reneum

The fight against climate change is on.
Humanity is mobilizing.

RENEUM WHITE PAPER

JULY
2022

RENEUM INSTITUTE (hereinafter referred to as “Reneum” or the “Issuer”) is harnessing the power of blockchain to mobilize capital for direct climate action, for both individuals and companies worldwide. The result is that a wall of money is allocated to accelerating renewable energy deployment, funded directly by Bitcoin miners, the broader Web3 community and all individuals and corporates interested in taking direct climate action.

Reneum is starting a movement fueled by like-minded people who care about the future of the planet and want to be empowered to influence the energy transition. By providing a mechanism of action for motivated individuals to effect change, Reneum aims to be the *de facto* green standard for direct climate action at scale as well as for Web3. Through the launch of the RENW token and the Reneum Marketplace, we are aiming to catalyze a new green movement.

YOU CAN HELP US IMPROVE

All content and the tech stack produced by Reneum will eventually be open-source and we are open to any feedback on areas for improvement. Please contact us on our website or through our GitHub (once live) if you have any suggestions for technical or commercial upgrades.

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1.0 DEFINITION OF TERMS

Buyer - An entity that buys RENW tokens.

Decentralized Autonomous Organization (DAO) – A decentralized system of governance that enables people to coordinate and govern themselves through a set of self-executing rules implemented on a public blockchain.

Environmental, Social, Governance (ESG) – Environmental, social and corporate governance is an approach to evaluating the extent to which a corporation works on behalf of social goals that go beyond the role of a corporation to maximize profits on behalf of the corporation's shareholders.

Fungible Token – Mutually interchangeable, divisible and non-unique crypto tokens. Fungibility is also a feature of fiat currencies, by which, for example, one US dollar is always equal in value to another US dollar.

Issuer – Reneum, which monitors, verifies and guarantees the generation of clean energy recorded on the Reneum marketplace and issues RENW tokens to Projects for each MWh produced.

MWh – An acronym for megawatt-hours, referring to the unit of measurement that records the amount of electricity produced from a power plant. It is calculated as the number of megawatts generated per hour.

Non-Fungible Token (NFT) – A non-fungible token is a non-interchangeable unit of data stored on a blockchain, a form of digital ledger, which can be sold and traded. Types of NFT data units may be associated with digital files such as imagery, video and audio.

Platform – The Reneum ecosystem including the online Reneum marketplace on which Buyers can select Projects to fund by buying and subsequently burning RENW tokens.

Positive Environmental Attributes – the environmental benefit monitored and calculated by the generation of clean energy. In the case of renewable energy, a REC represents the 'environmental benefit' of generating clean energy.

Project - A renewable energy project that is certified by Reneum and supplies MWh to the Platform.

REC – Acronym of the term 'Renewable Energy Certificate,' a financial product corresponding to the environmental attributes of energy produced from renewable sources such as wind or solar. Environmental attributes are the 'greenness' associated with producing clean energy and can be sold separately from the underlying electricity as a financial instrument. RECs were created to support a cleaner generation mix, to support the acceleration of renewable energy deployment. They send a price signal to investors and developers in new markets to initiate new buildouts. RECs can directly influence the energy transition.

Live REC - The REC that represents the unretired non-power Positive Environmental Attributes of electricity generated from renewable energy sources that cannot be used to green the footprint of electricity consumption generated from fossil fuel energy sources until retired/burned. In the Platform this corresponds to the RENW token.

Retired REC - The REC that represents the retired non-power Positive Environmental Attributes of electricity generated from renewable energy sources that is used to green the footprint of electricity consumption generated from fossil fuel energy sources. In the Platform this corresponds to the Eisbaer NFT.

Web3 – Web3 is an idea for a new iteration of the Internet based on blockchain technology, which incorporates concepts such as decentralized networks like the blockchain and token-based economics like cryptocurrencies.

2.0 INITIATIVE OVERVIEW

Reneum is for individuals with a cause, companies with purpose and renewable energy projects with a need.

The energy transition is too slow and too small: according to the April 2022 Intergovernmental Panel on Climate Change (IPCC) report, public and private finance flows for fossil fuels are still significantly greater than those for climate adaptation and mitigation, including renewable energy. Furthermore, global greenhouse gas emissions through 2030 associated with the implementation of current government commitments lock in a disastrous level of warming exceeding 2°C over pre-industrial times.

We need 7x the capital that is currently being invested and we aim to illustrate how we can help mobilize individual, corporate and government action to stimulate the ubiquitous adoption of renewables.

Despite strong organizations like Fridays for Future and Extinction Rebellion, individuals still feel helpless and unable to make any genuine change. They need a simple tool that allows them to take meaningful direct action and Reneum is heeding their call. We are here to drive substantial amounts of capital directly from citizens to scale renewable energy deployment and accelerate the energy transition.

This document is intended to provide an overview of RENW tokenomics, the Platform mechanics and the technical infrastructure of the Reneum project.

