



# CORNELL TECH

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## BlockCarbon

**NBAY 5610 Demystifying Big Data and FinTech**

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## **Executive Summary**

The carbon credit industry is in its nascent stage as companies and countries are starting to focus on their carbon footprint and ways to offset them. Currently the carbon credit exchange trades about \$211 billion worth of carbon credits annually but that number is expected to rise to \$2.5 trillion in the next couple of years. With this growing market there are many platforms that are being created to assist with helping firms buy and sell carbon credits. One blindspot that is being ignored is individual level carbon credits, which is the gap our business, BlockCarbon, hopes to bridge.

Today, millions of people proactively do activities to reduce their emissions but do not receive credits for their activities. While many of these activities are too small on a singular level if you start bundling all these activities together they have a large meaningful impact that rivals any company's carbon offsetting behavior. BlockCarbon's mission is to create a blockchain carbon credit generation and trading platform that focuses on connecting these individuals and their carbon offsetting behaviors to companies who need carbon credits. More importantly it will also incentivize individuals to partake in carbon reduction tasks as now there is monetary value attached to them instead of just social and environmental value.

Our platform will consist of a mobile/web application frontend and a backend consisting of tokens that are given to individuals after a 3rd party verifies the person's carbon reduction activities. The person can trade the token, which will be presented as an NFT, and sell them on exchanges as the token signifies a carbon reduction of X amount. The buying and selling will occur in a new crypto currency created by BlockCarbon. Companies with net neutrality goals will then purchase said tokens and all transactions will be recorded on the public blockchain. The value of the blockchain is that it provides transparency and public accessibility into the

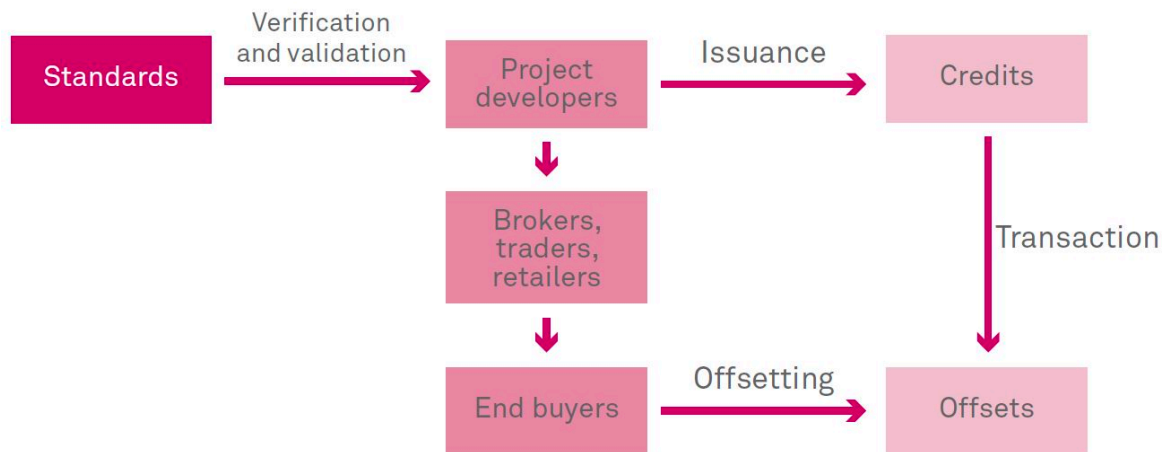
legitimacy of these carbon credits and the companies who claim to be wanting to reduce their carbon footprint. This is especially important today where there is a lot of fraud and exaggeration in the carbon credits world such publicity of transactions can assist in keeping firms honest.

BlockCarbon will grab its foothold in both the Nonprofit sector and the government as they seem to be optimal 3rd party verifiers given that they want to reduce emissions. These organizations and local governments can leverage their volunteer base to partake in carbon reduction activities and then they will create the tokens, leveraging our platform, to give to the volunteers that represents their carbon reduction footprint. Then as individuals decide to trade carbon credits we take a percentage of the transaction as our fee for running the exchange. While there are many risks to such a business such as fraud, regulatory, and moral hazard we think such a model provides an essential service by promoting individuals to partake and get compensated for their carbon reduction activities. Overall, BlockCarbon hopes to be the platform that individuals use to receive and trade carbon credits and as a result we hope to promote a healthier and cleaner environment.

