**

- The evaluation team conducts an initial review to ensure the application meets basic requirements and completeness.
- Verification that all necessary documents are included and the project scope is clearly defined.
- Projects that do not meet the basic requirements are provided with feedback and guidance for resubmission.

1.3 **Initial Scoring**

- Preliminary scoring based on the initial application to determine if the project qualifies for a detailed assessment.
- Criteria for scoring include alignment with sustainability goals, potential impact, and feasibility.
- Feedback is provided on the initial score, including areas for improvement before moving to the next stage.

2. Detailed Assessment

2.1 **Comprehensive Documentation Review**

- In-depth review of all project documentation, including detailed technical specifications, environmental impact assessments, and sustainability reports.
- Ensuring compliance with relevant standards and guidelines such as UN SDGs, carbon credit frameworks, and local regulations.
- Assessment of project feasibility, risk management plans, and stakeholder engagement strategies.

2.2 **Site Visit and Verification**

- Physical site visits to verify the information provided in the documentation and to assess the project's operational processes and environmental practices.
- Evaluation of on-ground implementation of project plans and technologies used.
- Interaction with project staff and local communities to gather firsthand information.

2.3 **Stakeholder Consultation**

- Engagement with key stakeholders, including local communities, investors, regulatory bodies, and other relevant parties.
- Conducting interviews, surveys, and public consultations to gather input and feedback on the project's impact.
- Documentation of stakeholder concerns and responses, and incorporation of stakeholder feedback into the project evaluation.

2.4 **Impact Analysis**

- Detailed analysis of the project's potential environmental, social, and economic impacts.
- Assessment of both positive and negative impacts, and the measures taken to mitigate any adverse effects.
- Evaluation of the project's alignment with broader sustainability goals and potential for long-term benefits.

3. Scoring and Evaluation

3.1 **Scoring Based on Metrics**

- Projects are scored based on a comprehensive set of metrics, including environmental sustainability, social impact, economic viability, and innovation.

- Metrics are aligned with global standards such as UN SDGs, carbon credit frameworks, and local sustainability goals.
- Scoring is conducted using a standardized scoring framework to ensure consistency and fairness.

3.2 **Peer Review**

- Independent peer review by experts in relevant fields to ensure unbiased and accurate scoring.
- Reviewers provide additional insights, recommendations, and validation of the evaluation team's findings.
- Peer reviewers assess the project's overall potential and provide an external perspective on its strengths and weaknesses.

3.3 **Final Score Compilation**

- Compilation of scores from the evaluation team and peer reviewers to calculate the final score.
- Preparation of a detailed evaluation report, including an executive summary, detailed findings, and recommendations.
- The final score and evaluation report are used to inform the decision-making process.

4. Decision Making

4.1 **Presentation to DAO**

- Presentation of the project's evaluation report to the DAO for review and consideration.
- Detailed discussion of the project's strengths, weaknesses, and overall potential based on the evaluation report.
- DAO members have the opportunity to ask questions, seek clarifications, and discuss the project in-depth.

4.2 **DAO Deliberation and Voting**

- DAO members deliberate on the project's merits and vote on its acceptance or rejection.
- The decision-making process is transparent and follows established governance protocols, including conflict of interest management.
- Voting outcomes are recorded, and the decision is based on the majority vote.

4.3 **Decision Notification**

- Notification of the decision to the project owner, including detailed explanations of the reasons for acceptance or rejection.
- Accepted projects receive an official acceptance letter, detailing the next steps for membership or investment consideration.
- Rejected projects receive a detailed feedback report, outlining the reasons for rejection and areas for improvement.

5. Membership and Investment Consideration

5.1 **Eligibility for Cooperative Membership**

- Projects that achieve a high score are eligible for membership in the project cooperatives.
- Membership provides access to resources, networking opportunities, and collaborative platforms.
- Cooperative members can benefit from shared knowledge, best practices, and collective bargaining power.

5.2 **Consideration for TenzaOne Investments DAO**

- High-scoring projects are also considered for investment by the TenzaOne Investments DAO.
- The DAO provides potential for financial support, strategic guidance, and mentorship.
- Investment decisions are based on the project's potential for impact, scalability, and alignment with the DAO's investment goals.

5.3 **Notification of Acceptance or Rejection**

- Official notification of the project's acceptance into the cooperative or consideration by the DAO.
- Accepted projects receive detailed guidance on the next steps, including onboarding processes and membership benefits.
- Rejected projects receive detailed feedback and guidance on how to improve for future consideration.

6. Feedback and Resubmission

6.1 **Providing Detailed Feedback**

- Detailed feedback is provided to projects that do not achieve the required score for acceptance.
- Feedback includes specific areas for improvement, recommendations for addressing gaps, and potential resources for support.
- The feedback process is designed to be constructive and supportive, helping projects to improve their viability and impact.

6.2 **Guidance for Improvement**

- Guidance and support are offered to help project owners address the identified gaps and improve their project proposals.
- Resources and tools are provided, including templates, best practice guides, and access to expert consultations.
- Project owners are encouraged to seek support from the cooperative community and other available resources.

6.3 **Resubmission Process**

- Projects are encouraged to resubmit their applications after addressing the feedback and making the necessary improvements.
- The resubmission process allows for reevaluation and potential acceptance in subsequent rounds.
- ensuring a smooth and efficient process.

7. Ongoing Tracking and Documentation

7.1. Blockchain Verification

- Implement Blockchain Technology: Integrate blockchain technology into the project's data management system.
- Secure Data Recording: Ensure all project data is recorded securely on the blockchain.
- Verification and Transparency: Utilize blockchain features to provide transparent and verifiable project information.

7.2. Continuous Monitoring

- Develop Monitoring Plan: Create a comprehensive plan for ongoing monitoring of project activities and impacts.
- Regular Data Collection: Collect data regularly on key performance indicators (KPIs) related to environmental, social, and economic impacts.

- Data Analysis and Evaluation: Analyze collected data to evaluate project performance and identify areas for improvement.

7.3. Reporting and Updates

- 3.1 Periodic Reporting: Prepare and submit regular reports on project performance and impacts.
- 3.2 Stakeholder Communication: Communicate updates and findings to stakeholders, including project owners, investors, and community members.
- 3.3 Feedback and Continuous Improvement: Use feedback from stakeholders to inform continuous improvement of project activities.

Annex B: Internal Project Pre-Assessment Detail

Before proceeding with the certification of carbon credit projects, an internal pre-assessment is essential to determine the most suitable certification path. This process ensures that the project aligns with the appropriate certification standards and maximizes its potential benefits. Below is a detailed expanded description of each step involved in the internal pre-assessment:

1. Project Conceptualization and Feasibility

1.1 Initial Project Concept The first step in the pre-assessment process is to define the scope and objectives of the project. This involves identifying the type of project, whether it is reforestation, renewable energy, waste management, or any other carbon reduction initiative.

A clear understanding of the project's goals and the expected outcomes is crucial at this stage. This helps in framing the project within the broader context of carbon reduction strategies and ensures alignment with the organization's environmental goals.

1.2 Feasibility Study A comprehensive feasibility study is conducted to assess the project's viability. This includes evaluating the potential environmental, social, and economic impacts. The feasibility study should consider technical feasibility, financial viability, and the regulatory landscape.

An estimation of the project's emission reduction potential is also carried out to understand its effectiveness in contributing to carbon offset goals. The feasibility study helps in identifying any potential barriers to implementation and provides a foundation for informed decision-making.

2. Baseline Scenario and Additionality

2.1 Baseline Scenario Establishing a baseline scenario is essential for understanding the emissions that would occur in the absence of the project. This involves using historical data and relevant benchmarks to create a clear picture of the current emissions levels.

The baseline scenario serves as a reference point against which the project's impact will be measured. Accurate baseline data ensures that the project's emission reductions are credible and quantifiable.

2.2 Additionality Assessment The additionality assessment is a critical step to demonstrate that the project's emission reductions or removals are beyond any business-as-usual scenario. This involves showing that the project would not be implemented without the carbon finance it seeks to generate. The additionality

assessment helps in ensuring that the project is making a genuine contribution to emission reductions, which is a key requirement for most certification standards.

3. Stakeholder Engagement

3.1 Identifying Stakeholders Identifying all relevant stakeholders is crucial for the project's success. Stakeholders may include local communities, government bodies, potential investors, and other parties affected by or interested in the project. A comprehensive stakeholder identification process ensures that all voices are heard and considered in the project planning.

3.2 Stakeholder Consultation Engaging with stakeholders to gather input and address concerns is an essential part of the pre-assessment process. This involves conducting meetings, surveys, and workshops to collect feedback and ensure that stakeholder interests are represented. Documenting stakeholder feedback and incorporating it into the project design enhances the project's credibility and social acceptability.

4. Preliminary Impact Assessment

4.1 Environmental Impact Assessing the potential environmental impacts of the project is vital for ensuring its sustainability. This includes evaluating both positive and negative impacts on local ecosystems, biodiversity, water resources, and air quality. Identifying measures to mitigate negative impacts and enhance positive outcomes is a key part of this assessment. The environmental impact assessment ensures that the project contributes positively to the environment.

4.2 Social Impact Evaluating the potential social impacts involves understanding how the project will affect local communities and livelihoods. This includes assessing impacts on employment, health, education, and social equity. Developing strategies to ensure positive social outcomes and minimize adverse effects is essential for the project's success and acceptability. The social impact assessment helps in aligning the project with broader social goals and ensuring community support.

5. Certification Pathway Analysis

5.1 Certification Options Reviewing various certification standards available, such as Verra VCS, Gold Standard, and UN SDG CCB Standards, is crucial for selecting the right pathway. Each certification standard has its own requirements, benefits, and costs. Comparing these options helps in understanding which standard aligns best with the project's characteristics and goals.

5.2 Suitability Assessment Determining the most suitable certification standard involves analyzing the project's scale, type, geographic location, and potential co-benefits. This assessment helps in ensuring that the chosen certification pathway aligns

with the project's objectives and maximizes its benefits. The suitability assessment ensures that the project is positioned for success in the certification process.

6. Project Design Document (PDD) Preparation

6.1 Documentation Preparing a comprehensive Project Design Document (PDD) that outlines the project's objectives, methodologies, and expected outcomes is a critical step. The PDD should align with the requirements of the chosen certification standard and provide detailed information on the project's implementation plan. The PDD serves as the primary document for the certification process.

6.2 Internal Review Conducting an internal review of the PDD ensures accuracy and completeness. This involves a thorough examination of the document to identify any gaps or issues that need to be addressed. The internal review helps in ensuring that the PDD is robust and ready for submission.

