POWERCHAIN

# Redesign the Grid

Decentralized blockchain ecosystem for energy storage and utilization. Makes power purchasing simpler, stabilizes the Grid. Now anyone can trade the electricity through the blockchain, being a virtual power plant.

BUFFERING UTILIZATION CLEARING

https://powerchain.energy

# Features

## 01.

### Buffering

Powerchain stimulates energy storage installation for using it to stabilize the power system. The energy storage used as electricity buffers shaves peaks and power grid fluctuations, and stabilize the frequency. Capacities of energy storage node are rented by project participants within created ecosystem.

## 02.

### Utilization

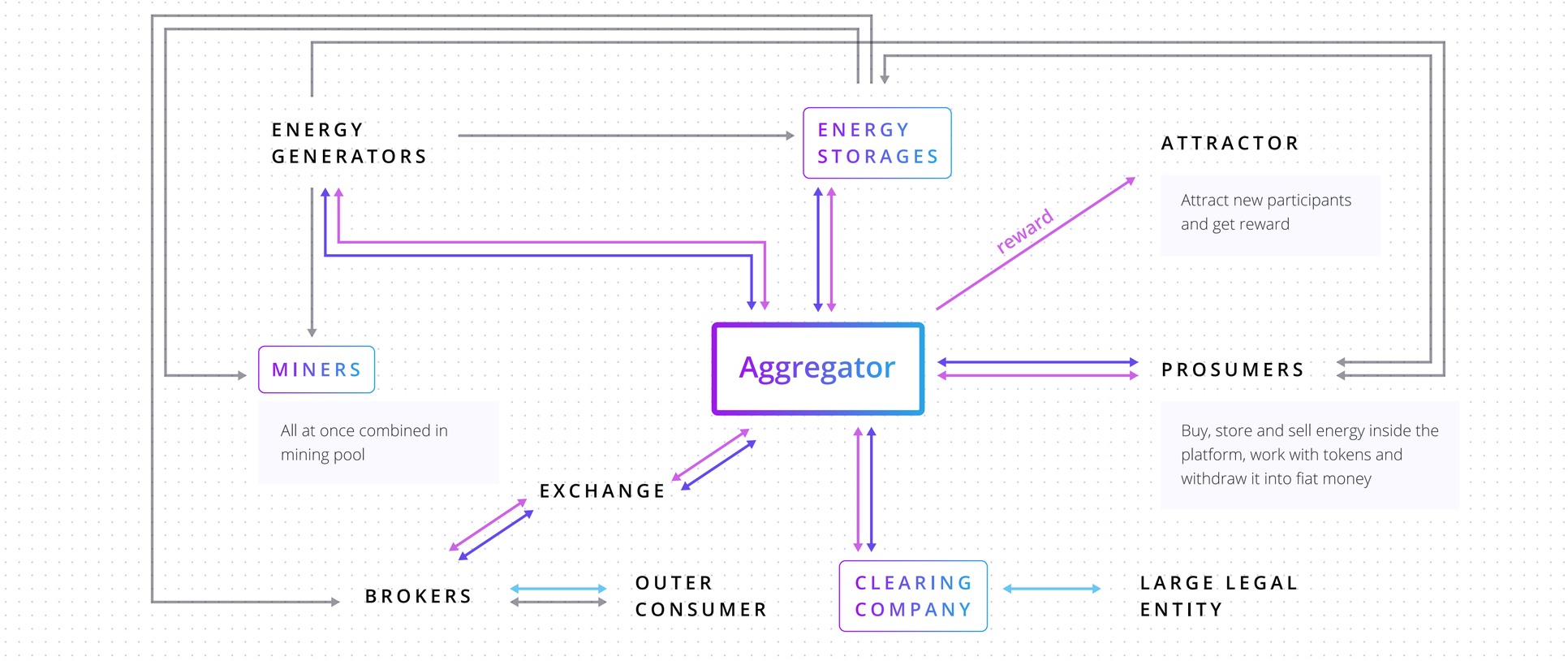
Powerchain helps backup generators earn additional income sailing electricity to other ecosystem participants and using the opportunities for mining cryptocurrency. Reserve power plants will receive additional opportunities to sell electricity.