## Business Model

The opportunity is for BlockCarbon to find ways to provide these carbon credits at a reasonable cost. According to S&P Global Platts, the current market works as follows:

### The structure of the voluntary carbon market



Source: S&P Global Platts

Currently, the largest broker of these carbon credits is Xpansive and Registries such as Verra who issue credits which can be sold on their platform. It costs a significant amount of money to create a registry and issue credits where the cost can range from \$10,000 to more for validating one project that can be sold as carbon credits in the market.

The opportunity within this flow is to incorporate technology, specifically blockchain, to facilitate transactions and create easy ways for 3<sup>rd</sup> parties to verify the carbon neutrality of activities done by individuals. More specifically, we want to create a new protocol using NFTs to create the carbon credit and facilitate the exchange from project developers to the end buyers in a seamless way that reduces the cost for all parties.

From the supply side, we have individuals who volunteer and perform green activities to make the world more sustainable. These individuals currently do this with minimal incentives

and are usually not paid. Thus, the number of individuals who perform volunteer work is limited. We expect that with our new platform we will drive up the number of volunteers who want to participate in green projects. Individuals will now be compensated by corporations, whether it be through giftcards or dollars for their volunteering work. The price equilibrium is going to be determined by the blockchain protocol that matches the supply and demand of the volunteers and corporations.

On the demand side, we have corporations who have pledged carbon neutrality and want to increase their brand equity. Companies will be able to buy carbon credits and reward their consumers through giving them monetary rewards in the form of merchandise, gift cards, or cash. By purchasing these credits, the expectation is that it drives up their sales and increases their reputation as a brand that is sustainable.

The blockchain technology will be the backbone of the platform functioning as the backend, while we create a mobile and web application to facilitate the transactions. More specifically, to the consumer the earning of carbon credits should be seamless and should be easy to redeem for corporate sponsored rewards. As the facilitator of these transactions, BlockCarbon will take a small transaction fee and earn revenue this way.

There are several aspects within this new proposed technology at a high level which will be discussed further below:

1. Create an NFT that is signed by project developers as proof of the carbon credit
  - a. These non-fungible tokens would be the project description and how many metric tons would be absorbed from the atmosphere
  - b. It would include the origin of the project with the project developer name and names of volunteers

- c. It would store pictures and all relevant documentation related to the project
2. Create a new digital token to facilitate the transaction of these NFTs
    - a. We will create a token that buyers can use to bid on the auction of these NFTs
    - b. Tokens can be converted to other digital currencies such as USDC and vice versa
    - c. The blockchain platform will take 1% of the transaction amount
    - d. There will be options for these token holders to stake their coins and collect a yield for helping facilitate the transaction

With a transparent network, auditors and alike will be able to view which companies are offsetting their carbon output. This is a huge advantage over the current model where scandals of the same credits were used for many different companies.

### **Technology**

As an emerging technology, blockchain is already having an increasing impact on commerce and finance. It is a database structure that offers a secure and transparent ledger for the record-keeping of financial transactions, enabling peer-to-peer digital asset exchange. On the blockchain, stakeholders can access all data in real-time and verify its accuracy. Additionally, smart contracts allow for the automation of certain processes, such as the transfer of assets or exchange of agreements between two parties. As a result, this blockchain-based protocol could enhance the current carbon credit trading infrastructure, allowing for increased transparency and efficiency of the global carbon credit market.

Blockchain as the backbone of the venture presents an opportunity for the global carbon credit market to move away from its current manual and complex structure to a secure, cost-effective and transparent system. With blockchain, carbon credits can be registered and

exchanged over the internet as an NFT, which then can be traded on the carbon credit exchange, allowing for an improved efficiency of the market and reducing costs associated with the manual processing of trades. Unlike traditional databases, blockchain offers a secure, decentralized and immutable ledger of transactions. The consensus algorithms used in blockchain networks also ensure that users can securely share data without the need for intermediaries or central authorities. Furthermore, blockchain reduces fraud and manipulation by providing a secure and transparent platform for trading.