3.0 PLATFORM MECHANICS

Reneum is partnering with Projects globally, measuring and digitizing their production of electricity and issuing them 1 RENW token for each MWh of clean electricity generated.

RENW tokens may be bought by Web3 companies, citizens, traditional corporations, and anyone else who wants to contribute directly to scaling renewable energy deployment.

RENW tokens are generated entirely on-chain, with metadata storage of underlying Projects for complete integrity of source, with third-party auditors periodically spot-checking Projects to provide additional validation of data.

Buyers of the RENW token are required to create a user profile, although the Reneum Marketplace and transaction histories of all RENW tokens burnt are publicly available.

The Platform has a user-friendly interface which displays Projects on-boarded and to whom the Issuer has issued RENW tokens. Platform users may choose from the catalog of Projects and decide which of them they wish to fund.

Please refer to the section entitled “Token Mechanics” for further details on how the RENW token functions.

Through the Platform and the RENW token, Reneum thus unlocks liquidity for Project owners and supports the growing ecosystem of companies and individuals who want to participate in direct climate action.

4.0 TOKEN MECHANICS

RENW

The Issuer issues blockchain-based Live RECs to Projects on-boarded to the Platform, with RENW tokens correlating to accrued power generation. Each RENW is a Live REC, representing the Positive Environmental Attributes of 1MWh of renewable power generated by the Projects on-boarded to the Platform.

INITIAL VERSION

On the initial version of the Platform, RENW tokens are stored within the Platform, represented through individual Projects and may be bought automatically within the Platform via the selection of said Project. Buyers will select the number of MWh (RECs) required to green their fossil fuel energy footprint within each Project's profile page. They then check-out to automatically receive that Retired REC, which is an airdropped Eisbaer NFT - a receipt for the purchase and burning of the RENW token(s). This process parallels the legacy system in which Live RECs are bought and retired. In the initial version of the Platform once RENW tokens are bought, they are burned automatically in the back-end, with no further action required on the part of the Buyer.

4.0 TOKEN MECHANICS

TOKEN CHARACTERISTICS

The Reneum ecosystem uses two types of tokens to achieve its goal of stimulating climate finance towards renewables. The first is the RENW token, which is a fungible ERC-20 token representing 1 MWh of renewable energy generated by pre-vetted Projects in Reneum's ecosystem. The RENW tokens are burned in the Reneum Marketplace to retire the MWh from circulation and are redeemed for a unique Eisbaer NFT which carries features relating to Projects. This NFT is a Retired REC and designed to be held as a collectible.

4.0 TOKENOMICS

EISBAER NFT

The other token used is the Eisbaer NFT, which is a Retired REC and as such contains metadata detailing the provenance of the MWh of the Project bought and retired. These MWh, represented by RENW tokens, are automatically burnt to receive an airdrop of the NFT, which acts as a Retired REC recording the number of RENW tokens burned and the Buyer's contribution to the renewable energy industry.

The metadata of the Eisbaer NFT will bear unique Project attributes and details the history of the Projects from which RENW tokens were burned.

Such Eisbaer NFTs may be used for ESG reporting or as a mimetic collectible. The Eisbaer NFT is intended to be a 'verified green' symbol, akin to the Fair Trade or LEED label, helping others to recognize the contribution and encouraging a cultural movement towards green energy.

The Platform allows users to download a report detailing the Project's verification and details of the clean energy generated. The report acts like a data room which is tagged in the metadata of the Eisbaer NFT.

This allows users to conduct their own audit or due diligence of the underlying Project for enhanced trust and Project integrity.

To distinguish between various levels of positive environmental impact, Eisbaer NFT backgrounds will be color-coded to reflect the volume of RENW tokens burned. The tiers (representing the amount of renewable energy supported) will be as follows:

1 – 9 MWh
Eisbaer with purple background

10 – 99 MWh
Eisbaer with royal blue background

100 – 999 MWh
Eisbaer with turquoise background

1000 – 9,999 MWh
Eisbaer with mint green background

10,000 – 99,999 MWh
Eisbaer with coral background

100,000+ MWh
Eisbaer with honey background

4.0 TOKENOMICS

PURCHASING RENW

In the initial release version, RENW tokens will be launched exclusively in the closed Reneum Marketplace at a fixed price of US$5 per RENW and will be burned automatically. It will not be possible to withdraw, hold or sell RENW tokens at this stage.

This version of the Platform will predate the possible listing of RENW on public exchanges, meaning that Buyers will only be required to execute a single transaction to have the Eisbaer NFT airdropped into their wallet.

In later versions of the Platform, the price of RENW is envisaged to fluctuate within the closed Reneum Marketplace.

It is further envisaged that Buyers may select a specific Project or basket of Projects to fund in a single transaction should the Buyer require provenance from specific countries. For example, if they require 10,000 MWh from India and 5,000 MWh from Singapore to fulfill their own ESG target obligations, they would select 10,000 RENW tokens from a Project based in India and 5,000 RENW tokens from one in Singapore, totaling 15,000 RENW tokens.

There is no limit on the volume of RENW tokens available to buy or the basket of countries, provided they do not exceed the number of RENW tokens listed on the Platform.

