



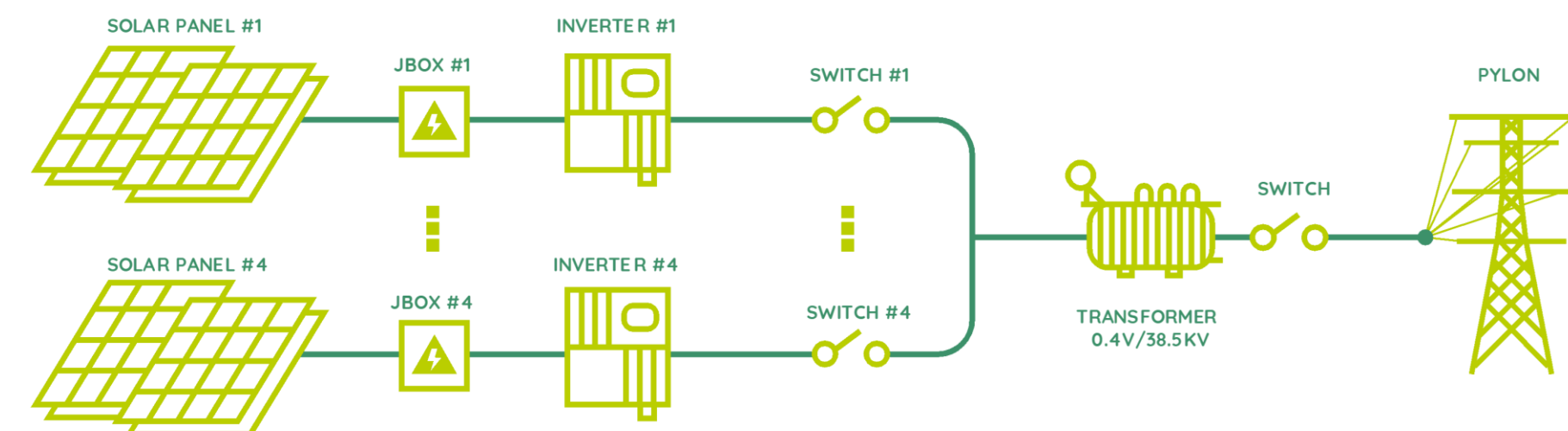
Reneum

SINDICATUM BLOCKCHAIN TECHNOLOGY

Digitizing and Democratizing Renewable Energy

Leveraging Sindicatum Renewable Energy Company's (SREC) experience to build SBT's platform

- We have 15+ years of identifying, developing, investing, financing and operating renewable energy projects in South and South-East Asia.
- We have 15+ years experience of environmental commodity development and trading.
- SREC developed own Intelligent Monitoring System (IMS) for Renewable Energy Projects
- Our ambition is to make quality verification and delivery of environmental attributes simpler, more transparent and cheaper for the developer.



| AMBIENT | |
|-----------|----------------------|
| Wind | 3.55m/s |
| Temp | 19.3°C |
| Radiation | 321 W/m ² |

| TOTAL ENERGY | |
|----------------|----------|
| Total power | 1.2 MW |
| Daily energy | 7.6 MWH |
| Monthly energy | 149 MWH |
| Yearly energy | 1638 MHW |

| INVERTER | | | | |
|----------|-------|-------|-------|-------|
| Par | Inv#1 | Inv#2 | Inv#3 | Inv#4 |
| Temp | 32.5 | 31.8 | 33.4 | 32.4 |
| Power | 320KW | 350KW | 342KW | 310KW |
| Ia | 68A | 72A | 75A | 69A |
| Ib | 65A | 71A | 78A | 72A |
| Ic | 67A | 72A | 75A | 69A |

| MAIN BUS | |
|-------------|--------|
| Uab | 35.4KV |
| Ubc | 35.8KV |
| Uac | 34.9KV |
| Ia | 123A |
| Ib | 128A |
| Ic | 126A |
| Power meter | 12358 |



Reneum

The story so far



For a net-zero emissions world, renewables need to produce 70-85% of global electricity by 2050 (today 12% globally, 17% in the EU). For that to happen, investments into the energy system need to average 2.4 trillion USD per year from now until 2035 (IPCC 2018). Annual RE investments today are about 280 billion USD.