## 03.

### Clearing

Powerchain creates transparent and legitimate mechanisms of converting received reward from other ecosystem participants into fiat money. It creates the opportunity to conduct cross-border operations and eliminate geographical barriers for participants.

# Powerchain Ecosystem



# Ecosystem participants (1/2)

Each ecosystem participants can act in several roles at the same time.

## Energy Storage

Provides a rental capacity for the electricity accumulation and storage. Provides buffering, storage and supply of electricity.

## Consumer-miner

Electricity consumers that buy electricity from other nodes for the cryptocurrency production. Utilize excess electricity to the network.

# Ecosystem participants (2/2)

## Generator

Electricity manufacturers of any capacity, from small solar power plants on the private house roofs, to large-scale generators.

## Broker

Buys and sells electricity on the ecosystem, helps passive nodes interact with each other. Supplements the ecosystem functions and conducts cross-border transactions.


## Attractor

Attracts new participants, helping them to connect equipment and activate nodes on the cosystem. Represents the user’s interests.

# Existing Problems

## A fixed tariff comprising:

- Producer’s profit
- Various intermediates’ profit
- Imposed grid management costs
- Amortization and ineffective expenses

## No consumer vote rights

The consumer cannot influence on the electricity grid construction and cooperation, and is forced to rely entirely on corporations owning production capacities and infrastructure.

## Local grid monopolization

The consumer cannot choose manufacturers and suppliers, so has to work with only the offered ones.

## External problems of centralized network

When the center hub falls, consumers suffer.

## Ineffective management

Long distance between producers and consumers bring huge electricity losses.

## Unstable generation from alternative energy sources

Renewable energy sources generators work unstable and unpredictable. No sunlight or wind = no electricity

# Our solution:

## Useful and cost-effective:

We create a virtual space connected with real equipment, create balanced and efficient virtual power system without the drawbacks of traditional networks.

## Grid stabilization

Energy storage and miners help to stabilize the network. There is no need to generate excess electricity and utilize it. Now it can be accumulated and used later.

## No losses

The Powerchain ecosystem provides the most optimal option for obtaining the required amount of electricity at the right time

# Advantages

## Supply

The Powerchain Token (POWEC) is supplied by the cumulative generation potential, as well as by the power of the entire Powerchain community energy storage. The value of the POWEC Token is determined by the energy storage potential available and ecosystem participants' energy storage sum.

## Protection

The ecosystem is reliably protected. The predictive analysis module determines deviations from typical participants actions or interactions. The ecosystem uses a built-in intrusion protection system in its core.

## Innovations

The Powerchain project unites all innovative developments in the field of energy systems & storage systems.

## Mining

The Powerchain Token (POWEC) is used as a mean of calculation to pay for storage services, miners, and other ecosystem participants.

## Prosumerism

Powerchain introduces the "prosumer" (producer-consumer) category. Energy storage technologies together with blockchain allow any consumer to become a producer, and producer -> consumer.