Reneum plans to integrate a payment gateway to give parties a way to buy RENW using digital assets and eventually fiat money. At the initial stage, these digital assets include MATIC, WETH, USDT and USDC but this list may be modified from time to time by Reneum.

Gas fees in general are likely to be low since RENW tokens and Eisbaer NFTs are minted on Polygon and can be further optimized by reducing the frequency of mints across days or weeks. Reneum is exploring gasless transactions which may be implemented in a later phase.

4.0 TOKENOMICS

REVENUE MODEL

With the goal of democratizing access to the REC revenue stream, the Platform does not charge any upfront fees for inspection, certification or onboarding.

There are no fees to join the Platform.

To align incentives, the Platform Operator takes a platform fee of 10% of the RENW tokens issued to Projects. The fee is deducted in the form of RENW tokens via a smart contract algorithm at the time of token issuance and is automatically directed to the Platform.

How this fee is reappropriated is covered later in this document in the section titled Token Payouts.

Reneum endeavors to establish a non-tamperable off-chain-to-on-chain data conversion system, although it is technically constrained by the infrastructure available at the local level of each Project.

PROJECT MONITORING FOR TOKEN CREATION

Reneum prioritizes Projects to join the Platform that operate an online Supervisory Control and Data Acquisition (SCADA) system or are prepared to install a pre-configured Internet of Things (IoT) device supplied by Reneum to ensure automatic connectivity.

Occasionally, this process is interrupted by technical complexities, in which case MWh may be monitored via energy exported invoicing. RENW tokens will be credited to the Project based on publicly available meter readings. Reneum is currently partnering with a large SCADA solution provider to create a bespoke IoT device to enable its automated onboarding process. Following the conclusion of this technical development, all Project monitoring will occur via the same architecture.

Until this bespoke IoT device is established, Reneum will be primarily connecting Projects to its Platform via energy SCADAs. The MWh output of Projects is typically monitored by a form of SCADA. A SCADA system captures and automates production data online for industrial processes.

4.0 TOKENOMICS

By connecting sensors that monitor equipment like motors, pumps and valves to an onsite or remote server, the MWh generated and exported can be accurately recorded.

The Platform utilizes these existing networks by transmitting key data points from the Project's existing SCADA system into the Platform's admin panel where it monitors MWh generated in real-time.

To achieve fast and smooth data integration between the local SCADA system and the Platform's server, protocol toolkits are provided by Reneum that outline connection options.

SCADA systems have several built-in types of connections to provide data to third-party software systems like those the Platform uses, via one of the following:

- OPC server
- FTP push
- Web services server for real time, alarms and historical data.
- Modbus TCP/IP slave
- REST API server

Once the connection is established, data is fetched hourly and pushed to the Platform's off-chain database. This will also be done on-chain via a decentralized file storage solution for data integrity checks. The back-end administrative panel storing the Project data is built via a combination of smart contract-based on-chain data, structured SQL and unstructured NoSQL off-chain databases. MWh data, stored in JSON format, describes the provenance of renewable energy generated from Projects, including the amount of energy produced (in MWh), source type, location and time stamps. The InterPlanetary File System (IPFS) hash of the relevant data will be referenced on the smart contract for provenance.

Data such as the Project's name, country, vintage, Sustainable Development Goals (SDG), smart-meter or SCADA ID and source type, will be stored directly on-chain. Additional data including: the audit reports conducted by Reneum, Project data including power purchase agreements, historical meter readings and dynamic satellite imagery, will all be stored in IPFS files and available as downloadable reports for Eisbaer NFT holders.

4.0 TOKENOMICS

Following the initial Platform launch, a web-based control panel will be activated for configurable smart contract settings. To migrate towards a decentralized monitoring system, Reneum is also exploring the application of smart contract oracles to aggregate data directly from Project meters and SCADAs. This development will likely occur in a later version of the Platform.

RENW ISSUANCE

The Issuer acts as a vertically integrated REC issuer, and is responsible for the generation of new RECs, in the form of RENW tokens. These RENW tokens are created through a process derived from internationally recognized best practices on REC verification, as accepted by leading institutions such as the RE100, Science-based Targets and the Climate Pledge.

To ensure optimal robustness and rigor in the verification process, the Issuer adopted these guidelines as a foundation for its standards methodology, but further expanded them to incorporate post-verification monitoring and on-chain transaction verification systems.

Certification requires verification of renewable energy provenance via third-party documentation, meter readings, power purchasing agreements (PPA), past environmental instrument transactions, and satellites.