The proposed protocol is composed of two components: a consensus algorithm for the green projects and a platform for the trading of associated carbon credits. At the core of any blockchain protocol is the consensus mechanism. This is the mechanism by which all nodes on the network come to a consensus on the shared state of the ledger, ensuring that the blockchain remains reliable and secure. As a result, the consensus mechanism used in any blockchain protocol is of the utmost importance. In the case of the proposed protocol, the consensus mechanism will be Proof of Authority (PoA). PoA is a type of consensus mechanism that is based on the idea of digital identity. Each node on the network has a digital identity (or “authority”) that is used to validate transactions. This digital identity is cryptographically secured, and its existence is verified by all other nodes on the network. Each node is responsible for validating transactions and maintaining the consensus on the shared ledger.

The trading platform is developed using smart contracts. Smart contracts in Blockchain are computer programs stored on the blockchain that enable a set of mutually agreed upon conditions to be met between two or more parties without the need for a third party. The contracts are stored on a blockchain, making them immutable and secure. This will allow for the automated execution of trades with secure access to the carbon credit market. When a trade is

executed, the smart contract would automatically transfer the carbon credits from the seller to the buyer and update the ledger to reflect the new ownership of the token. The platform also offers two distinct access levels, public and private. Public access allows all users to view token details such as number of carbon credits associated with the green project etc, while private access allows traders to conduct transactions and view sensitive data, such as auditor details etc.

This trading platform will be created using solidity on the Solana. We chose to use Solana due its transaction speeds and lower processing costs. The protocol will manage the supply and demand of the new cryptocurrency we plan to create to facilitate the transaction. The currency called BCtoken will be used as the medium of exchange between an NFT that represents the carbon credit. Companies will be able to purchase BCtokens through other currencies. As the platform, BlockCarbon will collect a 1% transaction fee. With BCtokens there will arise a new price equilibrium for carbon credits from individuals. We expect this equilibrium to fluctuate and hope to see a significant amount of both demand and supply to create enough liquidity in the marketplace.

### **Go-to-Market Strategy**

There are three key types of players that need to be boarded onto the platform - issuers, volunteers and buyers.

#### ***Issuers***

We will partner with nonprofit organizations (NGOs) in the climate change space such as the Clean Air Task Force, the Sunrise Education Fund, Climeworks, Burn, and Tradewater. These NGOs run projects and events with the help of volunteers frequently. NGOs can use our platform to run such projects and events, and create carbon credit tokens corresponding to the



outcomes achieved by volunteers. The brand equity of such non profits and the individual financial incentive from selling the carbon credit tokens would attract volunteers.

Additionally, we can partner with the UN Carbon Offset Platform, an e-commerce platform where a company, an organization, or a regular citizen can purchase carbon credits to compensate for greenhouse gas emissions or to simply support action on climate. The main feature of this platform is to display UNFCCC (United Nations Framework Convention on Climate Change)-certified climate friendly projects that reduce, avoid or remove greenhouse gas emissions from the atmosphere. We will reach out to projects run by NGOs and list their projects on our platform.

With a list of eligible projects, there will be a supply of carbon credits that can be tokenized and traded as NFTs on our platform.

### ***Volunteers***

A key part of the value proposition for issuers is to attract volunteers by providing them a financial incentive for participating in such projects. We will go to high schools and universities to spread awareness of this platform and sign up students, who are most likely to become volunteers for such programs and can also use some extra cash.

Issuers can use the platform to run campaigns about their events to the user base of the platform and sign up volunteers.

### ***Buyers***

We will onboard cryptocurrency platforms, airlines, carmakers and oil companies. These companies are the largest buyers of carbon offset credits (see Exhibit 1). For example, Toucan Protocol, a crypto trading platform bought carbon offsets worth 17 million tons of carbon dioxide in 2021.

For all these types of players, we'll create a business development team that will reach out and explain the value proposition of the platform.

**Financials**

To limit the rise of global temperatures to 1.5 degrees Celsius, negative emissions of: 7.25 GtCO<sub>2</sub> would be required in 2023, 8.50 GtCO<sub>2</sub> would be required in 2024, and so on and so forth as shown in Table 1 below. However carbon credits is just one of the ways to reduce carbon dioxide emissions. Based on historic information, the assumption is that carbon credits can help accomplish 10% of the negative emissions. Thus in 2023 there will be a demand for 0.73 GtCO<sub>2</sub> carbon credits, in 2024 0.85 GtCO<sub>2</sub> carbon credits and so on and so forth as shown in Table 1 below.