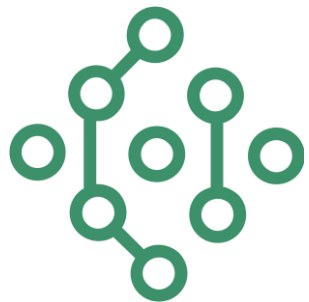
Producers of renewable energy are increasingly competing with electricity generation sourced from fossil fuels BUT they can't monetize the full value of their environmental attributes. They must prove that they're doing good while the real costs of fossil fuels are left unchallenged.



The playing field is still not level:

Global direct fossil fuel subsidies stand at \$500bn/year

Total subsidies stand at \$5.3tn/year, this is \$10m/minute (incl. externalities)



Only 14 countries currently operate compliance renewable energy certificate/credit schemes. Most of them carry a technology bias, are administratively cumbersome, inaccurate, open to fraud and illiquid.



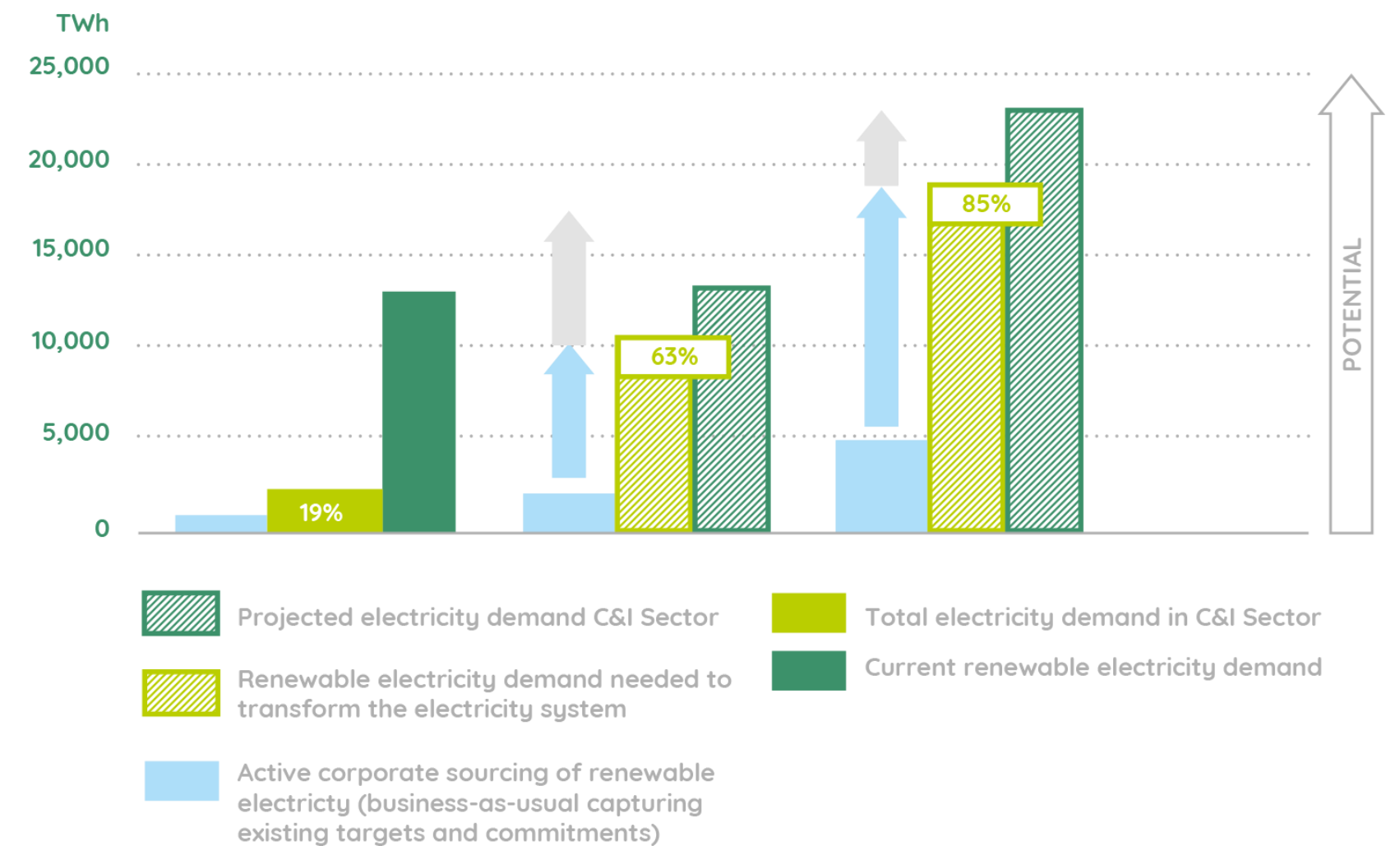
In many countries regulators and utilities have very close ties and show limited ambition to speed up renewable capacity deployment and connection to the grid.