7. Risk Assessment and Mitigation

7.1 Risk Identification Identifying potential risks that could impact the project's success is essential for proactive management. This includes assessing regulatory, financial, and operational risks. Understanding the potential risks helps in developing strategies to mitigate them.

7.2 Mitigation Strategies Developing strategies to mitigate identified risks ensures that the project remains on track. This includes planning for contingencies and implementing measures to address potential issues. Risk mitigation strategies enhance the project's resilience and increase its chances of success.

8. Decision-Making and Approval

8.1 Internal Review Presenting the findings of the pre-assessment to senior management for review. This involves summarizing the assessment outcomes and making a case for the chosen certification pathway. The internal review ensures that the project has been thoroughly evaluated from multiple perspectives.

8.2 Viability and Feasibility Decision Weighing the costs, benefits, and other criteria to decide whether to certify the project and credits individually, via the TenzaOne cooperative, or to verify the project without actual certifications. This decision point is crucial for determining the most cost-effective and strategic approach for the organization.

8.3 Internal Approval Securing formal approval from senior management to proceed with the chosen certification path. This involves presenting the finalized pre-assessment report and obtaining the necessary endorsements to move forward. Internal approval ensures organizational commitment and resource allocation for the project.

8.4 Documentation and Reporting Documenting the pre-assessment process and outcomes provides a record of the steps taken and the rationale for the chosen certification path. Preparing a report summarizing the findings helps in communicating the decision to stakeholders and serves as a reference for future projects.

9. Preparation for Certification Application

9.1 Final Preparations Making any necessary adjustments to the project design based on the pre-assessment findings ensures that the project is fully prepared for certification. This involves refining the PDD and ensuring that all documentation is complete.

9.2 Submission Readiness Confirming that the project is ready for submission to the selected certification body marks the final step in the pre-assessment process. This includes reviewing all application materials and ensuring compliance with certification requirements. Initiating the formal certification application process is the culmination of the pre-assessment efforts.

By conducting a thorough internal pre-assessment, Tenza ensures that carbon credit projects are well-prepared for certification, align with the most appropriate standards, and maximize their environmental, social, and economic benefits. This structured approach helps in making informed decisions and enhances the credibility and success of the projects.

Annex B - Voluntary Markets Certification Process Detail

VCS Step 1: Project Planning and Design

1.1 Conceptualization and Feasibility

Objective: Develop the initial project idea and assess its feasibility to ensure it can achieve the intended emissions reductions and meet VCS requirements.

- **Steps:Define Project Goals and Objectives**:
    - Clearly articulate the project's environmental, social, and economic goals.
    - Identify the specific emissions reduction targets and sustainability objectives.
- **Conduct Preliminary Technical, Financial, and Environmental Feasibility Assessments**:
    - **Technical Feasibility**:
        - Evaluate the technical aspects of the project, including the technology to be used, resource availability, and operational requirements.
        - Conduct site assessments and technical studies to ensure the project's technical viability.
    - **Financial Feasibility**:
        - Perform a financial analysis to estimate the project costs, potential revenue from carbon credits, and overall financial viability.
        - Identify potential funding sources and financial risks.
    - **Environmental Feasibility**:
        - Assess the environmental impact of the project, including potential benefits and negative effects.
        - Ensure the project complies with environmental regulations and standards.
- **Identify Potential Risks and Challenges**:
    - Conduct a risk assessment to identify potential technical, financial, regulatory, and operational risks.
    - Develop risk mitigation strategies to address identified risks.

1.2 Baseline Scenario and Additionality

Objective: Establish the project's baseline emissions scenario and demonstrate its additionality to prove that the project's emissions reductions are beyond business-as-usual activities.

- **Steps:Determine Current Emissions without the Project (Baseline Scenario)**:
    - Conduct a detailed analysis to quantify the current emissions in the absence of the project.
    - Use historical data, industry benchmarks, and scientific methodologies to establish the baseline emissions scenario.
- **Evaluate the Project's Additionality**:
    - Demonstrate that the project would not have occurred without the financial incentive provided by carbon credits.
    - Use recognized additionality tests such as the investment test, barrier analysis, and common practice analysis to establish additionality.
    - Provide evidence that the project faces financial, technical, or regulatory barriers that prevent it from being implemented without carbon financing.

1.3 Project Design Document (PDD) Preparation

Objective: Prepare a detailed project plan by compiling all necessary project information into the Project Design Document (PDD).

Steps:

- **Compile All Project Details into the PDD**:
    - Include a comprehensive project description covering project type, location, technology, and expected outcomes.
    - Provide detailed baseline and monitoring methodologies, including how emissions reductions will be measured, monitored, and reported.
    - Outline the project implementation timeline and key milestones.
    - Initial implementation will establish the ERC-1155 infrastructure for project data and verification, with bridge mechanisms designed to accommodate future ERC-3643 integration for investment instruments as regulatory requirements evolve and appropriate licenses are secured.
- **Ensure Compliance with VCS Requirements**:
    - Ensure the PDD aligns with VCS standards and guidelines.

- Incorporate all necessary information to meet VCS validation and verification criteria.

- **Include Environmental and Social Impact Assessments**:
  - Document potential environmental and social impacts of the project.
  - Provide mitigation plans for any adverse impacts identified.

1.4 Stakeholder Consultation

Objective: Engage stakeholders and gather their input to ensure project transparency and support.

- **Steps:Identify Relevant Stakeholders**:
  - Identify all stakeholders who may be affected by the project, including local communities, government agencies, NGOs, and industry experts.
- **Conduct Consultations and Document Feedback**:
  - Organize stakeholder consultation meetings to present the project plan and gather feedback.
  - Use surveys, public meetings, and workshops to engage stakeholders and document their input.
  - Ensure that stakeholder consultations are inclusive and transparent.
- **Integrate Stakeholder Feedback into the Project Design**:
  - Review and analyze stakeholder feedback.
  - Incorporate relevant suggestions and concerns into the PDD and project plan.
  - Provide a summary of stakeholder consultations and how feedback was addressed in the PDD.

VCS Step 2: Project Validation

2.1 Selection of Verra as the Third-Party Validator

Objective: Choose an independent validator to ensure the project complies with VCS standards and requirements.

- **Steps:Research and Select an Appropriate Validator**:
  - **Identify Accredited Validators**: Review the list of validators accredited by VCS.

- **Evaluate Validator Expertise**: Assess their experience in validating similar projects, especially those in the same sector or geographical region.
- **Consider Validator Reputation**: Look for feedback and reviews from other projects they have validated.

- **Formalize the Engagement with the Selected Validator**:
  - **Initiate Contact**: Reach out to the chosen validator to discuss the project and their validation process.
  - **Negotiate Terms**: Agree on the scope of work, timeline, and fees for validation services.
  - **Sign Contract**: Formalize the engagement through a contract detailing responsibilities, deliverables, and terms of payment.

2.2 Submit PDD for Validation

Objective: Submit the Project Design Document (PDD) to the chosen validator for assessment.

- **Steps:Ensure the PDD is Complete and Accurate**:
  - **Internal Review**: Conduct a thorough internal review of the PDD to ensure all necessary details are included and accurate.
  - **Cross-Check Compliance**: Verify that the PDD complies with all VCS requirements and guidelines.
- **Submit the PDD to the Chosen Validator**:
  - **Prepare Submission Package**: Compile all required documents, including the PDD, baseline study, stakeholder consultation records, and other supporting materials.
  - **Submit Documents**: Send the submission package to the validator according to their preferred method (e.g., electronic submission, hard copies).

2.3 Validation Assessment

Objective: Have the validator assess the project for compliance with VCS standards and identify any issues or non-conformities.

- **Steps:Provide Additional Information or Clarification as Requested by the Validator**:
  - **Open Communication**: Maintain clear and open communication with the validator throughout the assessment process.

- **Respond Promptly**: Provide any additional information or clarification requested by the validator in a timely manner.

- **Participate in Site Visits (if required)**:
  - **Coordinate Logistics**: Arrange and coordinate site visits for the validator, including travel, accommodations, and access to the project site.
  - **Prepare for the Visit**: Ensure that the project site and relevant personnel are prepared to provide the necessary information and access during the site visit.

2.4 Resolution of Non-Conformities

Objective: Resolve any issues identified during the validation process to ensure compliance with VCS standards.

- **Steps:Review the Validator's Findings**:
  - **Receive Validation Report**: Obtain the validation report from the validator, which includes identified non-conformities and required corrective actions.
  - **Analyze Findings**: Carefully review and analyze the validator's findings to understand the issues raised.
- **Work with the Project Team to Address and Rectify Non-Conformities**:
  - **Develop Corrective Action Plan**: Create a detailed plan to address each non-conformity, specifying the steps to be taken, responsible parties, and timelines.
  - **Implement Corrective Actions**: Execute the corrective action plan, making necessary adjustments to the project design, documentation, or implementation processes.
- **Resubmit Any Revised Documentation to the Validator**:
  - **Update Documents**: Revise the PDD and other relevant documents to reflect the corrective actions taken.
  - **Resubmit for Review**: Send the updated documentation to the validator for re-assessment.
- **Follow-Up Assessment**:
  - **Engage in Additional Reviews**: If required, engage in follow-up reviews with the validator to ensure all non-conformities have been satisfactorily resolved.

- **Obtain Final Validation Report**: Aim to obtain a final validation report confirming that the project meets VCS standards.

VCS Step 3: Registration with VCS

3.1 Submission of Validation Report

Objective: Submit the completed validation report and associated documentation to the VCS registry for project approval and registration.

- **Steps:Compile All Necessary Documentation**:
  - **Validation Report**: Ensure the validation report from the third-party validator is complete and includes all required details and findings.
  - **Project Design Document (PDD)**: Include the final, validated version of the PDD.
  - **Supporting Documents**: Gather any additional documents that support the project's compliance, such as baseline studies, stakeholder consultation records, and monitoring plans.
- **Submit the Documents to the VCS Registry**:
  - **Prepare Submission Package**: Organize all required documents into a coherent submission package.
  - **Submit Through VCS System**: Use the VCS registry's online platform to submit the documentation, following their specific submission guidelines and format requirements.
- **Ensure Confirmation of Submission**:
  - **Receive Acknowledgment**: Confirm that the VCS registry has received the submission package.
  - **Track Submission Status**: Monitor the status of the submission through the VCS system.

3.2 VCS Review

Objective: Have the VCS registry review the submitted documents to ensure compliance with their standards and requirements.

- **Steps:VCS Initial Review**:
  - **Documentation Check**: VCS conducts an initial check to ensure all required documents are included and complete.