**Table 1<sup>1</sup>: Estimating the demand for carbon credits (based on data from Exhibit 2)**

Year	2023	2024	2025	2026	2027	2028	2029	2030
Business as Usual Carbon Emissions	40.25	40.50	40.75	41.00	41.25	41.50	41.75	42.00
Emissions Required for 1.5 C Pathway	33.00	32.00	30.00	28.00	26.00	24.00	21.00	19.00
Negative Emissions	7.25	8.50	10.75	13.00	15.25	17.50	20.75	23.00
Demand for Carbon Credits	<b>0.73</b>	<b>0.85</b>	<b>1.08</b>	<b>1.30</b>	<b>1.53</b>	<b>1.75</b>	<b>2.08</b>	<b>2.30</b>

(All values shown as GtCO<sub>2</sub> (gigaton of carbon dioxide))

Carbon credits are priced based on the type of activity that is being carried out to reduce emissions. Since BlockCarbon is based on activities or projects that individual citizens can carry out themselves, we have narrowed down the project types to the ones shown in Table 2 below, and excluded those which might not be possible for a citizen to carry out on an individual level.

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<sup>1</sup><https://www.mckinsey.com/capabilities/sustainability/our-insights/a-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge>

The table also shows the average price in \$ per ton of carbon dioxide emissions offset for each project type, and we have averaged across all the selected project types to arrive at a carbon credit price of \$6.29 per ton of carbon dioxide emissions offset.

**Table 2<sup>2</sup>: Average price of 1 carbon credit (based on data from Exhibit 3)**

Project Type	Average Price
Tree planting	\$ 7.50
Clean cookstoves	\$ 4.90
Water/purification	\$ 3.80
Energy efficiency - community focus	\$ 9.40
Transportation	\$ 2.90
Fuel Switching	\$ 11.40
Solar	\$ 4.10
<b>Average</b>	<b>\$ 6.29</b>

(All values shown as \$ per ton of carbon dioxide emission offset)

Using the above volume and pricing information we can get an estimate of the total addressable market (market size) as \$4.56 billion worth of carbon credits traded worldwide in 2023, \$5.35 billion worth of carbon credits traded worldwide in 2024, and so on, as shown in Table 3 below.

**Table 3: Estimated value of all carbon credits traded worldwide**

Year	2023	2024	2025	2026	2027	2028	2029	2030
Demand for Carbon Credits (GtCO <sub>2</sub> )	0.73	0.85	1.08	1.30	1.53	1.75	2.08	2.30
Average Price (\$)	6.29	6.29	6.29	6.29	6.29	6.29	6.29	6.29
Value of Carbon Credits (billions of \$)	<b>4.56</b>	<b>5.35</b>	<b>6.76</b>	<b>8.18</b>	<b>9.59</b>	<b>11.01</b>	<b>13.05</b>	<b>14.47</b>

<sup>2</sup> <https://8billiontrees.com/carbon-offsets-credits/new-buyers-market-guide/carbon-credit-pricing/>

Given that BlockCarbon’s trading platform is based on blockchain technology which has various advantages as described in this report, we envision that we could capture between 10% of the market in the first year of launch and grow to almost 30% of the market by 2030. As shown in Table 4 below, BlockCarbon’s market share starts at 10% in 2023 and grows to 27.5% in 2030. Using this the total value of carbon credits traded on our platform is \$0.46 billion in 2023, \$0.67 billion in 2024 and so on. Our revenue strategy as detailed in our business model and plan is to charge 1% transaction or trading fees, and this results in revenues for BlockCarbon of \$4.56 million in 2023, \$6.68 million in 2024 and so on to reach a revenue of \$39.78 million by the year 2030. This is the baseline revenue just from core business activities i.e. fees charged on trading tokens and does not include other sources of revenue which may include consulting charges, advertisement revenue, partnerships and collaborations with NGOs, and more that BlockCarbon may offer in the future.