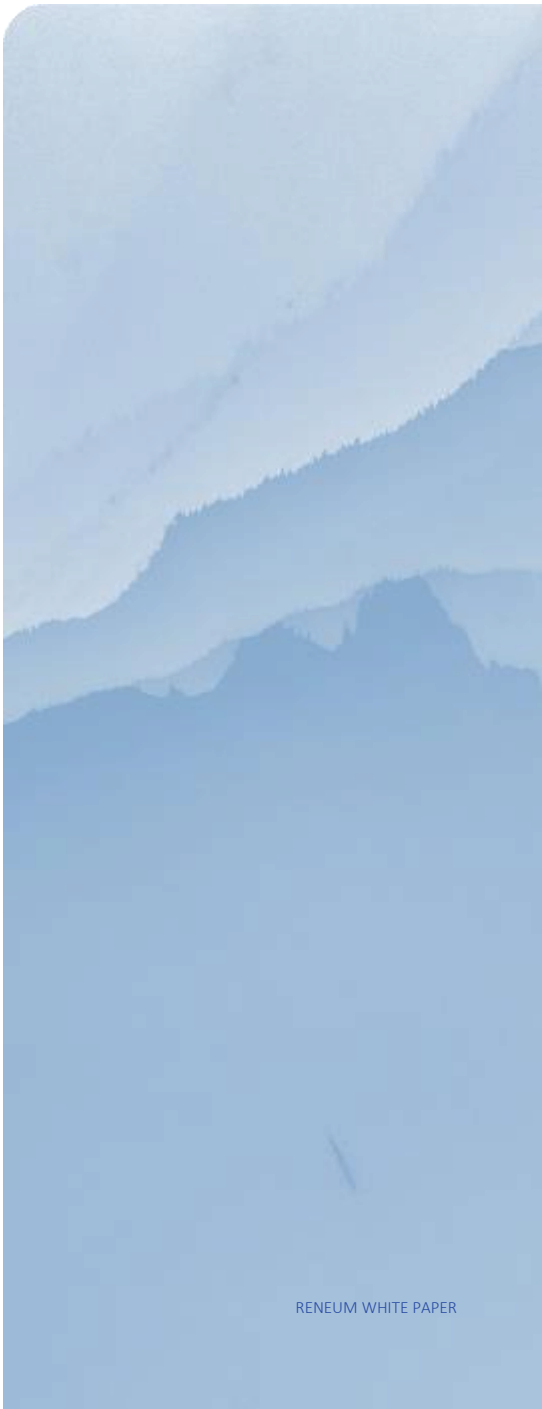
Upon certification of the Project, the Issuer connects the Projects to its back-end database, which acts as the token-generating apparatus based on MWh monitored. The Issuer aggregates several key data points including MWh generated in real-time, geolocation, time stamp and source, allowing the Issuer to monitor MWh generation actively for any potential anomalies.

RENW tokens are issued on a monthly, retroactive basis, reflecting all the accrued MWh generated by each Project. Prior to issuance, the Issuer reconciles monitored MWh with publicly available data or with the projected output based on the total capacity and location, as computed during the Project onboarding. This helps the Issuer ensure data accuracy and pre-emptively addresses balance reconciliation risks.

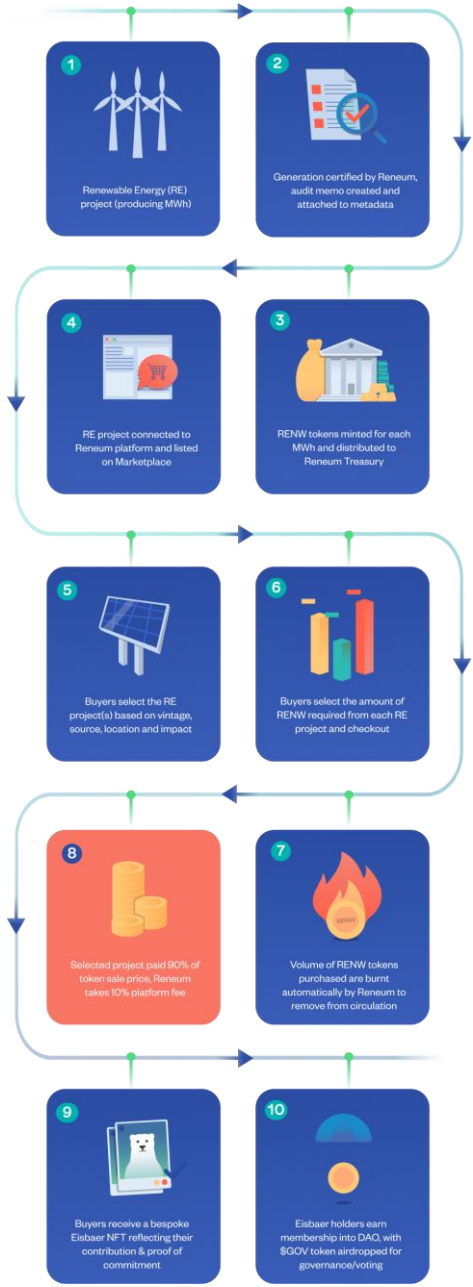
4.0 TOKENOMICS

To monitor the RENW owed to each Project and to ensure provenance history, an on-chain register of the RENW issued to the Project is mapped with a unique Project ID and an IPFS reference that captures the Project metadata on the Platform's back-end. The RENW issuance becomes a customized trail of events emitted on-chain to provide provenance on the issuance process without the RENW leaving the smart contract.