- **Compliance Verification**: VCS reviews the documents to verify that the project meets their standards and guidelines.

- **Respond to Additional Requests for Information**:
  - **Communication with VCS**: Maintain open lines of communication with the VCS registry.
  - **Provide Clarifications**: Respond promptly to any requests for additional information or clarifications.
  - **Address Feedback**: Review any feedback from VCS and make necessary adjustments to the documentation.
- **Address Any Further Issues Identified by VCS**:
  - **Resolve Issues**: Work to resolve any issues or non-conformities identified by VCS during their review.
  - **Resubmit Documents**: Update and resubmit documents as needed to address VCS's concerns.

3.3 Project Registration

Objective: Achieve official registration of the project with VCS, enabling it to issue carbon credits.

- **Steps:Receive Confirmation of Project Registration**:
  - **Official Notification**: Obtain formal notification from VCS that the project has been registered.
  - **Update Project Records**: Update internal project records to reflect the official VCS registration.
- **Update Stakeholders**:
  - **Inform Stakeholders**: Notify all relevant stakeholders, including project developers, investors, and partners, about the successful registration.
  - **Public Announcement**: Consider making a public announcement or press release to highlight the project's registration and its potential impact.
- **Integration into VCS Registry**:
  - **Project Listing**: Ensure the project is listed on the VCS registry's online platform.
  - **Access to Registry**: Provide relevant stakeholders with access to the VCS registry listing for transparency and verification purposes.

VCS Step 4: Monitoring and Data Collection

4.1 Develop a Monitoring Plan

Objective: Establish a comprehensive monitoring plan that outlines the procedures and methodologies for collecting and recording data on the project's emissions reductions and other relevant metrics.

- **Steps:Identify Key Parameters to Monitor**:
    - **Emissions Reductions**: Identify the specific greenhouse gases (GHGs) and sources that need to be monitored.
    - **Project Activities**: Define the key project activities and processes that impact emissions.
    - **Environmental and Social Impacts**: Determine additional environmental and social metrics that need monitoring, if applicable.
- **Develop Monitoring Methodologies**:
    - **Selection of Methodologies**: Choose appropriate monitoring methodologies in line with VCS standards.
    - **Documentation of Procedures**: Document detailed procedures for data collection, measurement, and recording.
    - **Frequency of Monitoring**: Define the frequency of data collection and monitoring activities.
- **Assign Responsibilities**:
    - **Monitoring Team**: Identify and assign roles and responsibilities to the monitoring team members.
    - **Training**: Ensure team members are adequately trained in monitoring methodologies and procedures.
- **Quality Assurance and Quality Control (QA/QC) Procedures**:
    - **QA/QC Plan**: Develop a QA/QC plan to ensure the accuracy and reliability of collected data.
    - **Calibration and Maintenance**: Establish procedures for the calibration and maintenance of monitoring equipment.

4.2 Data Collection

Objective: Collect accurate and reliable data on project activities, emissions reductions, and other relevant metrics as outlined in the monitoring plan.

- **Steps:Implement Monitoring Plan**:
    - **Field Data Collection**: Conduct regular field visits to collect data according to the established methodologies.
    - **Use of Technology**: Employ appropriate technology and equipment for accurate data measurement and recording.
- **Ensure Consistent and Accurate Data Recording**:
    - **Data Recording Systems**: Use standardized data recording systems and templates to ensure consistency.
    - **Data Entry**: Train personnel in accurate data entry practices to minimize errors.
- **Manage Data Storage and Security**:
    - **Data Management System**: Implement a robust data management system to store and manage collected data.
    - **Data Security**: Ensure the security of data through access controls, backups, and encryption.

4.3 Ongoing Monitoring and Reporting

Objective: Conduct ongoing monitoring and periodic reporting of the project's emissions reductions and other relevant metrics to ensure transparency and compliance with VCS requirements.

- **Steps:Regular Data Review and Analysis**:
    - **Data Verification**: Regularly review and verify collected data for accuracy and completeness.
    - **Data Analysis**: Analyze data to assess the project's performance and identify trends or issues.
- **Prepare Monitoring Reports**:
    - **Periodic Reports**: Prepare periodic monitoring reports as required by VCS, detailing the project's emissions reductions and other relevant metrics.
    - **Report Templates**: Use VCS-approved templates and formats for reporting.
- **Submit Reports to VCS**:
    - **Submission Process**: Follow VCS guidelines for the submission of monitoring reports.

- **Submission Frequency**: Ensure reports are submitted at the required intervals, typically annually.

- **Address Feedback from VCS**:
  - **Review Feedback**: Review any feedback or queries from VCS regarding submitted reports.
  - **Provide Clarifications**: Address any requests for additional information or clarification in a timely manner.
  - **Corrective Actions**: Implement corrective actions if any issues are identified by VCS.

4.4 Continuous Improvement

Objective: Continuously improve the monitoring and data collection processes to enhance the accuracy and reliability of emissions reductions reporting.

- **Steps:Review and Update Monitoring Plan**:
  - **Periodic Reviews**: Conduct periodic reviews of the monitoring plan to ensure it remains relevant and effective.
  - **Incorporate Learnings**: Update the plan based on lessons learned, technological advancements, and feedback from VCS.
- **Training and Capacity Building**:
  - **Ongoing Training**: Provide ongoing training and capacity building for the monitoring team.
  - **Skill Enhancement**: Enhance the skills of team members in data collection, analysis, and reporting.
- **Stakeholder Engagement**:
  - **Engage Stakeholders**: Maintain ongoing engagement with stakeholders to gather feedback and improve monitoring practices.
  - **Transparency**: Ensure transparency in reporting and communication with stakeholders about project performance and monitoring outcomes.

VCS Step 5: Verification and Certification

5.1 Selection of an Independent Verifier

Objective: Choose an independent verifier to conduct a thorough assessment of the project's monitoring data and verify the reported emissions reductions.

- **Steps:Identify Accredited Verifiers**:
    - **Research Verifiers**: Review the list of verifiers accredited by VCS, focusing on those with relevant experience and expertise in similar projects.
    - **Check Credentials**: Ensure that the verifiers have the necessary qualifications and a strong track record of successful verifications.
- **Evaluate Potential Verifiers**:
    - **Assess Experience**: Evaluate their experience with similar project types and geographic regions.
    - **Consider Reputation**: Check references and reviews from previous projects they have verified.
- **Formalize Engagement with the Selected Verifier**:
    - **Initiate Contact**: Reach out to the chosen verifier to discuss the verification process and requirements.
    - **Negotiate Terms**: Agree on the scope of work, timeline, and fees for verification services.
    - **Sign Contract**: Formalize the engagement through a contract detailing responsibilities, deliverables, and terms of payment.

5.2 Verification Assessment

Objective: Have the verifier assess the project's monitoring data and verify the reported emissions reductions.

- **Steps:Provide Access to Monitoring Data:**
    - **Data Submission**: Submit all relevant monitoring data and reports to the verifier.
    - **Access to Systems**: Provide access to data management systems and records.
- **Coordinate Site Visits (if required)**:
    - **Prepare for Site Visits**: Ensure the project site is prepared for visits, with all necessary personnel and documentation available.
    - **Facilitate Access**: Arrange logistics and provide necessary access to the verifier during site visits.

- **Engage in Verifier's Review Process**:
    - **Respond to Queries**: Maintain open communication with the verifier, responding promptly to any questions or requests for additional information.
    - **Provide Clarifications**: Offer detailed explanations and clarifications as needed to address any concerns raised by the verifier.

5.3 Verification Report

Objective: Obtain a verification report from the verifier that confirms the project's compliance with VCS standards and verifies the reported emissions reductions.

- **Steps:Receive Preliminary Verification Findings**:
    - **Initial Feedback**: Obtain initial feedback and findings from the verifier.
    - **Review and Address Issues**: Review any identified issues or non-conformities and work to resolve them promptly.
- **Finalize Verification Report**:
    - **Review Draft Report**: Review the draft verification report for accuracy and completeness.
    - **Provide Feedback**: Offer feedback or corrections to the verifier if necessary.
    - **Obtain Final Report**: Receive the final verification report confirming the project's compliance and verified emissions reductions.

5.4 Submit Verification Report to VCS

Objective: Submit the verification report to VCS for final review and certification of the project's emissions reductions.

- **Steps:Prepare Submission Package**:
    - **Verification Report**: Ensure the final verification report is complete and includes all necessary details.
    - **Supporting Documentation**: Include any additional documents required by VCS, such as updated monitoring reports and evidence of corrective actions taken.
- **Submit Documents to VCS**:
    - **Follow Submission Guidelines**: Adhere to VCS's specific submission guidelines and format requirements.

- **Track Submission**: Confirm receipt of the submission package by VCS and monitor the status of the submission.

- **Address Any Additional Feedback from VCS**:
  - **Review Feedback**: Carefully review any feedback or requests for additional information from VCS.
  - **Provide Clarifications**: Respond promptly to any requests and provide necessary clarifications or additional documents.

5.5 Certification and Issuance of Carbon Credits

Objective: Achieve certification from VCS and obtain issuance of carbon credits based on the verified emissions reductions.

- **Steps:Receive Certification Notification**:
  - **Official Notification**: Obtain formal notification from VCS that the project has been certified.
  - **Review Certification Details**: Ensure that all details of the certification are correct and reflect the verified emissions reductions.

- **Issuance of Carbon Credits**:
  - **VCS Registry**: Ensure the issuance of carbon credits is recorded in the VCS registry.
  - **Credits Allocation**: Confirm the allocation and distribution of carbon credits as per the project agreement.

- **Update Stakeholders**:
  - **Inform Stakeholders**: Notify all relevant stakeholders, including project developers, investors, and partners, about the successful certification and issuance of carbon credits.
  - **Public Announcement**: Consider making a public announcement or press release to highlight the project's certification and its potential impact.

VCS Step 6: Credit Issuance and Management

6.1 Issuance of Credits by VCS

Objective: Secure the issuance of verified carbon credits by the Verified Carbon Standard (VCS) registry based on the verified emissions reductions.

- **Steps:Review Issuance Documentation**:

- **Verification Report**: Ensure the final verification report has been accepted by VCS.
- **Certification Confirmation**: Confirm that VCS has issued the certification for the emissions reductions.

- **Submit Issuance Request**:
  - **Prepare Issuance Request**: Compile all necessary documents for the issuance request, including the verification report and any additional supporting documentation.
  - **Follow Submission Guidelines**: Adhere to VCS's specific guidelines for submitting an issuance request.
  - **Submit Request**: Submit the issuance request through the VCS registry's online platform.
- **Track Issuance Status**:
  - **Monitor Request**: Track the status of the issuance request through the VCS registry.
  - **Address Queries**: Respond promptly to any queries or additional information requests from VCS.