THE KEY ISSUE

But large corporates start showing their muscle to rival policy as a driver of growth

- 144 companies have already pledged to go 100% renewable under the RE100 campaign (incl. Google, Microsoft, Sony, Fujitsu, Lego, Ikea, Facebook, Aviva, BMW Group)
- Corporate demand for renewable energy is currently around 170 TWh and expected to grow to 2,150 TWh by 2030, but would need to be 10,000 TWh for a net-zero emissions world (IRENA 2018)
- The true demand for clean power is still dormant as companies can't buy renewable energy in many countries
- And project developers are not benefiting from the surging demand yet:
 - EAC schemes don't exist in all countries, they can't bring their product to market
 - Buyers don't find them easily (high transaction costs)

Figure 3: Potential for corporate sourcing of renewable electricity in the Commercial & Industrial sector (IRENA, 2018).



How do we move forward?

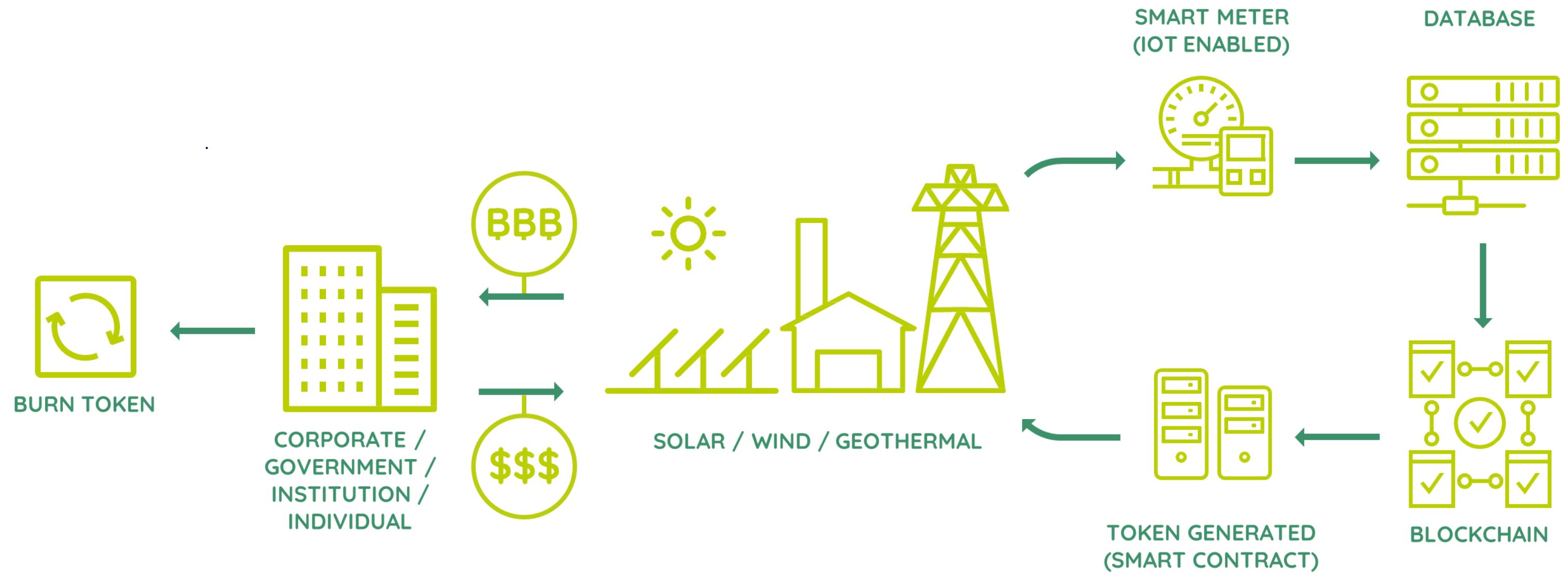


Reneum

We create demand for renewable energy and offer a trusted way for everyone to buy it.

Reneum offers a system of stand-alone unbundled energy attribute certificates (EACs), built on the immutable record of the blockchain.

SBT Platform



The RENEUM token represents 1MWh of renewable energy

The hash includes information on

- source of energy
- date when it was produced
- identity, location (GPS reference), type and capacity of the production facility
- whether and to what extent the installation has benefited from outside support
- date when the installation became operational
- date and country of issue

Benefits for Renewable Energy Developers

Free Reneum Tokens are issued quarterly to developers for the solar, wind or geothermal power that is generated and sold.

Low costs (none at all in the beginning) to connect eligible projects.



