

## Greenlines FAQs

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## About Carbon Markets

### 1. What are carbon markets?

Carbon markets are markets designed to reduce greenhouse gas emissions by placing a financial value on the environmental benefits generated by activities that reduce, avoid, or remove carbon emissions. It allows organizations to buy and sell carbon credits to meet emission reduction targets.

### 2. What are carbon credits?

A carbon credit represents one metric tone of greenhouse gas (GHG) emissions reduced, avoided, or removed from the atmosphere, usually represented as carbon dioxide equivalent, or CO<sub>2</sub>eq. They are tradable instruments used in carbon markets.

### 3. How do carbon markets work?

Carbon markets function via two primary mechanisms: cap-and-trade, regulated by governments, and voluntary carbon offset programs, typically overseen by non-profit organizations. Cap-and-trade institutes an emissions limit (cap) and permits the trading of emission allowances. On the other hand, offset programs empower organizations to invest in initiatives that curtail emissions, thus serving as compensation for their own carbon emissions.

### 4. How much does a carbon credit cost?

The cost of carbon credits is dictated by the carbon credit market, a marketplace where businesses and investors trade these credits. Like financial markets, their prices vary according to supply and demand. For North America-based credits, they fall within the range of \$10 to \$80 per metric ton. Credits of lower quality, failing to meet specified criteria, typically fetch single-digit prices.

### 5. What are (voluntary) carbon offset programs?

Carbon offset programs, usually called voluntary carbon markets, or VCM, involve investing in projects that reduce, avoid, or remove emissions. These projects generate carbon credits that organizations can purchase to compensate for their own emissions after they have reduced their Scope 1 and 2 emissions to its lowest possible. Traditionally, offset projects have been focused on development of renewable energy power generation, reforestation activities in developing countries, or methane capture from industrial applications and landfills. In recent years, new types of projects and credit types

**6. Why are carbon markets important?**

Carbon markets have been recognized as a key tool to fight climate change, according to Article 6 of the Paris Agreement. VCMs provide economic incentives to reduce emissions and transition to more sustainable practices, allocating capital to the most efficient sectors of the economy to have the greatest impact.

**7. Who buys carbon credits, and how do they buy them?**

Credit buyers in carbon markets include companies, governments, and organizations looking to meet emission reduction targets or invest in sustainable projects. Credit buyers usually purchase credits either directly from offset developers (those who implement actions that reduce emissions), or through intermediaries and exchanges. Greenlines allow individuals to benefit and participate in carbon markets through their own mobility apps and e-commerce stores when living sustainably.

**8. How are carbon credits verified?**

Carbon credits (emission reductions) are verified by third-party organizations to ensure the emissions reductions are real, measurable, additional, and more. These organizations, also called Validation/Verification Bodies, or VVBs, are accredited organizations by each program authority and must comply with ISO 14065:2020 (General principles and requirements for bodies validating and verifying environmental information). Some of the largest offset programs include the Verified Carbon Standard (VCS), Gold Standard, and Global Carbon Council (GCC).

**9. Are carbon markets effective in reducing emissions?**

Carbon markets have been effective in some regions and sectors, but their success depends on factors like the stringency of emissions targets, regulatory enforcement, and market design. Transparency and trust in the environmental integrity of each offset project is key to ensure the credits generated are real and emission reductions have been achieved.

**10. Is it possible for individuals to benefit from carbon markets?**

Traditionally, carbon markets have been exclusive to corporations and governments. However, Greenlines' Mobility and E-commerce Carbon Engines have now opened the door for individuals to take part in these markets through mobility and e-commerce platforms.

**11. How do carbon markets support international climate agreements?**

Carbon markets contribute to fulfilling the emission reduction obligations outlined in global climate agreements, such as the Paris Agreement. The forthcoming COP28 conference in Dubai, UAE, scheduled for later this year, will predominantly focus on establishing the mechanisms to guide countries' involvement in carbon markets, thereby assisting in the achievement of their climate goals.