6.2 Receipt and Allocation of Credits

Objective: Receive the issued carbon credits and allocate them according to the project's plan and stakeholder agreements.

- **Steps:Receive Issued Credits**:
  - **Notification from VCS**: Obtain formal notification from VCS that the carbon credits have been issued.
  - **Verify Allocation**: Ensure the correct number of credits has been allocated in the VCS registry.
- **Credit Allocation Plan**:
  - **Review Allocation Plan**: Review the project's credit allocation plan, detailing how the credits will be distributed among stakeholders.
  - **Stakeholder Agreements**: Confirm that all stakeholder agreements regarding credit allocation are up to date and agreed upon.
- **Distribute Credits**:

- **Allocate Credits in Registry**: Use the VCS registry to allocate the issued credits to the respective stakeholder accounts.
- **Notify Stakeholders**: Inform stakeholders of their respective credit allocations and provide access to their credit accounts.

6.3 Post-Issuance Compliance and Reporting

Objective: Maintain compliance with VCS requirements and ensure ongoing transparency through regular reporting and verification.

- **Steps:Ongoing Monitoring and Reporting**:
  - **Update Monitoring Plan**: Continuously update and refine the monitoring plan to ensure ongoing compliance and accuracy.
  - **Regular Data Collection**: Continue collecting data on project performance and emissions reductions.
- **Periodic Verification**:
  - **Schedule Verifications**: Plan for periodic verifications as required by VCS, typically on an annual or biannual basis.
  - **Engage Verifiers**: Select and engage independent verifiers for subsequent verification cycles.
- **Submit Monitoring Reports to VCS**:
  - **Prepare Reports**: Compile monitoring data and prepare regular reports as required by VCS.
  - **Submit and Track Reports**: Submit the reports through the VCS registry and track their status.
- **Address Feedback and Non-Conformities**:
  - **Review VCS Feedback**: Carefully review any feedback from VCS on submitted reports or verification findings.
  - **Implement Corrective Actions**: Address any identified non-conformities and implement necessary corrective actions.

6.4 Market and Trade Credits

Objective: Facilitate the trading and selling of issued carbon credits in the voluntary carbon market or through direct agreements.

- **Steps:Develop Market Strategy**:

- **Market Research**: Conduct market research to identify potential buyers and market opportunities.
- **Pricing Strategy**: Develop a pricing strategy based on market conditions, project type, and credit demand.

- **Engage Buyers and Brokers**:
  - **Identify Potential Buyers**: Reach out to potential buyers, including corporations, governments, and intermediaries.
  - **Negotiate Terms**: Negotiate terms of sale, including price, volume, and delivery timelines.
  - **Utilize Brokers**: Consider using carbon credit brokers to facilitate transactions and access a broader market.
- **Execute Sales Agreements**:
  - **Draft Agreements**: Draft and review sales agreements detailing the terms of credit transfer.
  - **Sign Contracts**: Execute contracts with buyers and ensure all legal and regulatory requirements are met.
- **Transfer Credits**:
  - **Registry Transfer**: Use the VCS registry to transfer ownership of the sold credits to the buyer.
  - **Notify Parties**: Inform all parties involved of the successful transfer and provide necessary documentation.

6.5 Credit Retirement and Reporting

Objective: Retire carbon credits as required to ensure they are not used again and to maintain transparency with stakeholders.

- **Steps:Retirement of Credits**:
  - **Determine Retirement**: Identify which credits need to be retired based on project agreements or buyer requests.
  - **Retire in Registry**: Use the VCS registry to officially retire the credits, ensuring they cannot be sold or traded again.
- **Retirement Certificates**:
  - **Generate Certificates**: Obtain retirement certificates from the VCS registry as proof of retirement.

- **Distribute Certificates**: Provide retirement certificates to stakeholders or buyers as proof of offset.

- **Public Reporting**:
  - **Transparency Reports**: Prepare public reports detailing the number of credits retired, project impacts, and benefits.
  - **Stakeholder Communication**: Regularly communicate with stakeholders about the status of credit issuance, sales, and retirement.

7. Ongoing Monitoring and Periodic Verification

- Continuously monitor the project's performance and collect data according to the monitoring plan
- Periodically submit monitoring reports to Verra for review, typically every 1-5 years depending on the project type
- Undergo periodic verification by Verra to ensure the project's ongoing performance and emission reductions

8. Reporting and Documentation

- Verra publicly discloses all project documentation and credit issuance and retirement records to ensure transparency
- Maintain comprehensive documentation of the project's performance, including monitoring reports and verification statements

9. Project Review and Improvement

- Conduct regular internal reviews to assess the project's performance, identify areas for improvement, and implement corrective actions
- Gather feedback from stakeholders, including local communities and project participants, to identify opportunities for improvement
- Implement identified improvements to enhance the project's performance, social and environmental benefits, and overall impact

Annex C – EU ETS Markets Certification Process Detail

EU ETS Certification Process: Project & Credits Evaluation

EU ETS Step 1: Pre-Qualification and Initial **Assessment**

1.1 Project Identification

Objective: Ensure the project falls within the sectors covered by the EU ETS and identify all relevant emission sources.

- **Steps:Review Scope**:
    - **Sector Eligibility**: Confirm that the project is within the sectors regulated by the EU ETS, such as power generation, manufacturing, aviation, and certain industrial processes.
    - **Activity Inclusion**: Ensure that the specific activities of the project are covered under the EU ETS directive, such as combustion of fuels, production of cement clinker, and manufacturing of steel.
- **Emission Sources Identification**:
    - **Direct Emissions**: Identify all direct emission sources related to the project, such as combustion units, industrial processes, and fugitive emissions.
    - **Indirect Emissions**: Determine any relevant indirect emission sources, including emissions from electricity and heat consumption.
- **Mapping Emission Sources**:
    - **Create an Emission Map**: Develop a detailed map or inventory of all emission sources within the project boundaries.
    - **Categorize Emissions**: Categorize emissions by type, source, and relevance to the EU ETS regulations.

1.2 Initial Assessment

Objective: Verify that the project meets the eligibility criteria set by the EU ETS and establish a baseline for emissions.

- **Steps:Eligibility Check**:
    - **Compliance Criteria**: Review the compliance criteria for the EU ETS, such as thresholds for greenhouse gas emissions and installation capacity.
    - **Regulatory Requirements**: Ensure the project meets all regulatory requirements, including permits and legal obligations.
- **Baseline Establishment**:
    - **Historical Data Review**: Gather historical emissions data for the project, if available, to establish a baseline for comparison.
    - **Industry Standards**: Use industry standards or benchmarks to estimate baseline emissions for new or modified projects.
    - **Emission Factors**: Apply appropriate emission factors to calculate baseline emissions based on activity data.

1.3 Stakeholder Engagement

Objective: Engage with key stakeholders to gather support and feedback and hold preliminary discussions with the relevant regulatory authority.

- **Steps:Consultation with Internal Stakeholders**:
    - **Project Team**: Involve the project team to ensure alignment on objectives and compliance requirements.
    - **Management Approval**: Obtain approval from senior management for proceeding with the EU ETS certification process.
- **External Stakeholder Engagement**:
    - **Community and NGOs**: Engage with local communities and non-governmental organizations (NGOs) to discuss potential impacts and benefits of the project.
    - **Industry Peers**: Connect with industry peers who have undergone similar certification processes to gather insights and best practices.
- **Preliminary Regulatory Discussions**:
    - **Regulatory Authority Consultation**: Initiate contact with the relevant regulatory authority (e.g., national environmental agency) to discuss the project and confirm eligibility.
    - **Compliance Clarifications**: Seek clarifications on specific compliance requirements and procedures from the regulatory authority.

- **Feedback Integration**: Integrate feedback from the regulatory authority into the project plan and compliance strategy.

EU ETS Step 2: Monitoring Plan Development

2.1 Data Collection

Objective: Determine the data needed for monitoring and reporting emissions and identify reliable data sources and collection methods.

- **Steps:Identify Data Requirements**:
  - **EU ETS Guidelines**: Review the EU ETS guidelines to understand the specific data requirements for monitoring and reporting.
  - **Emission Factors**: Identify relevant emission factors for each type of emission source within the project.
  - **Activity Data**: Determine the type of activity data required (e.g., fuel consumption, production volumes) to calculate emissions.
- **Data Sources**:
  - **Internal Data Systems**: Identify internal data systems that can provide the necessary activity data and emission factors.
  - **External Data Sources**: Determine if any external data sources (e.g., third-party reports, industry databases) are needed.
- **Data Collection Methods**:
  - **Measurement Techniques**: Choose appropriate measurement techniques (e.g., continuous emission monitoring systems, periodic sampling) based on the type of emission sources.
  - **Data Acquisition**: Establish procedures for acquiring data, including manual readings, automated systems, and third-party reports.

2.2 Monitoring Methodology

Objective: Select an appropriate methodology for monitoring emissions, considering EU ETS guidelines, and define parameters to be monitored.

- **Steps:Choose Methodology**:
  - **Standard Methods**: Use standard monitoring methodologies approved by the EU ETS, such as those outlined in the Monitoring and Reporting Regulation (MRR).

- **Sector-Specific Methods**: Apply sector-specific methodologies where applicable, ensuring compliance with industry best practices.

- **Define Parameters**:
  - **Key Parameters**: Identify key parameters to monitor for each emission source, such as CO2 concentration, fuel usage, and production rates.
  - **Accuracy and Precision**: Define accuracy and precision requirements for each parameter to ensure reliable data collection.
  - **Frequency of Monitoring**: Establish the frequency of monitoring for each parameter, considering regulatory requirements and operational needs.

2.3 Monitoring Plan Documentation

Objective: Draft a detailed monitoring plan that outlines data collection, management, and reporting procedures, and conduct an internal review for completeness and accuracy.

- **Steps:Draft Plan**:
  - **Plan Structure**: Structure the monitoring plan according to EU ETS requirements, including sections on scope, methodology, data collection, quality assurance, and reporting.
  - **Detailed Procedures**: Provide detailed procedures for each aspect of monitoring, including data collection, equipment calibration, data management, and quality assurance.
  - **Roles and Responsibilities**: Define roles and responsibilities for personnel involved in monitoring and reporting.

- **Internal Review**:
  - **Review by Experts**: Have the draft monitoring plan reviewed by internal experts, such as environmental engineers, compliance officers, and project managers.
  - **Feedback and Revisions**: Incorporate feedback from the review process and make necessary revisions to the plan.