**Table 4: Estimated revenue for BlockCarbon**

Year	2023	2024	2025	2026	2027	2028	2029	2030
Value of Carbon Credits (billions of \$)	4.56	5.35	6.76	8.18	9.59	11.01	13.05	14.47
BlockCarbon's Market Share	10.0%	12.5%	15.0%	17.5%	20.0%	22.5%	25.0%	27.5%
Value of Carbon Credits Traded on BlockCarbon (billions of \$)	0.46	0.67	1.01	1.43	1.92	2.48	3.26	3.98
BlockCarbon's Revenue (billions of \$)	0.005	0.007	0.010	0.014	0.019	0.025	0.033	0.040
BlockCarbon's Revenue (millions of \$)	<b>4.56</b>	<b>6.68</b>	<b>10.14</b>	<b>14.31</b>	<b>19.18</b>	<b>24.77</b>	<b>32.63</b>	<b>39.78</b>

After estimating the revenue projections as shown above, to complete the financial forecast, we need to estimate costs to arrive at the operating income and net income. This has been shown in Table 5 below which is the projected income statement for BlockCarbon from 2023 to 2030. Various assumptions have been made, which have been detailed and described below the statement. With these assumptions, we estimate that BlockCarbon will be profitable in the first year of operation itself with a profit of \$1.24 million. The profits will grow

exponentially to reach \$20.66 million by the end of 2030. This information can be used to secure venture capital funding for our new platform.

**Table 5: Projected income statement for BlockCarbon**

Year	2023	2024	2025	2026	2027	2028	2029	2030
BlockCarbon's Sales Revenue (millions of \$)	4.56	6.68	10.14	14.31	19.18	24.77	32.63	39.78
Implementation Expenses (millions of \$)	1.00	-	-	-	0.50	-	-	-
Maintenance Expenses (millions of \$)	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20
Salaries (millions of \$)	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00
Rent & Utilities (millions of \$)	0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.10
Marketing Expenses (millions of \$)	1.14	1.67	2.54	3.58	2.88	3.72	4.89	5.97
Total Expenses (millions of \$)	2.79	2.83	4.20	5.74	6.15	7.00	8.68	10.27
Operating Income (millions of \$)	1.77	3.86	5.95	8.57	13.03	17.77	23.95	29.52
Income Tax Expense (millions of \$)	0.53	1.16	1.78	2.57	3.91	5.33	7.18	8.86
Net Income (Loss) (millions of \$)	<b>1.24</b>	<b>2.70</b>	<b>4.16</b>	<b>6.00</b>	<b>9.12</b>	<b>12.44</b>	<b>16.76</b>	<b>20.66</b>

Assumptions made (all are based on industry standards and market research):

1. Implementation Expenses for the first year will be \$1 million which includes capital investments to build the technology and related software and blockchain infrastructure. After the first four years of operations a \$0.5 million upgrade will be conducted to keep up with the latest technology.
2. Maintenance Expenses for the first four years will be \$0.1 million to help with routine checks, support, security, etc. of the system which will increase to \$0.2 million after the system upgrade in 2027.
3. Salaries would start at \$0.5 million for the first year as we envision a small and lean team to start with, and as the company grows, so will the team as more people are hired and the salary would increase every year by \$0.5 million (including bonuses and raises).

4. Rent and Utilities would be \$0.05 million for the first year and increase at a rate of 10% every year given the office space is rented in New York City.
5. Marketing Expenses would be 25% of revenue for the first four years, and then drop to 15% of revenues from the fifth year onwards.
6. Income Tax Expense is calculated as 30% of operating income.

## **Target Market**

### ***Supply***

In the early stage we plan to target the NGOs in the environmental activism space to use our platform to expand their volunteer base. These range of NGOs from local to global level work for environmental protection and conservation from the misuse by human activities. Every year major or well recognised NGOs across the globe conduct thousands of campaigns and activities worldwide to create awareness among people about the depleting natural resources and protecting them. NGOs can leverage our product to conduct their campaigns and reach more volunteers as the volunteers now have an incentive to do their work and get recognition digitally in the form of an NFT, which can be later traded at a price to corporations or individuals who are looking to offset their emissions. It's a win-win situation for both NGOs and individual volunteers as NGOs get to expand their volunteer base working towards a better environment and individuals get verified digital tokens, which can be traded, for their participation. We plan to target all local to global Non Profit Organizations to use our platform as a service to issue digital tokens for the participants.

In the later stages our platform will expand and directly target individuals taking up carbon offset projects by planting a tree or undertaking any initiative, Companies undertaking

green initiatives or projects, Companies in surplus of carbon credits are the ones on the supply side on our platform. Any of these players can list themselves on our platform and trade their carbon credits.