Learn more about carbon markets and credits: <https://www.greenlines.cc/carbon-markets>

## About digital Measurement, Reporting and Verification (dMRV) Systems

### 12. What is an MRV and why is it important to mitigation efforts?

Measurement, Reporting, and Verification (MRV) refers to the multi-step process to measure the amount of greenhouse gas (GHG) emissions reduced by a specific mitigation activity, such as reducing emissions from deforestation and forest degradation, over a period of time and report these findings to an accredited third party. The third party then verifies the report so that the results can be certified and carbon credits can be issued.

### 13. What are 'digital MRVs' and how are they different from traditional MRV methods?

Digital MRVs are advanced systems that automate and enhance the quantification and validation of greenhouse gas emissions and reductions. They differ from traditional MRV methods by offering real-time data collection, greater precision, efficiency, transparency, user engagement, customization, and seamless integration with technology. Digital MRVs are the preferred choice for modern climate action and carbon markets.

### 14. Why are digital MRVs important?

According to the World Bank<sup>1</sup>, “MRV is the key to unlocking climate finance and showing progress on climate goals”. Digital MRVs are crucial for several reasons:

- Accuracy: They improve the accuracy of emissions data, reducing the risk of underreporting or overestimating emissions.
- Transparency: They enhance transparency, making it easier for stakeholders to access and verify emissions data.
- Efficiency: Digital MRVs streamline the data collection and reporting process, reducing administrative burdens.
- Cost-Effectiveness: They can be more cost-effective than traditional manual methods of data collection and verification.

### 15. How does a digital MRV (dMRV) work?

In contrast to conventional MRV processes, digital MRVs incorporate technology to streamline the monitoring, reporting, and verification of emissions data:

- Data Collection: Real-time emissions data is collected from various sources, like industrial facilities, transportation, and energy production, utilizing sensors, remote sensing tech, or digital sources. In the MCE™, each individual's mobility app on their phone handles this data collection.
- Data Transmission: Emissions data is swiftly transmitted to a central database or platform, ensuring continuous monitoring. In the MCE™, this data is instantly processed via an API to a centralized server.
- Data Analysis: The data undergoes advanced analytics and algorithmic processing to identify trends and calculate emissions. The MCE™ functions as the system's core, performing calculations to quantify the emission reductions associated with each trip.

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<sup>1</sup> <https://www.worldbank.org/en/news/feature/2022/07/27/what-you-need-to-know-about-the-measurement-reporting-and-verification-mrv-of-carbon-credits>



- Reporting: Emission data is reported through digital platforms, making it accessible to pertinent stakeholders, including regulators, organizations, and the public.
- Verification: Independent third-party verifiers or auditors may review the digital emissions data to validate its accuracy and conformity with established standards.
- Record Keeping: A secure digital record of emissions data is maintained for compliance and historical analysis.

Learn more about digital MRVs: <https://www.greenlines.cc/digital-mrvs>

## About Greenlines' Mobility Carbon Engine (MCE™)

### 16. What is the Mobility Carbon Engine (MCE™)?

The Mobility Carbon Engine (MCE™) is an innovative and patented digital system developed by Greenlines that revolutionizes the way individuals quantify and reduce GHG emissions during transportation. These reductions, once verified by an accredited third-party verifier, can be sold into the market as carbon credits to generate financial incentives to both individuals and transportation apps. and businesses engage with sustainable transportation.

### 17. How does the MCE™ produce verifiable carbon credits from people's commutes?

The MCE™ operates as a comprehensive system that fulfills the quantitative and qualitative prerequisites for carbon credit issuance when low-carbon transport modes are utilized. The MCE™ sits within the server of each mobility/transportation app to protect users' privacy. Its functionalities encompass:

- Ownership Transfer: The MCE™ automates the transfer and documentation of environmental benefits from end users to the transportation app.
- GHG Estimation: It automatically predicts emissions generated by each transport option before each journey and subsequently quantifies them upon completion.
- Custom Baseline: The MCE™ assigns a tailored baseline to each user based on their historical behavior, ensuring periodic updates to maintain conservatism.
- Emission Quantification: It automatically measures the emission reductions achieved after each trip, recording and transmitting this data to the centralized system. The quantification methodology was developed according to ISO 14064-2 and VCS4.0 standards.
- Automatic Reporting: The MCE™ promptly reports emission reductions following the completion of each trip, ensuring accurate and timely reporting.
- Verification Readiness: The MCE™ streamlines the generation of emission reduction reports, readying them for third-party data verification by adhering to standardized procedures.