More details on the methodology for token verification, certification and onboarding can be found on the Reneum website together with details of the systematic token approval and creation approach.



4.0 TOKENOMICS



5.0 PLATFORM INFRASTRUCTURE

MINTING MACHINE

As Reneum scales its geographic reach and opens up markets around the globe, Projects will continue to join the Platform in real-time. This supports the aim of issuing RENW and a revenue stream to as many Project owners as possible. As such, the cumulative supply of MWh flowing into the Reneum inventory is forecast to trend upwards indefinitely, following an elastic supply trajectory. New MWh generated by renewable energy producers will be monitored in their online profile on the Platform and will be credited at the monthly issuance point, retroactively, following data reconciliation to ensure accuracy. Multiple layers of validation ensure duplicate RENW tokens are not being minted.

The RENW issuance process requires authorized wallets (defined by on-chain access control) to call the “mint” smart contract function with a specified quantity based on the MWh accrued by each Project on the last calendar day of each month. The RENW tokens are minted upon this call according to an automatically defined smart contract. Each Project will have their own pool of RENW tokens, each with its own smart contract representing the provenance data of each Project. Each Project’s inventory is maintained by its own pool contract that the Platform will query to be displayed for sale.

5.0

PLATFORM INFRASTRUCTURE

TOKEN ARCHITECTURE

RENW is an ERC-20 token.

The Eisbaer is a non-fungible token (NFT), utilizing the ERC-721A standard which reduces network gas fees by 90% over the more widely used ERC-721 NFT token.

The ERC-721A, a fully compliant implementation of ERC-721 with significant gas savings for minting multiple NFTs in a single transaction, removes duplicate storage from OpenZeppelin's (OZ) ERC-721 Enumerable.

This NFT updates the wallet owner's cryptocurrency balance once per batch mint request, instead of per minted NFT. For reference, here is a list of Web3 projects that have successfully implemented the improved NFT token standard.

BLOCKCHAIN

Both RENW tokens and the ERC-721A NFTs will be minted on Polygon to maintain the environmentally conscious ethos of Reneum's overall mission. Polygon, the 'green blockchain,' was selected for its energy efficiency and overall climate-centric approach to Web3. All fungible and non-fungible tokens minted on Polygon are significantly greener and less gas intensive than those currently minted on Ethereum. Minting on Polygon reduces gas fees and their corresponding carbon footprint dramatically.

Reneum intends to operate an entirely net neutral Platform, meaning that all emissions will be calculated annually across Reneum's entire supply chain, including token transaction, employee travel and operative footprint, and greened via a purchase and burn of RENW. Both the calculation inputs and Reneum's environmental impact will be publicly available on the Reneum website via third party integrations. More on Reneum's environmental policy can also be found there.

6.0 TOKENOMICS

MONETARY POLICY

RENW tokens, like their paper market-equivalent, Live RECs, are a proxy for the 'missing money problem' from renewable energy. That is, renewables do not have enough capital to deal with both energy growth and capacity replacement.

Therefore, since RENW is backed by the Positive Environmental Attributes of MWh of renewable energy generated, it has a fundamental market value in that it represents a Live REC. With Reneum's automated certification of MWh unlocking a new supply of renewable energy, Reneum is poised to capitalize on accelerated market demand as the need to transition faster away from fossil fuels becomes louder and increasingly urgent.

Reneum also aims to find true market pricing for these instruments, accurately pricing their value to the renewable energy market and influencing the energy transition. This means Reneum will not be using artificial pricing incentives like staking or yield farming.

TOKEN SUPPLY

RENW tokens are minted monthly as new Projects are onboarded and as each Project generates its monthly MWh. Reneum will allow for an elastic supply of RENW tokens minted. This is designed to cater for any potential change of requirements for the energy transition and the need to deliver the maximum amount of money to renewable energy producers.

Reneum will initially allow the greening of fossil fuel energy consumption (via the purchasing of RENW) only via the Platform in order to glean critical market insights and customer feedback regarding supply and demand and market-based pricing, before possibly listing RENW on exchanges. Reneum will communicate with its community to seek feedback on value attributed prior to any RENW launch on public exchanges.

In subsequent versions of the Platform, the month-to-month supply of RENW to the open market would be titrated according to market feedback and modeled based on Reneum Marketplace insights. The details of listed RENW supply and circulation will be presented to the Reneum community in advance of any potential centralized exchange listing for full transparency.

6.0 TOKENOMICS

TOKEN PRICING

We have surveyed both the global voluntary and compliance REC markets to ascertain an appropriate pricing range to allow RECs to support an acceleration in renewable energy uptake. Global voluntary REC prices have been rising, seeing averages around US$7/MWh. In compliance markets in the US, prices range from a low of US$1.71/MWh (Texas) to a high of US$408/MWh (Washington, DC), with a concentration around the US$40/MWh mark. Outside the United States, compliance market prices range from US$4.8/MWh (Japan) to over US$40/MWh (South Korea).