### ***Demand***

Every company that plans to reach carbon neutrality is a target company of our Platform. Generally, companies will not achieve carbon neutrality either by generating all the electricity by renewable energy or by increasing the efficiency. Instead, they can attain zero carbon emissions by offsetting the carbon emissions by purchasing the carbon credits. Companies ranging from Microsoft to Walmart to Air France are pledging to zero carbon emission either by energy efficiency, renewable energy or carbon credits. The number of companies pledging net zero emission are more than 1000 by 2020. Here comes the carbon credit platforms on whom companies rely on to reach their goal. The global carbon credit market value stood at 211.5 Bn USD and is expected to reach 2407.8 Bn USD by 2027, at a cumulative annual growth rate of 30.7%. The major growth drivers have been increasing global warming and increasing investments in the carbon credit market. Europe accounted for the majority of global carbon credit market share at 51.2% followed by North America. We need not limit ourselves to corporations as more and more individuals are more concerned about global warming and are planning to contribute their share by offsetting their carbon footprint. Not just companies and individuals, even more than 200 countries have pledged to limit the rise in global temperatures to 2 degree celsius. As per mckinsey reports global demand for carbon credits will increase by a factor of 15 by 2030 and by a factor of 100 by 2050.

### ***Direct Competitors***

We are the first in the carbon offset program specifically for volunteers to not only leverage blockchain technology to authenticate the origin of the carbon credits but also work with Non Profit Environmental organizations to offer digital tokens volunteers' participation. Since we are targeting two niche industries, blockchain and environmental NGOs, we don't have any direct competitors. However, we have indirect competitors in the carbon offset industry.

### ***Indirect Competitors***

There are a number of carbon offset programs available in the industry, with companies undertaking a range of green initiatives or projects such as Renewable energy, methane capture, biogas, energy efficient etc., to offset the carbon emissions. There are dozens of companies in the market varying in terms of the green projects they undertake and the companies or industries they target. For instance offset programs such as Native Energy works best for a range of companies and individuals. On the other hand we have companies targeting niche markets such as Sustainable Travel International targeting tourism businesses, terrapass targeting monthly subscribers, and Carbon checkout targeting e-commerce companies. Though we notice range of established companies in the market and niche players entering the market the challenges have been increasing with time such as verifying the authenticity of the carbon credits or offset values, transparency of the projects, the offset quality of the projects, whether verified by the third party, and whether these companies are not involved in multi selling of the same credits to different companies. Our platform in particular aims to tackle the multi selling of carbon credits challenge and differentiate ourselves from the existing competitors by leveraging blockchain technology. We aim to maintain the authenticity of the origin of the carbon credits and a ledger report of the transfers of these credits among various players in the market.



## **Risks**

The carbon credit ecosystem is a very niche and complex system that involves several players. This complexity introduces various risks that must be understood and addressed. Few of them are outlined below:

1. **Fraud Risk:** Our business model revolves around two main players. First, the individuals who will get a platform to showcase their carbon offsetting effort and get incentivized for the same. Second, the NGOs who have access to the platform to invite volunteers to help with an upcoming carbon offsetting effort, create tokens to incentivize the volunteers in terms of carbon credits.

Even though both the parties involved have very little incentive in committing fraud, there are still risks of fraudulent activities such as falsifying carbon credits by the companies. NGOs can get involved with compromised individuals and offer carbon credits for no real carbon offsetting work done in lieu of profit in the form of commission. It may not be impossible for NGOs to commit such fraud through our platform as they will be both the originator and verifier of the carbon reducing projects. Additionally, they will be responsible for creating the tokens on the BlockCarbon platform. As NGOs have the control over the whole process from creating the projects to generating the tokens, this might lead to a conflict of interest motivating them to get involved in fraudulent activities for profit.

Individuals can also commit fraud by using or submitting false or misleading information to obtain carbon credits. To mitigate such fraud risks, strong auditing systems need to be installed on the platform to verify every submission and transaction before allocating the credits.

2. **Regulatory Risk:** The carbon credit market is still very nascent and is susceptible to high risks of sudden and unanticipated changes in regulations which could impact the carbon credit ecosystem adversely. Our platform will need to comply and adhere to the regulations as and when they change to avoid any implications.

Additionally, our platform leverages nascent technologies such as blockchain, crypto, and NFTs and are vulnerable to scandals. These technologies also have an uncertain regulatory direction which may lead to compliance issues in the future.