2.4 Approval Process

Objective: Submit the monitoring plan to the relevant regulatory authority for approval and address any feedback or required modifications suggested by the authority.

- **Steps:Submit Plan**:

- **Submission Guidelines**: Follow the specific submission guidelines provided by the relevant regulatory authority.
- **Supporting Documents**: Include all required supporting documents with the monitoring plan, such as baseline data, emission factor sources, and technical specifications of monitoring equipment.
- **Submission Confirmation**: Obtain confirmation of receipt from the regulatory authority.

- **Address Feedback**:
  - **Regulatory Feedback**: Review any feedback or comments provided by the regulatory authority.
  - **Plan Revisions**: Make necessary revisions to the monitoring plan based on regulatory feedback.
  - **Resubmission**: Resubmit the revised monitoring plan, if required, and ensure all issues are addressed to the satisfaction of the regulatory authority.

EU ETS Step 3: Implementation of Monitoring Plan

3.1 System Setup

Objective: Install necessary monitoring equipment and systems and calibrate and test them to ensure accuracy.

- **Steps:Install Monitoring Equipment**:
  - **Selection of Equipment**: Install the monitoring equipment selected during the planning phase, ensuring it meets the specifications outlined in the monitoring plan.
  - **Location Selection**: Choose appropriate locations for installing monitoring devices to capture representative data.
  - **Instrumentation**: Ensure all instrumentation is correctly installed and connected to data collection systems.

- **Calibration and Testing**:
  - **Calibration Procedures**: Follow standardized calibration procedures for each monitoring device to ensure accurate measurements.
  - **Testing**: Conduct thorough testing of monitoring equipment to verify functionality and identify any potential issues.
  - **Verification**: Verify that calibrated instruments are providing accurate readings within specified tolerances.

3.2 Training and Capacity Building

Objective: Train staff on data collection, management, and reporting procedures and provide ongoing support to ensure effective implementation.

- **Steps:Staff Training**:
    - **Training Programs**: Develop training programs tailored to the roles and responsibilities outlined in the monitoring plan.
    - **Hands-on Training**: Provide hands-on training sessions to familiarize staff with monitoring equipment, data collection techniques, and quality assurance procedures.
    - **Documentation**: Ensure staff are trained in proper documentation practices to record data accurately and maintain compliance records.
- **Ongoing Support**:
    - **Technical Assistance**: Offer ongoing technical assistance to staff members to address any issues or challenges encountered during data collection.
    - **Troubleshooting**: Provide troubleshooting resources and procedures to help staff resolve common problems independently.
    - **Continuous Improvement**: Encourage staff to provide feedback on the monitoring process and suggest improvements for enhanced efficiency and accuracy.

3.3 Data Collection and Management

Objective: Collect data as per the approved monitoring plan and implement data management systems to store and process collected data securely.

- **Steps:Regular Data Collection**:
    - **Scheduled Data Collection**: Adhere to the frequency and timing specified in the monitoring plan for data collection activities.
    - **Data Recording**: Record data accurately and consistently using standardized procedures and formats outlined in the monitoring plan.
    - **Field Checks**: Conduct regular field checks to ensure monitoring equipment is functioning properly and data collection is proceeding as planned.
- **Data Management Systems**:
    - **Establish Data Storage**: Set up secure data storage systems to store collected data in compliance with data protection regulations.

- **Data Processing**: Implement procedures for processing collected data, including validation, aggregation, and calculation of emissions.
- **Quality Control**: Implement quality control measures to ensure the integrity and accuracy of stored data, including regular data validation and error checks.

EU ETS Step 4: Data Verification and Quality Assurance

4.1 Internal Verification

Objective: Perform internal quality checks on collected data and review data for consistency and accuracy.

- **Steps: Quality Checks**:
  - **Data Consistency**: Verify that collected data is consistent with expected values and trends, flagging any anomalies or discrepancies for further investigation.
  - **Data Completeness**: Ensure that all required data points have been collected according to the monitoring plan, addressing any gaps or missing data.
  - **Data Accuracy**: Validate the accuracy of collected data by comparing it against known standards or independent measurements.
- **Data Review**:
  - **Data Analysis**: Analyze collected data to identify patterns or trends that may indicate errors or irregularities.
  - **Documentation Review**: Review documentation associated with data collection, including calibration logs, maintenance records, and field observations.

4.2 Independent Verification

Objective: Choose an accredited independent verifier to assess the data and conduct the verification process, including site visits and data audits.

- **Steps:Select Verifier**:
  - **Accredited Providers**: Choose a verifier accredited by recognized accreditation bodies, ensuring they meet the necessary qualifications and standards.

- **Expertise and Experience**: Select a verifier with relevant expertise and experience in emissions monitoring and verification, particularly within the context of EU ETS compliance.

- **Verification Process**:
  - **Data Audit**: Conduct a thorough audit of collected data, comparing it against the requirements outlined in the monitoring plan and EU ETS regulations.
  - **Site Visits**: Schedule site visits to verify the accuracy of reported data and assess the effectiveness of monitoring equipment and procedures.
  - **Documentation Review**: Review all relevant documentation, including monitoring plans, calibration records, and emission reports, to ensure compliance with EU ETS requirements.

4.3 Verification Report

Objective: Obtain a draft verification report and review it for accuracy before addressing any issues and obtaining a final verification report.

- **Steps:Draft Report**:
  - **Report Preparation**: Prepare a draft verification report summarizing the findings of the verification process, including any observations, conclusions, and recommendations.
  - **Quality Assurance**: Conduct internal quality assurance checks to ensure the accuracy and completeness of the draft report.

- **Final Report**:
  - **Reviewer Feedback**: Solicit feedback from relevant stakeholders, including project managers and regulatory authorities, to identify any areas for improvement or clarification.
  - **Address Issues**: Address any issues or discrepancies identified during the review process and revise the draft report accordingly.
  - **Approval Process**: Obtain approval from all relevant parties before finalizing the verification report and submitting it for certification.

EU ETS Step 5: Emissions Reporting

5.1 Report Preparation

Objective: Compile data into an emissions report based on verified data, ensuring compliance with EU ETS guidelines and including all required information.

- **Steps:Data Compilation**:

- **Data Aggregation**: Compile all verified emissions data collected during the monitoring period into a comprehensive dataset.
- **Quality Assurance**: Perform quality checks on compiled data to ensure accuracy and consistency.

- **Report Format**:
  - **EU ETS Guidelines**: Follow the format and structure outlined in EU ETS guidelines for emissions reporting.
  - **Required Sections**: Include sections on emission sources, activity data, emission calculations, verification findings, and any additional information required by EU ETS regulations.
- **Documentation**:
  - **Supporting Documents**: Gather supporting documents, such as monitoring plans, verification reports, and calibration records, to accompany the emissions report.
  - **Data Transparency**: Ensure transparency by providing detailed documentation of data sources, methodologies, and calculations used in the report.

5.2 Submission

Objective: Submit the emissions report to the relevant regulatory authority for review and approval, addressing any feedback or requests for additional information.

- **Steps:Submission Process**:
  - **Submission Guidelines**: Adhere to the specific submission guidelines provided by the regulatory authority, including formatting requirements and submission deadlines.
  - **Electronic Submission**: Submit the emissions report electronically through the designated reporting platform or portal, if available.
- **Documentation Review**:
  - **Regulatory Review**: Await review and feedback from the regulatory authority on the submitted emissions report.
  - **Feedback Response**: Address any feedback or requests for additional information promptly and comprehensively.

5.3 Address Feedback

Objective: Address any feedback or requests for additional information from the regulatory authority to ensure compliance with EU ETS regulations.

Steps: **Feedback Analysis**:

- **Review Feedback**: Thoroughly review all feedback provided by the regulatory authority, identifying areas for improvement or clarification.
- **Data Validation**: Validate any data or calculations questioned by the regulatory authority to ensure accuracy and reliability.

- **Revision Process**:
  - **Report Updates**: Make necessary updates or revisions to the emissions report based on the feedback received.
  - **Documentation Amendments**: Update accompanying documentation, such as verification reports and supporting documents, to reflect any changes made to the emissions report.

5.4 Approval Process

Objective: Obtain approval from the regulatory authority for the emissions report, confirming compliance with EU ETS regulations.

Steps: **Final Review**:

- **Quality Check**: Conduct a final quality check on the revised emissions report to ensure all feedback has been addressed satisfactorily.
- **Regulatory Confirmation**: Confirm with the regulatory authority that all requested changes have been made and that the report is ready for approval.

- **Approval Confirmation**:
  - **Notification**: Await formal notification from the regulatory authority confirming approval of the emissions report.
  - **Documentation Retention**: Maintain records of all communications and approvals received from the regulatory authority for compliance and auditing purposes.

EU ETS Step 6: Compliance and Certification

6.1 Regulatory Review

Objective: Undergo a review by the regulatory authority based on the submitted emissions report and verification findings, ensuring compliance with EU ETS regulations.

Steps: **Compliance Assessment**:

- **Regulatory Scrutiny**: Expect the regulatory authority to conduct a thorough review of the emissions report, verification findings, and supporting documentation to assess compliance.
- **Regulatory Criteria**: Ensure that all emissions data and calculations meet the criteria outlined in EU ETS regulations, including accuracy, completeness, and transparency.

- **Documentation Verification**:
  - **Document Review**: Expect the regulatory authority to scrutinize all accompanying documentation, such as monitoring plans, verification reports, and calibration records, to verify compliance with reporting requirements.
  - **Data Validation**: Verify that reported data matches the data submitted during the verification process and aligns with monitoring and reporting guidelines.

6.2 Compliance Check

Objective: Ensure all compliance requirements are met, addressing any issues or discrepancies identified during the regulatory review process.

Steps: **Feedback Response**:

- **Regulatory Feedback**: Address any feedback or queries raised by the regulatory authority promptly and comprehensively.

- **Corrective Actions**: Implement corrective actions as necessary to rectify any identified issues or discrepancies in the emissions report or verification findings.
- **Data Reconciliation**:
  - **Data Alignment**: Reconcile any discrepancies between reported data and verification findings to ensure consistency and accuracy.
  - **Documentation Amendments**: Update accompanying documentation to reflect any changes made to the emissions report or verification findings.

6.3 Certification Issuance

Objective: Obtain certification from the regulatory authority confirming compliance with EU ETS, maintaining records of the certification and supporting documentation.

Steps: **Approval Confirmation**:

- **Regulatory Notification**: Await formal notification from the regulatory authority confirming compliance and certification approval.