The significant difference in prices between voluntary and compliance markets is because only compliance markets prices are designed to accelerate renewable energy deployment and actively displace existing thermal generation with new renewable energy capacity.

Voluntary market REC prices, by contrast, are insufficient to drive change and to date have been principally driven by corporate Buyers wishing to offset their emissions at the cheapest possible price, without decreasing their actual emissions. In order to reach the sevenfold increase in investment into renewables by the end of this decade identified by the IEA to put us on track to achieving 2050 net-zero emissions objectives, renewable energy needs to be actively displacing existing fossil fuel thermal generation. Therefore, voluntary market REC prices need to move over time to the level seen in the compliance markets.

Upon Platform launch, RENW tokens will be priced at US$5 each until we gather sufficient market intelligence to allow for true price discovery.

6.0 TOKENOMICS

INTERNATIONAL COMPLIANCE REC MARKET PRICES

MARKET	PRODUCT	RECENT OBSERVED PRICES (LOCAL CURRENCY)	RECENT OBSERVED PRICES (USD)
South Korea	K-REGO	54,070 KRW/MWh (Mar 2022)	45.9 USD/MWh
Japan	NFC	0.6 JPY/kWh (Feb 2022)	4.8 USD/MWh
Australia	LGC	48.25 AUD/MWh (Apr 2022)	34.9 USD/MWh
Mexico	CENARE	20.6 USD/MWh (Nov 2017)	20.6 USD/MWh
Specific US States	REC	See next page	See next page

6.0 TOKENOMICS

US STATE COMPLIANCE REC PRICES

STATE	REC TYPE	PRICE (USD MWH)	DATE
Connecticut	General	43.4 USD/MWh	Jan 2021
Maryland	General Solar	10.9 USD/MWh 79 USD/MWh	Jan 2021 Mar 2022
Massachusetts	General Solar	43.9 USD/MWh 343 USD/MWh	Jan 2021 Mar 2022
New Jersey	General Solar	11.1 USD/MWh 237 USD/MWh	Jan 2021 Mar 2022
Pennsylvania	General Solar	10.9 USD/MWh 40 USD/MWh	Jan 2021 Mar 2022
Texas	General	1.71 USD/MWh	Jan 2021
Washington DC	Solar	408 USD/MWh	Mar 2022

+ US REC prices vary by state

+ US Solar REC prices are particulary high

6.0 TOKENOMICS

TOKEN PAYOUTS

Traditional REC markets suffer from flaws such as a lack of transparency and liquidity, with supply bottlenecks due to limitations in certified markets and due to geographical constraints on Buyers.

They are also transacted via multiple intermediaries, costing both time and money. This makes them notoriously unreliable as a revenue stream, particularly in the markets with lower renewable penetration that would benefit most.

Reneum addresses both the failures of the supply and demand via its global and vertically integrated Platform. The Platform's automatic token sale functionalities also reduce the transaction friction and minimize costs associated with token sales once certified.

Reneum's primary objective is to drive funding into renewable energy deployment. Therefore, the Projects receive 90% of the gross transaction value of the RENW tokens bought, net of the 10% Platform fee. Purchases made directly on the Platform get settled on-chain through a payment-splitter smart contract and distributed directly to the underlying Project.

Remittance to the Project occurs automatically according to a schedule via the smart contract program, directly to the digital wallet or bank account of the Project. Projects will have the option to choose payment in cryptocurrency or fiat based on their own preferences. If the Projects are not satisfied with the prices trading on the Platform, they can request to pause the sale of their attributed RENW tokens or withdraw from the Platform entirely.

6.0 TOKENOMICS

PURPOSE

To achieve its core purpose of driving value to the renewable energy market, Reneum will maintain an elastic supply of RENW. A supply cap may be considered in the future if conditions warrant it.

Considering Reneum's unique token model based on the requirement of MWh to produce each RENW and that there is an uncapped supply to accommodate the core mission of driving money to renewables, Reneum's token allocation and distribution schedules, along with the valuation of RENW, are non-standard from a crypto sector perspective. Reneum will then phase the product launch so that the supply and demand dynamics for RENW are more established before a true market capitalization is determined for any potential exchange listing.

Reneum is unique and groundbreaking because it is revolutionizing a broken legacy system to give birth to a new market that has fungible tokens at its core. These tokens are collateralized by the positive environmental attributes of actual MWh from renewable energy and will be used to find a global true value price whilst recognizing the positive impetus to transition to a renewable energy system. RECs are integral to this.

TOKEN ALLOCATION & DISTRIBUTION

Reneum has opted to issue fixed tranches of RENW tokens to its key stakeholders. Reneum has completed a seed round of RENW, based on the token price set forth below.

Reneum intends to conduct a second external fundraise, the pre-sale, prior to selling tokens on the publicly-available marketplace.

The company valuation following this round is based on the pre-sale fundraise price of US$0.75 per token multiplied by the committed tokens according to the allocation schedule below, which locks in 100,000,000 RENW tokens to Reneum's key stakeholders.