### 18. Does the MCE™ work with third-party mobility or transportation apps?

Certainly. The MCE™ is a versatile system meant to be integrated into the server of any transportation or mobility app, and be accessible exclusively to the app's owner. The MCE™ seamlessly works with a wide range of apps, including mobility aggregators, public transit agency apps, or private mobility providers' apps for passenger transport, package delivery, or food delivery.

### **19. How can transportation apps use the MCE™ to produce carbon credits?**

To produce carbon credits from its users or package deliveries, a mobility or transportation app must follow a two-step process:

- **Offset Project Development:** In the first step, each app owner can choose to either independently create and manage their offset project (PDD) or opt for a turnkey solution from Greenlines. If they select Greenlines, the company handles the development of the offset project, including project validation and registration, data verification, and credit issuance.
- **Integrate the MCE™:** In the second step, the app integrates the MCE™ into its backend server. Greenlines assists each client in setting up a personalized baseline, emission factors, and other specific parameters. Once configured, the system runs automatically in the background.

### **20. How can a mobility app user receive financial rewards?**

For users to earn financial rewards, the following steps are required:

- The user should utilize a transportation or mobility app that incorporates the MCE™.
- The user needs to agree to the terms and conditions and transfer the ownership of the environmental benefits to the app owner.
- The user must complete a trip using a lower-carbon transportation option.
- The app's MCE™ calculates the greenhouse gas emission savings specific to that user and trip, using data like the user's location, transport modes, and past behavior, according to the quantification methodology.
- The MCE™ in the app logs the emission reductions in kilograms of CO<sub>2</sub> equivalent into the system.
- At regular intervals, the app owner then undergoes third-party verification via an accredited verifier. Once verified successfully, credits are issued to the app owner.
- The app owner has the choice to sell these credits in the open market (i.e. corporations seeking to offset corporate emissions) and distribute the revenue among the end users.

### **21. Is Greenlines exploring or have existing partnerships with any major mobility providers?**

Yes, Greenlines has already partnered with a number of transportation companies to deploy the MCE™. We are also currently in discussions with some of the largest mobility players and other organizations to expand its reach and enable users to be rewarded for choosing more sustainable mobility and transportation options. Our goal is to enable every transportation app able to generate revenue from sustainable mobility and make it mainstream for end users.

Learn more about the Mobility Carbon Engine (MCE™): <https://www.greenlines.cc/mobility-carbon-engine>



## About Greenlines' USPTO Patent

### **22. What makes this patent a pivotal moment for the industry?**

The landmark patent titled - Methods and Systems for Conversion of Physical Movements to Carbon Units, signifies the world's first-ever instance of a process to generate carbon credits being awarded a patent. This patent establishes an entirely novel category of intellectual property within the carbon sector, fostering increased investment and innovation opportunities.

By securing this patent, a new frontier in intellectual property has been unveiled within the carbon sector. It ushers in a domain where innovative ideas, methodologies, and technologies can be protected, encouraging further investment and exploration in the field of carbon credit generation. This breakthrough paves the way for fresh approaches, novel strategies, and groundbreaking solutions that can contribute to a more sustainable future for our planet.

### **23. Is Greenlines applying for similar patents in other countries?**

Beyond North America, Greenlines is pursuing global coverage for its innovative technology. The company has already filed multiple patent applications for the MCE™ in other jurisdictions, including the European Union, signaling its commitment to making sustainable practices a global reality.

### **24. How will this landmark patent impact the global mobility industry?**

Historically, mobility industry participants have primarily depended on conventional revenue streams such as ride fares, advertising, and, in certain instances, the sale of user data. However, Greenlines has introduced a novel revenue stream originating from carbon markets, one intricately linked to eco-friendly behavior. This innovative approach harmonizes financial profitability with ecological accountability, transforming the landscape of sustainable mobility.

Read Greenlines' USPTO Patent: <https://image-ppubs.uspto.gov/dirsearch-public/print/downloadPdf/11774255>