- **Certification Receipt**: Obtain the certification document from the regulatory authority as proof of compliance with EU ETS regulations.

- **Documentation Retention**:
  - **Record Keeping**: Maintain comprehensive records of all communications, approvals, and certifications received from the regulatory authority for future reference and auditing purposes.
  - **Supporting Documentation**: Ensure that all supporting documentation, including the emissions report, verification reports, and regulatory correspondence, is retained for compliance documentation.

6.4 Ongoing Compliance

Objective: Continuously monitor emissions and ensure ongoing compliance with EU ETS regulations to maintain certification.

Steps: **Continuous Monitoring**:

- **Regular Data Collection**: Continue to collect emissions data according to the monitoring plan and reporting schedule outlined in EU ETS regulations.
- **Data Validation**: Validate collected data regularly to ensure accuracy and reliability, addressing any anomalies or discrepancies promptly.

- **Periodic Verification**:
  - **Scheduled Verifications**: Schedule periodic verifications as required by EU ETS regulations to verify emissions data and compliance status.
  - **Engage Verifiers**: Select and engage independent verifiers to conduct subsequent verification cycles, ensuring compliance with regulatory requirements.

6.5 Compliance Reporting

Objective: Prepare and submit regular compliance reports to the regulatory authority, demonstrating ongoing adherence to EU ETS regulations.

Steps: **Report Preparation**:

- **Data Compilation**: Compile emissions data and verification findings into comprehensive compliance reports according to EU ETS reporting guidelines.
- **Documentation Review**: Review accompanying documentation, including monitoring plans and verification reports, to ensure alignment with compliance reporting requirements.

- **Submission**:

- **Submission Schedule**: Adhere to the specified submission schedule outlined in EU ETS regulations, submitting compliance reports on time to the regulatory authority.
- **Electronic Submission**: Submit compliance reports electronically through the designated reporting platform or portal, ensuring compliance with reporting protocols.

EU ETS Step 7: Reporting and Verification

Step 7 in the EU ETS process is critical for ensuring compliance, transparency, and accuracy in reporting greenhouse gas (GHG) emissions. Here's a comprehensive breakdown of the elements involved:

7.1. Annual Emissions Reporting

- **Preparation of Emissions Report:** Companies must prepare an annual emissions report detailing their total GHG emissions for the previous calendar year. This report must follow the guidelines and methodologies specified by the EU ETS, including:
  - Activity data (e.g., fuel consumption, production volumes)
  - Emission factors
  - Calculation methods (e.g., mass balance, direct measurement)
- **Data Collection and Documentation:** Collect and document all relevant data accurately and comprehensively to ensure the report's validity. This includes maintaining records of fuel usage, production data, and other parameters that influence emissions calculations.
- **Use of Approved Tools and Templates:** Utilize the official templates and reporting tools provided by the EU ETS to ensure consistency and compliance with regulatory requirements.

7.2. Internal Review and Quality Assurance

- **Internal Review Procedures:** Implement robust internal review procedures to verify the accuracy and completeness of the emissions report. This may involve cross-checking data, validating calculation methods, and ensuring all necessary documentation is in place.
- **Quality Assurance (QA) Measures:** Establish quality assurance measures to identify and rectify any potential errors or discrepancies before submission. This can include independent internal audits and peer reviews by technical experts.

7.3. Submission of Emissions Report

- **Timely Submission:** Submit the emissions report to the national competent authority (NCA) by the specified deadline, typically by the end of March each year.
- **Electronic Submission:** Utilize the EU ETS electronic submission systems, such as the Union Registry, to facilitate secure and efficient submission processes.

7.4. Verification by Accredited Verifiers

- **Selection of Accredited Verifier:** Engage an independent, accredited verifier to conduct a thorough review of the emissions report. The verifier must be accredited by a national accreditation body and meet the requirements set out in the EU ETS regulation.
- **Verification Process:** The verifier will:
    - Conduct a risk assessment to identify areas of potential non-compliance or significant discrepancies.
    - Perform site visits and inspections as necessary to verify data accuracy and methodology.
    - Review and validate the data sources, calculation methods, and documentation.
- **Verification Opinion:** The verifier will issue an opinion on the accuracy and completeness of the emissions report, including any findings or required corrections.

7.5. Addressing Non-Conformities

- **Correction of Errors:** If the verifier identifies any non-conformities or errors, the company must address these promptly. This involves correcting the data, recalculating emissions, and updating the report as necessary.
- **Resubmission if Required:** In cases of significant errors, the company may need to resubmit the corrected emissions report to the verifier and the NCA.

7.6. Issuance of Verification Report

- **Final Verification Report:** Upon satisfactory completion of the verification process, the verifier will issue a final verification report. This report confirms the accuracy of the emissions data and compliance with EU ETS requirements.
- **Submission to Competent Authority:** Submit the final verification report to the NCA along with the emissions report. This serves as a formal declaration of the verified emissions data.

7.7. Publication of Emissions Data

- **Public Disclosure:** The NCA or relevant EU body may publish verified emissions data to ensure transparency and public accountability. Companies should be prepared for this public disclosure and ensure that all reported data is accurate and complete.

7.8. Compliance and Enforcement

- **Compliance Monitoring:** The NCA will monitor compliance with EU ETS requirements, including the timely submission of reports and verification statements.
- **Penalties for Non-Compliance:** Failure to comply with reporting and verification requirements can result in significant penalties, including fines and sanctions. Companies must adhere strictly to the regulations to avoid such penalties.

EU ETS Step 8: Allocation and Surrendering of Allowances

Step 8 in the EU ETS process involves the allocation and surrendering of allowances, which are critical for ensuring compliance and managing the costs associated with greenhouse gas (GHG) emissions. Here's a comprehensive breakdown of the elements involved:

8.1. Allocation of Allowances

- **Free Allocation:** Depending on the industry and specific regulations, some companies may receive a portion of their allowances for free. This is particularly relevant for sectors at risk of carbon leakage. The amount of free allocation is determined based on historical emissions data, benchmarks, and other criteria set by the EU ETS.
    - **Application for Free Allocation:** Companies must apply for free allocation by submitting the required data and documentation to the national competent authority (NCA). This includes information on production levels, capacity, and historical emissions.
    - **Receipt of Allowances:** Once approved, companies receive their free allowances, which are credited to their accounts in the Union Registry.
- **Auctioning of Allowances:** The remaining allowances are auctioned to the highest bidder. Companies need to participate in these auctions to acquire additional allowances if their free allocation is insufficient to cover their emissions.
    - **Auction Participation:** Companies must register and participate in the EU ETS auction platform. They can bid for the number of allowances they require, and successful bids result in the transfer of allowances to their registry accounts.

- **Auction Schedule and Rules:** Auctions are held regularly according to a predetermined schedule. Companies must adhere to auction rules and procedures to participate effectively.

8.2. Monitoring Allowance Needs

- **Tracking Emissions and Allowance Balance:** Companies must continuously monitor their emissions and compare them with their allowance holdings. This involves maintaining accurate records of emissions and allowances.
    - **Internal Allowance Management Systems:** Implement systems to track and manage allowances internally. This includes forecasting future emissions and planning for allowance needs.
    - **Allowance Shortfall and Surplus Management:** Identify potential shortfalls or surpluses of allowances. Companies with surplus allowances may sell them on the secondary market, while those with shortfalls need to purchase additional allowances.

8.3. Surrendering Allowances

- **Annual Surrender Requirement:** By April 30th each year, companies must surrender enough allowances to cover their verified emissions for the previous calendar year. This involves transferring the required number of allowances from their Union Registry account to the surrender account.
    - **Calculation of Allowance Requirement:** Calculate the total number of allowances needed based on the verified emissions report. Ensure that the number of surrendered allowances matches the verified emissions exactly.
    - **Surrender Process:** Follow the procedures for surrendering allowances in the Union Registry. This includes submitting a surrender request and confirming the transfer of allowances.
    - **Compliance Verification:** The NCA will verify compliance by checking the surrendered allowances against the verified emissions report. Any discrepancies must be addressed promptly.

8.4. Managing Allowance Surplus and Shortfall

- **Secondary Market Transactions:** Companies with surplus allowances can sell them on the secondary market, while those with a shortfall can purchase additional allowances. This market-based approach allows for flexibility and cost-effective compliance.
    - **Market Participation:** Register with and participate in the EU ETS secondary market. Ensure compliance with market rules and regulations.

- **Strategic Management:** Develop strategies for managing allowances to optimize costs and ensure compliance. This includes timing purchases and sales based on market conditions.

8.5. Reporting and Documentation

- **Maintain Accurate Records:** Keep detailed records of all allowance transactions, including purchases, sales, and surrenders. This documentation is essential for compliance audits and future reference.
  - **Documentation Requirements:** Ensure all transactions are documented according to EU ETS requirements. This includes maintaining receipts, transaction confirmations, and relevant correspondence.
  - **Internal Audits:** Conduct regular internal audits to verify the accuracy and completeness of allowance records. Address any discrepancies or issues identified during these audits.

8.6. Compliance and Enforcement

- **Regulatory Compliance:** Ensure full compliance with EU ETS regulations regarding the allocation and surrendering of allowances. Non-compliance can result in significant penalties, including fines and sanctions.
  - **Penalty for Non-Compliance:** Companies that fail to surrender sufficient allowances by the deadline are subject to a fine of €100 per tonne of CO2 equivalent, in addition to the requirement to surrender the missing allowances.
  - **Regular Monitoring by NCA:** The NCA regularly monitors compliance and may conduct inspections and audits to verify adherence to regulations.

8.7. Future Planning and Adjustments

- **Future Allowance Needs:** Plan for future allowance needs based on projected emissions and regulatory changes. This involves staying informed about updates to the EU ETS and adjusting strategies accordingly.
  - **Regulatory Updates:** Monitor changes in EU ETS regulations and market conditions. Adjust allowance management strategies to align with new requirements and opportunities.
  - **Long-Term Emission Reduction Goals:** Align allowance management with long-term emission reduction goals and corporate sustainability objectives. This includes investing in emission reduction technologies and practices to reduce future allowance needs.

Annex D – UN SDG Certification Process Detail

The CCB certification process runs in parallel with the Verra VCS program, with some overlapping steps as detailed in a following section. Successful CCB verification allows projects to label their VCUs issued under the VCS program.

Step 3: Project Registration

3.1. Submit Validated Documentation to Verra Registry

Objective: Submitting validated documentation to the Verra Registry for project registration.