The screenshot shows the Reneum website's "JOIN US - ENERGY PRODUCERS" page. The header includes the Reneum logo and navigation links: HOME, ABOUT US, NEWS & INSIGHTS, RENEUM POWER, and JOIN US. The main content area is titled "Steps to receive free Reneum tokens are as follows:" and lists three steps: 1. Register with us, 2. Connect your powerplant with our smart meters (IoT enabled), and 3. Setting up a crypto wallet. A section titled "ADVANTAGE" lists three benefits of Reneum tokens. A "Hardware wallet" section provides details and links to purchase Trezor and Ledger wallets. A "Software wallet" section is partially visible at the bottom.

Steps to receive free Reneum tokens are as follows:

- 1. Register with us**
Signing up is open to big and small wind, solar and geothermal renewable energy plants worldwide, provided they are already producing power.
- 2. Connect your powerplant with our smart meters (IoT enabled)**
 - Once you are registered with us, we will schedule a visit to your solar, wind or geothermal project in order to assist you in connecting your meters to the cloud in real time, after which your electricity generation data is automatically recorded immutably on the Blockchain, thus allowing the issuance of your Reneum tokens.
 - To hold Reneum tokens, you need to create a crypto wallet.
- 3. Setting up a crypto wallet**
Reneum Tokens are ERC 20 tokens and therefore require an ERC 20 compliant wallet to hold them. There are two ways to create your wallet.

Hardware wallet

Hardware wallets have an edge when it comes to being the most secure way to store your cryptocurrencies. A hardware wallet is a physical wallet, similar to a USB drive, where you can store the private keys for your currencies. Hardware wallets are not connected to the internet directly and therefore relatively safe from viruses, malware, or individuals who may seek to infiltrate and steal your coins. Examples of Hardware wallets are Trezor and Ledger S Nano.