6.0 TOKENOMICS

TOKEN SALE	TOKEN PRICE	RAISE	VALUATION
Seed	US$0.25	US$2,500,000	US$25,000,000
Pre-sale 1	US$0.75	US$7,500,000	US$75,000,000
Total/Final	TBD	US$10,000,000	TBD

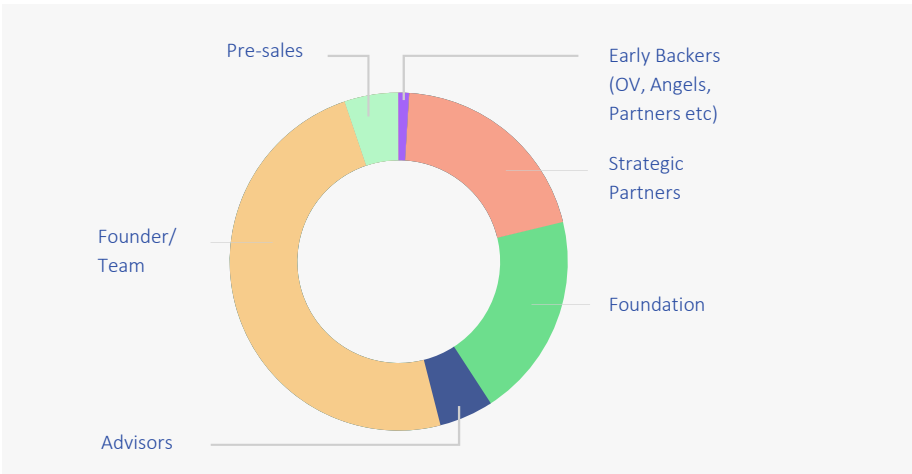
All the RENW tokens in the allocation and vesting schedule are being deducted from the 10% Platform fee. This fee is applied by Reneum to cover operation and development costs and is dispersed at Reneum's discretion to stakeholders responsible for ongoing operations. This means that all RENW tokens issued to key stakeholders are already backed by the Positive Environmental Attributes of MWh of renewable energy, with 90% of the original token value being distributed to the underlying Projects.

Out of the 10% Platform fee, the table on the next page sets out the token allocation and vesting schedule:

6.0 TOKENOMICS

INDICATIVE TOKEN ALLOCATION & VESTING	# OF TOKENS	# MONTHLY VESTS	MONTHS CLIFF
Early Backers (Angels & Seed)	1,000,000	24	/
Pre-sale	20,000,000	24	/
Founder/Team/Advisor	25,000,000	36	/
Strategic Partners (including market-makers)	5,000,000	1	12
Foundation (to fund marketplace operations)	49,000,000	60	24
Total	100,000,000		

KEY STAKEHOLDER ALLOCATION



6.0 TOKENOMICS

TOKEN VESTING

Vesting is dependent not only on the applicable duration, for example one-third per year over three years, but also on the MWh being generated by underlying Projects. In practice, it could therefore take more than three years for a vesting schedule to translate. However, the defined vesting schedule below is proposed, based on current projections.

An illustration of the vesting is as follows:

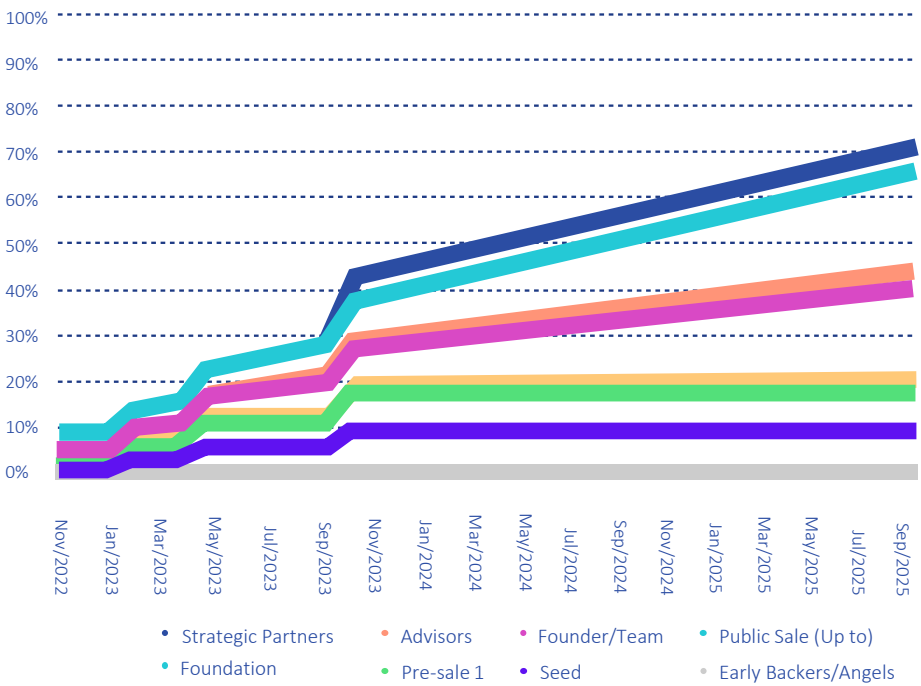
PROPOSED VESTING
IS AS FOLLOWS:

	MONTHLY PAYMENTS	INITIAL CLIFF	VESTING STARTS	VESTING ENDS	MONTHLY (tokens)
Early Backers/ Angels	24	1	Dec/2022	Nov/2024	41,667
Pre-sales	3	6	May/2023	Jul/2023	3,333,333
Founder/Team	36	0	Nov/2022	Oct/2025	555,556
Advisors	24	6	May/2023	Apr/2025	83,333
Strategic Partners	1	12	Nov/2023	Nov/2023	6,000,000
Foundations	84	0	Nov/2022	Oct/2029	595,238

6.0 TOKENOMICS

TOKEN VESTING

3-YEAR TOKEN DISTRIBUTION



GOVERNANCE

Reneum plans eventually to further decentralize operations and governance, either through a Decentralized Autonomous Organization (DAO) structure, the issuance of a governance token, or otherwise. Any plans and specifics will be shared later prior to the launch of such a structure.

7.0

RENEUM ROADMAP

PRODUCT RELEASE SCHEDULE

PHASE I (MVP / Beta) – The Platform is launched on Polygon Mainnet to an invite-only community of different stakeholders to gain feedback on the user experience and Platform performance. This Phase will feature non-withdrawable RENW tokens with a fixed price of US$5 backed by the Positive Environmental Attributes of renewable MWh supplied and verified manually from a limited number of certified Projects, which will be bought (using MATIC, WETH, USDT and USDC) and burned to mint a Retired REC in the form of a limited design Eisbaer NFT.

PHASE II (Platform Launch) – Incorporating community feedback from Phase I, Phase II of the Platform will be opened to the public. Phase II will feature non-withdrawable RENW tokens with an initial fixed price of US$5 backed by the Positive Environmental Attributes of renewable MWh supplied and verified automatically (using SCADA and IoT technology) from certified Projects, and which will be bought (using digital assets) and burned to mint a Retired REC in the form of an Eisbaer NFT. Community launch programs via thought leaders and PR campaigns will occur in between phases to drive awareness.

PHASE III (RENW Launch) – Based on market feedback and intelligence gleaned during Phases I and II, Reneum may launch Phase III of the Platform which would feature withdrawable RENW tokens that may be available for purchase on the Platform (with digital assets or fiat currency) and on exchanges but always backed by the Positive Environmental Attributes of renewable MWh supplied and verified automatically (using SCADA and IoT technology) from certified Projects.

Any RENW tokens must be burned on the Platform to mint a Retired REC in the form of an Eisbaer NFT.

7.0

RENEUM ROADMAP

MILESTONES COMPLETED

Q1 2018 – Reneum Institute registers as a Company Limited by Guarantee in Singapore (not-for-profit status).

Q3 2018 – Sindicatum Sustainable Resources provides an initial US$1,400,000 in seed funding, incubating the Platform for renewable energy developers in Southeast Asia. Sindicatum takes a stake of 1,000,000 RENW tokens for this investment.

Q1 2020 – Partnership with Energy Web Foundation launches for a B2B REC marketplace.

Q3 2021 – Nearly 100 unique solar and wind installations register on the Reneum Marketplace, accruing MWh to receive RENW tokens.

Q4 2021 – 18 seed investors raise US$2,500,000 via presale, selling 10,000,000 RENW tokens.

Q1 2022 – Outlier Ventures invests, initiating the Base Camp accelerator program.

Q2 2022 – Reneum graduates from Outlier Venture's Polygon Base Camp program.

Q2 2022 – Social engagement, social channel outreach and thought leader marketing activations.

7.0

RENEUM ROADMAP

UPCOMING DELIVERABLES

(Sequence and content subject to change)

1. Treasury Wallet (Gnosis – Multisig) launched (visible on PolygonScan).

2. Eisbaer NFT graphical design process.

3. RENW token system and smart contract audit completed.

4. RENW will be issued on Polygon.

5. Minting of RENW tokens following manual verification of MWh generation by a Project.

6. Reneum Phase I (Beta/MVP) Platform launch on Polygon Mainnet.

7. Expansion of payments from MATIC to also include USDT, USDC and WETH.

8. Energy footprint calculator and individual ESG computing partnerships announced and features integrated.

9. Automated Project onboarding process buildout begins.

10. Minting of RENW tokens following automated verification of MWh generation by a Project and Phase II Platform launch.

11. Strategic partnerships announced to reframe narrative around crypto climate conversation and the application of RENW tokens to accelerate the energy transition.

12. If a decision is made to release RENW tokens on the open market, then CEX applications would begin.

13. Multiple tracking services potentially listing RENW tokens, including CoinMarketCap and CoinGecko.

14. Partnerships with specific countries, governments, NGOs, environmental associations and climate activists to bring lasting solutions to fight climate change, rising sea levels and other environmental perils.

RENEUM WHITE PAPER

V1.0