Steps:

- **Documentation Compilation**:
  - **Compile Validated Documents**: Gather all validated documentation, including the validation report, statement, and supporting materials, required for project registration.
  - **Review for Completeness**: Review the compiled documentation to ensure all necessary documents are included and meet Verra Registry requirements.
- **Submission Process**:
  - **Registry Guidelines**: Familiarize with submission guidelines provided by the Verra Registry, including formatting requirements, file types, and submission deadlines.
  - **Document Transmittal**: Transmit the compiled documentation securely to the Verra Registry through designated submission channels, ensuring adherence to submission protocols.

3.2. Verra Reviews and Approves Registration

Objective: Verra conducts a review of submitted documentation and approves project registration based on compliance with CCB standards.

Steps:

Review Process:

- **Document Assessment**: Verra conducts a thorough review of submitted documentation to assess compliance with CCB standards and registration requirements.
- **Validation Confirmation**: Verify the validation report and statement to ensure project compliance with CCB standards and validation findings.

Approval Decision:

- **Registry Approval**: Verra issues a decision on project registration based on the review findings, either approving or rejecting registration.
- **Notification**: Receive formal notification from the Verra Registry regarding the approval status of project registration.

3.3. Registration Confirmation

Objective: Confirmation of project registration by the Verra Registry, acknowledging compliance with CCB standards and validation requirements.

Steps:

Registration Acknowledgment:

- **Confirmation Receipt**: Receive acknowledgment from the Verra Registry confirming project registration and compliance with CCB standards.
- **Registration Details**: Obtain registration details, including project ID, registration date, and registration term, from the Verra Registry.

Documentation Retention:

- **Record Keeping**: Maintain records of project registration documents, including submission receipts, approval notifications, and registration certificates, for compliance documentation.
- **Audit Trail**: Establish an audit trail to track project registration activities and ensure transparency and accountability.

Step 4: Monitoring and Reporting

4.1. Implement Monitoring Plan for Social and Biodiversity Impacts

Objective: Executing the monitoring plan to track social and biodiversity impacts of the project over time.

Steps:

Plan Execution:

- **Implementation**: Execute the monitoring plan according to the defined protocols and schedules, ensuring consistent data collection and reporting.
- **Data Collection**: Collect data on social and biodiversity indicators identified in the monitoring plan, including relevant metrics and parameters.

Stakeholder Engagement:

- **Participatory Monitoring**: Engage stakeholders, including local communities, NGOs, and project partners, in monitoring activities to enhance transparency and accountability.

- **Feedback Mechanisms**: Establish feedback mechanisms to allow stakeholders to provide input on monitoring processes and outcomes.

4.2. Periodically Submit Monitoring Reports to Verra

Objective: Regularly submitting monitoring reports to the Verra Registry to demonstrate ongoing compliance with CCB standards.

Steps:

Reporting Schedule:

- **Submission Timelines**: Adhere to the specified reporting schedule outlined by the Verra Registry, submitting monitoring reports in a timely manner.
- **Frequency**: Determine the frequency of monitoring report submissions based on project requirements and regulatory guidelines.

Report Preparation:

- **Data Compilation**: Compile monitoring data collected over the reporting period into comprehensive reports, ensuring accuracy and completeness.
- **Analysis**: Analyze monitoring data to assess project performance against established social and biodiversity indicators, identifying trends, patterns, and areas for improvement.

4.3. Stakeholder Engagement

Objective: Engaging stakeholders in monitoring and reporting processes to ensure transparency and accountability.

Steps:

Communication Channels:

- **Information Sharing**: Share monitoring reports and findings with stakeholders through accessible and transparent communication channels, such as community meetings, newsletters, and online platforms.
- **Feedback Mechanisms**: Establish mechanisms for stakeholders to provide feedback on monitoring reports, methodologies, and outcomes, fostering dialogue and collaboration.

Capacity Building:

- **Training and Education**: Provide training and capacity-building opportunities to stakeholders to enhance their understanding of monitoring and reporting processes, enabling meaningful participation and contribution.
- **Empowerment**: Empower stakeholders to take an active role in monitoring and reporting activities, fostering ownership and accountability for project outcomes.

4.4. Data Management and Analysis

Objective: Managing monitoring data effectively and conducting thorough analysis to inform decision-making and reporting.

Steps:

Data Management:

- **Storage and Organization**: Establish robust data management systems to store, organize, and secure monitoring data, ensuring accessibility and data integrity.
- **Documentation**: Maintain detailed documentation of monitoring protocols, data collection methods, and data sources for transparency and traceability.

Analysis and Interpretation:

- **Data Analysis**: Conduct statistical analysis and qualitative assessments of monitoring data to identify trends, patterns, and correlations related to social and biodiversity impacts.
- **Interpretation**: Interpret monitoring findings in the context of project objectives, regulatory requirements, and stakeholder expectations, drawing meaningful insights and conclusions.

By addressing these detailed elements in Step 4, project owners can ensure effective monitoring and reporting of social and biodiversity impacts, demonstrating ongoing compliance with CCB standards and regulatory requirements. This approach emphasizes stakeholder engagement, data transparency, and analysis to inform decision-making and foster continuous improvement in project performance.

Step 5: CCB Verification

5.1. Select CCB-Approved Verifier to Assess Project Impacts

Objective: Choosing a CCB-approved verifier to assess the project impacts against CCB standards and requirements.

Steps:

Verifier Selection:

Research Verifiers: Conduct research to identify CCB-approved verifiers with relevant expertise and experience in assessing project impacts on social and biodiversity indicators.

Evaluation Criteria: Develop criteria for evaluating verifiers, considering factors such as accreditation, track record, and familiarity with project context.

Engagement Process:

- **Request Proposals**: Reach out to selected verifiers to request proposals outlining their approach, methodology, and cost estimates for the verification process.
- **Interview Candidates**: Conduct interviews with shortlisted verifiers to assess their qualifications, capabilities, and compatibility with project needs.

Contract Negotiation:

- **Negotiate Terms**: Negotiate contract terms with the selected verifier, including scope of work, timelines, deliverables, and fees.
- **Finalize Agreement**: Finalize the agreement with the verifier, ensuring clarity on roles, responsibilities, and expectations.

5.2. Submit Monitoring Reports for Verification

Objective: Submitting monitoring reports to the selected verifier for assessment against CCB standards.

Steps:

Report Compilation:

- **Compile Monitoring Reports**: Gather all monitoring reports generated over the reporting period, including data, analysis, and interpretations.
- **Review for Completeness**: Review the compiled reports to ensure all required information and indicators are included and meet verification requirements.

Submission Process:

- **Verifier Guidelines**: Familiarize with submission guidelines provided by the selected verifier, including formatting requirements, file types, and submission deadlines.
- **Document Transmittal**: Transmit the compiled monitoring reports securely to the verifier through designated submission channels, ensuring adherence to submission protocols.

5.3. Verifier Conducts Assessment and Issues Verification Report

Objective: The verifier conducts a comprehensive assessment of the monitoring reports and issues a verification report based on compliance with CCB standards.

Steps:

Desk Review:

- **Report Evaluation**: The verifier conducts a thorough review of submitted monitoring reports to assess compliance with CCB standards and verification requirements.
- **Data Verification**: Verify data accuracy, consistency, and reliability against monitoring protocols and reporting guidelines.

On-Site Visits:

- **Field Assessment**: Conduct on-site visits to project locations, if necessary, to validate monitoring data, observations, and stakeholder engagements.
- **Interviews**: Engage with project stakeholders during on-site visits to gather additional insights, verify information, and address any concerns.

5.4. Address Non-Conformities

Objective: Resolving any identified non-conformities or deficiencies in the monitoring reports or project impacts.

Steps:

Non-Conformity Identification:

- **Verifier Feedback**: Receive feedback from the verifier on any identified non-conformities or deficiencies in the monitoring reports or project impacts.
- **Root Cause Analysis**: Conduct a root cause analysis to understand the underlying reasons for non-conformities and determine appropriate corrective actions.

Corrective Actions:

- **Action Plan Development**: Develop a corrective action plan outlining specific steps to address each identified non-conformity or deficiency.
- **Implementation**: Implement corrective actions promptly, addressing root causes and ensuring compliance with CCB standards and verification requirements.

5.5. Verifier Issues Verification Report

Objective: Receiving the verification report from the verifier confirming compliance with CCB standards.

Steps:

Report Preparation:

- **Verification Findings**: The verifier prepares a verification report summarizing findings from the assessment process, including observations, conclusions, and recommendations.
- **Statement of Verification**: Issue a statement of verification affirming project compliance with CCB standards and verification requirements.

Review and Approval:

- **Client Review**: Review the verification report and statement for accuracy and completeness, addressing any discrepancies or concerns with the verifier.
- **Approval Process**: Approve the verification report and statement once satisfied with the findings and recommendations provided by the verifier.

Step 6: Ongoing Monitoring and Reporting

6.1. Continue Monitoring and Reporting to Verra

Objective: Maintaining ongoing monitoring and reporting activities to track project impacts and ensure ongoing compliance with CCB standards.

- **Steps: Monitoring Plan Implementation**:
    - **Sustain Monitoring Activities**: Continue implementing the monitoring plan to track social and biodiversity impacts of the project over time.
    - **Data Collection and Analysis**: Collect data on identified indicators, analyze trends, and assess project performance against targets and benchmarks.
- **Reporting Schedule**:
    - **Regular Reporting**: Adhere to the specified reporting schedule outlined by the Verra Registry, submitting monitoring reports at scheduled intervals.
    - **Frequency**: Determine the frequency of reporting based on project requirements, regulatory guidelines, and stakeholder expectations.
- **Stakeholder Engagement**:
    - **Information Sharing**: Share monitoring findings and progress updates with stakeholders through transparent communication channels, such as community meetings, newsletters, and online platforms.
    - **Feedback Mechanisms**: Maintain feedback mechanisms to allow stakeholders to provide input on monitoring activities and outcomes, fostering dialogue and collaboration.

6.2. Adaptive Management

Objective: Employing adaptive management approaches to adjust project strategies and actions based on monitoring feedback and changing circumstances.

- **Steps: Continuous Improvement**:

- **Review and Reflect**: Regularly review monitoring findings, verification reports, and stakeholder feedback to identify areas for improvement and adaptation.
- **Learning Culture**: Foster a culture of learning and innovation within the project team, encouraging experimentation and adaptation to improve project outcomes.

- **Action Plan Revision**:
  - **Adjust Strategies**: Modify project strategies and actions based on monitoring data, verification findings, and stakeholder input to address emerging challenges and opportunities.
  - **Flexible Implementation**: Implement adaptive management approaches to flexibly adjust project activities and priorities in response to changing conditions and feedback.

6.3. Performance Evaluation

Objective: Evaluating project performance against established goals, targets, and sustainability criteria.