3. **Technology-Induced Security Risk:** Our platform leverages blockchain to facilitate carbon credit transactions which may introduce a set of technology-induced risks. These risks may consist of cyber security risks, such as identity theft, data breaches, and malware. In order to mitigate such risks, we must ensure that we have strong security protocols and infrastructure in place. These protocols should be capable of detecting and notifying about any unusual activities as and when they occur.
4. **Market Uncertainty Risk:** There is an uncertainty in the value of carbon credits that can make it very volatile which in turn can put investments at risk. Through our business, we will be creating a platform to streamline carbon credit transactions. But, our platform will have no control over the unpredictable price fluctuations caused by the uncertain market conditions which can result in financial losses for companies, NGOs, and individuals.
5. **Unpredictable Geopolitical Conditions Risk:** There is an unpredictability when it comes to policies pertaining to different countries as far as carbon credits or GHG emissions (Greenhouse Gas) protocols in general are concerned. There is an undeniable risk surrounding these policies that may change depending on the ongoing geopolitical

conditions or political instability in the specific country which can affect the carbon credit market in an unprecedented manner.

### **Future development**

1. Replace the role of NGOs to become a leading verifier to mitigate fraud risks:

- Digitalize the verification process with better algorithms and IoT devices:

With advanced math models, algorithms and hardwares, we can digitalize the current manual verification to lower the cost, speed up the process and ensure the authenticity. Current methods to measure, report, and verify emission reductions can be costly and time-consuming, often relying on manual operations, which can easily lead to fraud verifications. In the voluntary carbon market, better verification leads to demonstrable results. And in a world increasingly aware of environmental damage, demonstrable results will lead to greater sales of carbon offsets.

Our blockchain carbon credit platform marks a good opportunity to establish itself as the ultimate digitized verification tool. In this way, we can easily prove that both individuals' and NGOs' carbon offsets contributed to sustainable development benefits.

- Shift the verification away from project-by-project verification to platform verification We can feed data directly into our platform from our remote sensors or IoT devices, which automatically ensures the data meets offset standards. If it does, a digital offset is automatically generated. If there's an incongruity or a gap in the automated verification process, we need to step in to resolve the

discrepancy. Good old manual labor will still be needed for smaller, more nuanced projects or those that lack resources for remote sensing or IoT. In this way, we will be able to deploy our verification process to at least 80-90% of automation level and mitigate the possibility of fraud carbon credits reporting.

2. Strengthen platform security protocols and infrastructure:

- Proper opt-out mechanism

Provide settings that allow our platform users to disable access to sensitive information—like location, contacts—through the Privacy menu of the Settings. Extend this behavior to any data we cache from these sources or collect directly.

- Take care of data retention

Back up essential data on a regular basis. In case everything else fails, the data backup can allow us to continue operating as well as recover quickly, which can reduce the risks of a potential ransomware attack.

Delete logs older than a few months on a regular basis to make sure the deleted information no longer has a deep copy on our server. To create a friendly and secure environment on our platform we would do some information filtering technically to ensure our user's rights are protected appropriately.

3. Continue to assess the legislations and regulations

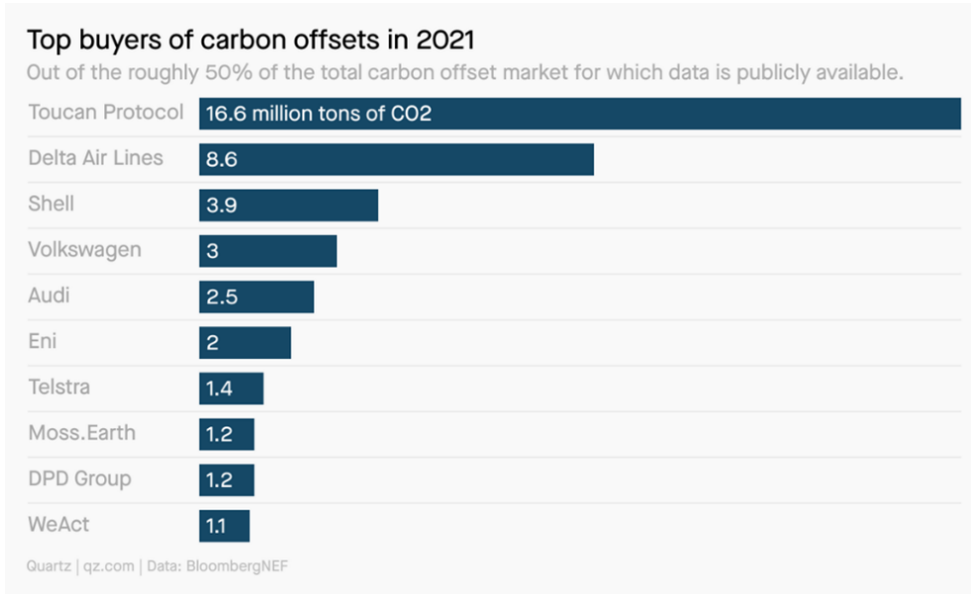
We will recruit professional policy researchers to provide us with proper regulations assessment and updates to achieve our business goals and increase business viability.