*To buy a hardware wallet visit <https://trezor.io/> and <https://www.ledger.com/>

Software wallet

ADVANTAGE

- Reneum tokens provide you, free of charge, with an additional income stream to help you unlock the full value of your projects.
- Our technology records the electricity generation data gathered directly from your meters in REAL-TIME, immutably on the Blockchain. This then enables us to issue to you one Reneum token for each megawatt-hour (MWh) of energy you generate from solar, wind or geothermal power plants (irrespective of their capacity), with total transparency and integrity. Buyers of Reneum can track origin and time of the renewable energy generated – providing them with a robust, low cost and transparent process for verifying that the electricity has been produced from a renewable source.
- Registered projects are required to represent that they will neither issue renewable energy credits (or their equivalent) or carbon credits for the period during which they are earning Reneum tokens.

Benefits for Renewable Energy Developers

Renewable energy generators can sell their own tokens directly to corporate, institutional or individual buyers, or via listed crypto-currency exchanges.

This enables Generators to:

- Yield the full value and benefit of their environmental attributes.
- Realize an additional revenue stream.
- Benefit from the surging demand for renewable energy by large and medium-sized corporates, as well as smaller and more local buyers.



Reneum

How does RENEUM fit into the climate world?

In order to be eligible projects need to

1. Produce 100% renewable power from an eligible source: solar (PV & CSP), wind (onshore and offshore), geothermal, micro-hydro and sustainable biomass
2. Receive no/ or cancel other EACs (RECs, ROCs, REGOs, etc.) or carbon credits
3. Not have a PPA with a third-party that includes/bundles non-power attributes
4. Be open to random audit checks
5. Be in a country where, until 2030, less than 60% of the electricity generated is supplied by renewables

Preventing Double Counting

- RENEUMs are designed to increase renewable energy capacity and as such can help a country meet its renewable energy target
- Currently no country allows EACs from other countries - or overseas power generation in general - to count towards its national renewable energy targets
- Any project wishing to receive RENEUMs must confirm that it does not receive EACS from any other source or carbon credits, regulated or voluntary'. We will review registry logs during registration.
- We encourage buyers to use RENEUMs to compensate for their power-related emissions in the same jurisdiction in which the project generating RENEUMs is located and to state this in their corporate reporting

Assuring environmental integrity

Some of the world's leading businesses are blazing a trail by adopting 100% renewable energy targets.

We encourage all buyers of Reneum tokens to set themselves a renewable energy target and clearly define a roadmap on how to achieve it. To be credible, the roadmap needs to include targets on:

- Avoiding further growth in energy consumption.
- Increasing energy efficiency.
- Directly sourcing renewable energy (from the grid or on-site capacity).

As part of the roadmap activities in achieving up to 100% renewable energy targets, Reneum tokens can be acquired and burnt to compensate for the unavoidable use of fossil fuel energy.

Burning Reneum tokens is a bridge tool that can help companies to be 100% renewable before 2030.



Timeline

- SBT is fully operational and renewable energy projects are being signed up by invitation only at this time.
- Renewable energy projects can sign up freely from January, 2019 onwards.
- Token issuance will be quarterly to avoid energy consumption when mining:
 - 1st issuance — March 2019.
 - 2nd issuance — July 2019.
 - 3rd issuance — September 2019.

Our credentials



Sindicatum Blockchain Technologies (SBT)

Founded in Singapore in 2018 by renewable energy developer Sindicatum Renewable Energy to develop and administer the SBT Platform www.reneum.com

Our advisors



- Token Asia (www.tokenasia.com)
 - ICO advisory and technology
 - Established in 2016 and responsible for 10+ Token Launches



- Jones Day
 - International law firm
 - 44 offices worldwide including Singapore

Technology platform



Node.js: Fast and scalable backend used for Blockchain solution.