- **Steps: Performance Metrics**:
  - **Establish Key Performance Indicators (KPIs)**: Define and track key performance indicators related to social, environmental, and economic outcomes to assess project effectiveness.
  - **Benchmarking**: Compare project performance against baseline data, industry standards, and best practices to evaluate progress and identify areas for improvement.

- **Impact Assessment**:
  - **Assess Social and Biodiversity Impacts**: Conduct periodic assessments of project impacts on local communities, biodiversity, and ecosystems to evaluate effectiveness in achieving desired outcomes.
  - **Outcome Evaluation**: Evaluate the outcomes and benefits of project interventions, considering both intended and unintended consequences on stakeholders and ecosystems.

6.4. Reporting to Stakeholders

Objective: Providing regular updates and reports to stakeholders on project performance, progress, and outcomes.

Steps: **Transparent Communication**:

- **Regular Updates**: Provide stakeholders with regular updates and progress reports on project activities, achievements, and challenges.
- **Transparent Reporting**: Maintain transparency in reporting, sharing both successes and setbacks to build trust and accountability with stakeholders.

- **Engagement Opportunities**:
  - **Feedback Mechanisms**: Encourage stakeholder feedback on project performance and outcomes, soliciting input on areas for improvement and priority actions.
  - **Participatory Decision-Making**: Engage stakeholders in decision-making processes, involving them in setting goals, defining strategies, and allocating resources.

This approach emphasizes adaptive management, stakeholder engagement, and performance evaluation to support continuous improvement and accountability in project implementation and aligns with the UN Sustainable Development Goals (SDGs) by ensuring projects deliver significant social and environmental benefits beyond just climate change mitigation.

The CCB Standards cover a range of SDGs, including poverty alleviation, gender equality, clean water and sanitation, decent work, and biodiversity conservation

Annex E: Candidates for AI-enabled Automation

A. Project Preliminary Assessment Process

A preliminary view of where AI could be used to aid the automation the processes of evaluating and assessing project viability to return value to investors, based on the results from the Verra VCS and CCB certification processes:

1. **Data Aggregation**
    - AI-powered software would automatically collect and aggregate data from the various stages of the VCS and CCB certification processes.
    - This includes data from the project design, validation, registration, monitoring, verification, and issuance of credits.

2. **Risk Assessment**
    - AI algorithms would analyse the aggregated data to assess the risks associated with each project2.
    - Factors considered would include the project's compliance with VCS and CCB requirements, the accuracy and completeness of monitoring data, and any issues or non-conformities identified during validation and verification.

3. **Financial Modelling**
    - AI would build financial models to estimate the potential returns on investment for each project.
    - The models would incorporate factors such as the volume of credits expected to be issued, current and projected carbon credit prices, and the costs associated with project development and certification.

4. **Portfolio Optimization**
    - AI would optimize the investor's portfolio by allocating funds to the projects with the most favourable risk-return profiles.
    - The AI would consider the investor's risk tolerance, investment horizon, and diversification goals to recommend an optimal portfolio mix.

5. **Ongoing Monitoring and Reporting**
    - AI would continuously monitor the performance of the projects in the investor's portfolio2.
    - It would generate alerts for any deviations from expected outcomes and provide recommendations for adjusting the portfolio if necessary.
    - AI would also generate periodic reports for the investor, summarizing the performance and value of their portfolio.

By leveraging AI and automation, investors can make more informed and data-driven decisions about which carbon reduction projects to support. The AI-powered system would provide a comprehensive and objective assessment of each project's viability, reducing the time and effort required for manual due diligence. The automated process would also enable investors to monitor and manage their portfolios more effectively, ensuring they are maximizing the return on their investments while contributing to the fight against climate change.

B. Certification Process: Verra and EU ETS

1. **Project Planning and Design**
    - AI could assist in developing the baseline scenario and demonstrating additionality by analysing historical data and modelling business-as-usual emissions1.
    - AI could help optimize the project design to maximize emissions reductions and cost-effectiveness.

2. **Monitoring and Data Collection**
    - AI-powered sensors and IoT devices could automate data collection on the project's performance and emissions reductions.
    - AI algorithms could analyze the collected data to quantify GHG reductions in real-time, reducing the need for manual calculations1.

3. **Verification and Certification of Credits**
    - AI could assist the verification process by flagging anomalies or inconsistencies in the monitoring data for further investigation by the verifier1.
    - AI could automate the generation of monitoring reports and supporting documentation for the verification process.

4. **Credit Trading and Retirement**
    - AI-powered trading platforms could facilitate the buying and selling of carbon credits, matching buyers and sellers based on their preferences and requirements.
    - AI could automate the process of retiring credits to ensure they are only used once for offsetting purposes.

5. **Ongoing Monitoring and Periodic Verification**
    - AI could continuously monitor the project's performance and flag any deviations from the expected emissions reductions1.
    - AI could generate alerts and recommendations for corrective actions to maintain the project's performance and integrity.

By leveraging AI and automation throughout the certification process, project developers can streamline the process, reduce costs, and ensure the accuracy and reliability of the data. This could include:

- AI-powered project management tools to track progress and identify bottlenecks
- Automated document generation and submission to Verra and other stakeholders
- AI-driven quality assurance checks to ensure compliance with VCS requirements
- Predictive analytics to forecast potential issues and optimize project performance

The end-to-end process could be automated using a combination of AI, IoT, and cloud-based platforms. Data would be collected from sensors and devices, analysed by AI algorithms, and used to generate reports and documentation for the certification process. Automated alerts and recommendations would help project developers maintain compliance and optimize performance. By embracing AI and automation, project developers can make the VCS certification process more efficient, scalable, and reliable, ultimately driving greater investment in high-quality carbon reduction projects.

C. UN SDG CCB Process

1. **Project Planning and Design**
    - AI could assist in identifying potential positive and negative impacts; help develop plans to mitigate negative impacts and enhance positive impacts
    - AI could facilitate stakeholder engagement by analysing feedback and identifying key concerns to address in the project design3.
2. **CCB Validation**
    - AI could streamline the submission of project documentation for validation by automatically generating required templates and reports3.
    - AI could assist the validator in assessing the project's design against CCB requirements by flagging potential issues or non-conformities for further review3.
    - AI could help address non-conformities identified by the validator by providing recommendations based on past successful projects3.
3. **Monitoring and Reporting**
    - AI-powered sensors and IoT devices could automate data collection on the project's social and biodiversity impacts3.
    - AI algorithms could analyze the collected data to quantify the project's net positive impacts on communities and biodiversity in real-time3.
    - AI could generate periodic monitoring reports for submission to Verra, reducing the manual effort required3.
4. **CCB Verification**

- AI could assist the verifier in assessing the project's impacts by providing data visualizations and insights from the monitoring reports3.
- AI could automate the generation of the verification report and statement confirming the project's community and biodiversity benefits3.

5. **Ongoing Monitoring and Reporting**
    - AI could continuously monitor the project's social and biodiversity impacts and flag any deviations from expected outcomes3.
    - AI could generate alerts and recommendations for corrective actions to maintain the project's positive impacts over time3.

By integrating AI throughout the CCB certification process, project developers can streamline the process, reduce costs, and ensure the accuracy and reliability of the data. This could include:

- AI-powered project management tools to track progress and identify bottlenecks
- Automated generation of project documentation and reports
- AI-driven quality assurance checks to ensure compliance with CCB requirements
- Predictive analytics to forecast potential issues and optimize project performance

The end-to-end process could be automated using a combination of AI, IoT, and cloud-based platforms. Data would be collected from sensors and devices, analysed by AI algorithms, and used to generate reports and documentation for the certification process. Automated alerts and recommendations would help project developers maintain compliance and optimize performance. By embracing AI and automation, project developers can make the CCB certification process more efficient, scalable, and reliable, ultimately driving greater investment in projects that deliver significant social and environmental benefits.

Annex F: Project & Credits Certification Costs

Programme of Activities (PoA) Structure

TenzaOne's cooperative leverages the VCS Programme of Activities framework to achieve maximum economies of scale by registering multiple projects under a single umbrella structure.

One-Time Setup Costs (Shared across 25 projects)

Fee Component	**Total Cost (EUR)**	**Cost Per Project (EUR)**
PoA Framework Setup	€35,000	€1,400
Initial PoA Validation	€50,000	€2,000
Pipeline Listing	€2,500	€100
Total One-Time Setup	**€87,500**	**€3,500**

Annual Recurring Costs (Shared across 25 projects)

Fee Component	**Total Cost (EUR)**	**Cost Per Project (EUR)**
Account Maintenance	€2,500	€100
Verification Review	€15,000	€600
Third-Party Verification	€40,000	€1,600
Credit Issuance (€0.20/credit)	€50,000	€2,000
Transaction Fees (€0.02/credit)	€5,000	€200
Total Annual Shared	**€112,500**	**€4,500**

10-Year Financial Analysis by Project Size

Project Size	Cost/Credit (EUR)	10-Year Cost (EUR)	10-Year Revenue @€8.5/ton	Net Benefit (EUR)
1k tonnes	€0.95-€4.88	€9,500-€48,750	€85,000	€36,250-€75,500
5k tonnes	€0.95-€4.88	€9,500-€48,750	€425,000	€376,250-€415,500
10k tonnes	€0.95-€4.88	€9,500-€48,750	€850,000	€801,250-€840,500

Comparative Cost Analysis

Scenario	Average Cost per Project (EUR)	10-Year Total Cost (EUR)	Cost Reduction vs. Individual
Single Project (Individual)	€42,000-€136,500	€42,000-€136,500	-
Group of 5 Projects	€15,900-€65,000	€79,500-€325,000	62-52%
PoA Structure (25 Projects)	€9,500-€48,750	€237,500-€1,218,750	77-81%

Key Findings

1. **Cost Efficiency**: PoA structure reduces per-project costs by 77-81% compared to individual certification
2. **Market Access**: Makes certification viable for projects as small as 1,000 tonnes CO_2e annually
3. **Break-even Achievement**: All project sizes (1k-10k tonnes) achieve profitability under the cooperative model
4. **Cost per Credit**: €0.95-€4.88 (PoA) vs €4.20-€13.65 (Individual)

Programme of Activities (PoA) Benefits

- **Single umbrella registration** for multiple Component Project Activities (CPAs)
- **Validation occurs once** for the PoA framework

- **Verification sampling** applies across all projects, dramatically reducing VVB costs
- **Streamlined documentation** requirements for each CPA versus full individual PDDs
- **Efficient scaling** - new projects can be added as CPAs with minimal additional cost