Climate change legislation or related government regulations in different countries or regions could have significant effects on our platform's ability to get data, verify carbon

credits and perform transactions. It is a must for us to closely follow the latest carbon market related legislations and regulations.

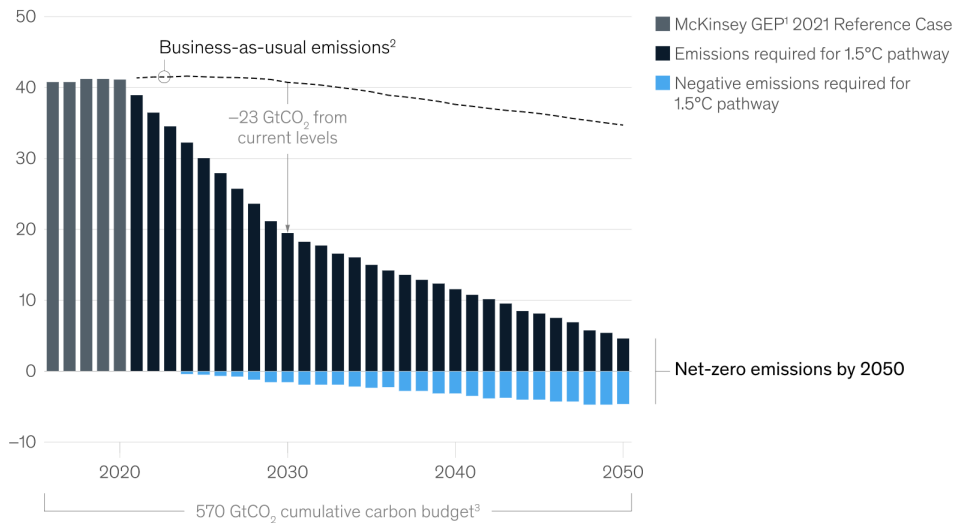
## Appendix

### Exhibit 1



### Exhibit 2

Global carbon-dioxide emissions, gigatons (GtCO<sub>2</sub>) per year



### Exhibit 3

## Carbon Credit Pricing by Type

Project Type:	Volume Sold (MtCO2e):	Average Price:	Price Range:
Wind	12.8	\$1.9	\$0.3 - \$18
REDD+	11	\$3.3	\$0.8 - \$20+
Landfill methane	7.9	\$2	\$0.2 - \$19
Tree planting	3	\$7.5	\$2.2 - \$20+
Clean cookstoves	3	\$4.9	\$2 - \$20+
Run-of-river hydro	1.5	\$1.4	\$0.2 - \$8
Water/purification	1.2	\$3.8	\$1.7 - \$9
Improved forest management	0.8	\$9.6	\$2 - \$17.5
Biomass/biochar	0.7	\$3	\$0.9 - \$20+
Energy efficiency - industrial-focused	0.7	\$4.1	\$0.1 - \$20
Biogas	0.6	\$5.9	\$1 - \$20+
Energy efficiency - community-focused	0.6	\$9.4	\$3.3 - \$20+
Transportation	0.5	\$2.9	\$2.2 - \$6.8
Fuel switching	0.5	\$11.4	\$3.5 - \$20+
Solar	0.3	\$4.1	\$1 - \$9.8
Livestock methane	0.2	\$7	\$4 - \$20+
Geothermal	0.1	\$4	\$2.5 - \$8
Agro-forestry	0.1	\$9.9	\$9 - \$11

## **References**

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