AngularJS: Fast and developer friendly frontend used for Blockchain



AWS EC2: Server



Socket.IO: Used for real-time display on the web interface



BigchainDB: BigchainDB costs less as compared to other products and is easily scalable



MongoDB: NoSQL databases meant for developing scalable product

Extensive partnerships and awards



The Team



Assaad Razzouk
CEO

Co-founded Sindicatum in 2005 and is responsible for overall strategy, stakeholder relationships and the project investments.

Well-known pioneer in renewable energy markets, environmental commodities and climate action. Previously an investment banker at Nomura International plc in London. Assaad is a graduate of Syracuse University (Summa Cum Laude) and holds an MBA from Columbia Business School.



Robert E. Driscoll
President

Responsible for investments, strategy and acquisitions

Over 36 years' experience in global power businesses. Previously SVP at Mirant Corporation and CEO of Mirant Mid-Atlantic LLC, a business unit representing nearly 80% of Mirant's revenues. Prior to this Bob worked at Edison Mission Energy. From 1984 to 1995 Bob worked at the US-ASEAN Business Council in Washington DC, He holds a B.A. from Carroll College, Montana and an M.A. from the University of Texas.



Michael Boardman
CFO

Responsible for company finances and capital raising

24 years' experience of finance and global capital markets. After qualifying as a Chartered Accountant, Michael pursued an investment banking career at Nomura where, he raised over US\$30bn. A key feature of Michael's career has been an emphasis on fast growing emerging markets and growth sectors. Michael holds a First Class Honours M.A. degree from the University of St. Andrews.



Anna Lehmann
VP Partnerships

Responsible for Partnerships and Organisations including Corporates, Public Organisations and Not-for-Profits

Over 15 years of experience in international climate and energy policy, of which 8 years were in high-level climate policy advisory for corporates, Governments, and public organisations and founded a company that provides boutique advisory services. Has been serving on the board of the Climate Markets and Investment association since 2008, also acting as VP for Policy.



Dianwei (Frunk) Li
VP Digital Communication and Engineering

Responsible for RE Project data and platform integration

Automation engineer with more than 12 years of experience in process equipment automation control system design and application, working with several international companies. Expert in monitoring, reporting and verification systems, renewable energy plant design, installation and commissioning.

Executive summary



Problem

1. Not everybody who wants to consume renewable energy can currently do so (suppressed demand).
2. Producers of renewable energy are increasingly required to compete with traditional electricity generation BUT can't monetize the full value of their environmental attributes.
3. Current renewable energy certificate/credit schemes do not cover all regions and types of renewables, and are often administratively cumbersome, inaccurate, open to fraud and illiquid.
4. REC markets are tailored to the needs of utilities, causing entry barriers for new players.

Solution

A fully transparent, traceable AND digitized WAY of QUANTIFYING, TRACKING and TRADING renewable energy, featuring:

- **Real-time monitoring:** Data immediately provided from renewable energy projects via Smart Meters to the SBT application.
- **Digitization and verification:** Data is automatically verified for authenticity and the data is written immutably on the blockchain.
- **Tradeable tokens:** Smart contracts used to tokenize renewable energy generation provide additional revenue for renewable energy developers.
- **Transparent and Traceable:** Buyer of tokens can track origin and time of the renewable energy generated.
- **Efficient and low cost:** Free cost to renewable energy producers, no fees to consumers (token buyers).

But what about additionality?

IRENA Definition (2018) “The net incremental renewable capacity deployed or renewable energy generated as a direct result of corporate sourcing of renewable energy beyond what would occur in its absence.”

- Renewable energy deployment is still far short of its potential and the levels required – 60% by 2030 –
- Renewable energy projects are still disadvantaged with respect to fossil fuel alternatives in many countries with fossil fuel subsidies deeply embedded in public spending budgets
- Hence, we apply a benchmark approach: we will stop issuing RENEUM tokens as soon as 60% of energy consumed in a jurisdiction is from a renewable source.

Contacts

Get in touch today to register your assets

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