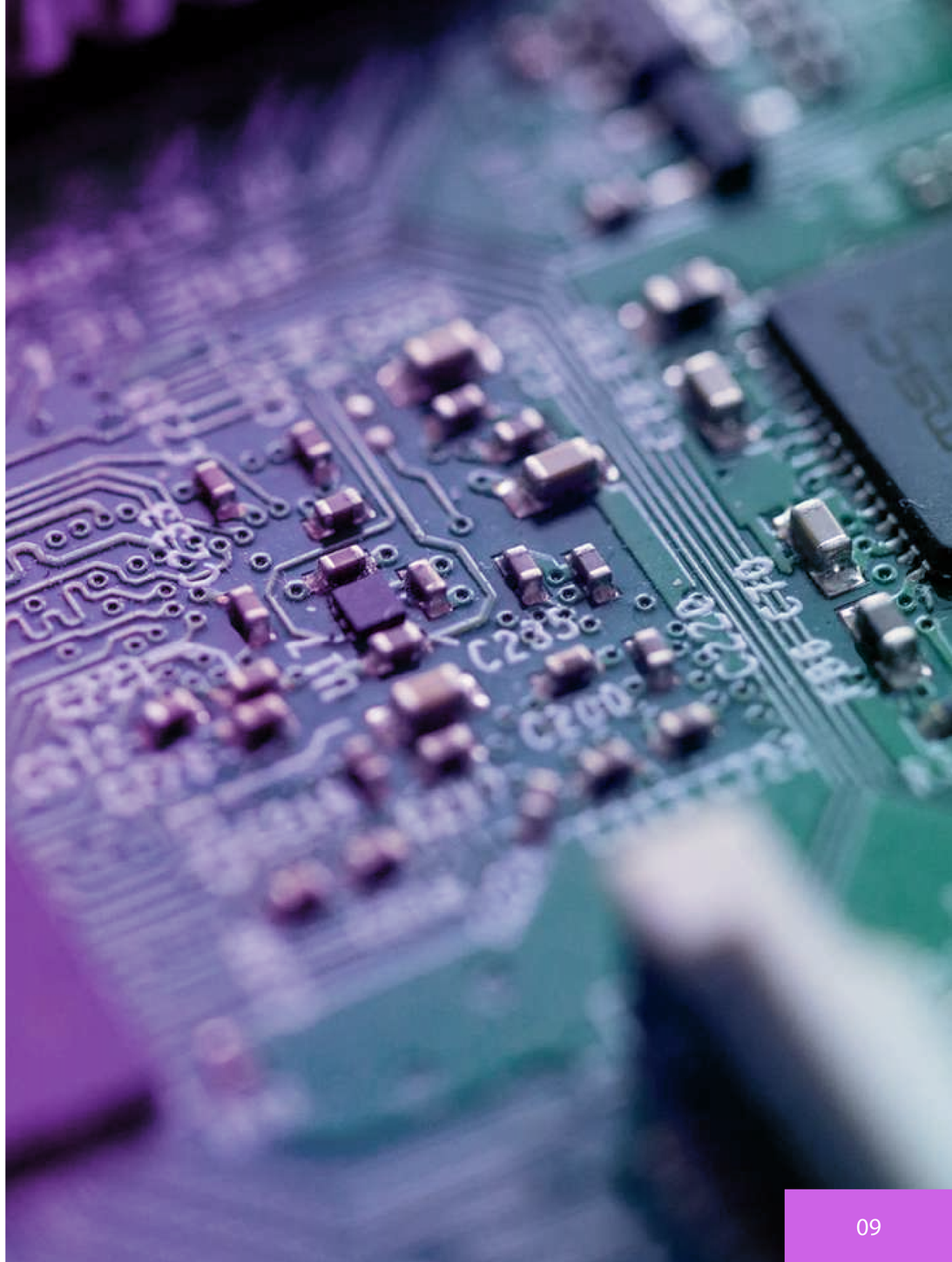
## Self-regulation

Powerchain creates a stable, self-regulating community without participants' anarchy. It's possible due to the Powerchain Token (POWEC), that used as the currency within the system.

# Smart-controller PowerBox

Own design smart controller is used to connect ecosystem nodes with equipment (storage, generators, consumers, etc.). This device provides tripartite communication: ecosystem > equipment > power grid. The controller manages the devices, collects data and visualizes the parameters of the equipment operation.

Smart controller provides connection of users and all its equipment to the Powerchain ecosystem.



# Additional opportunities

## Electricity accounting

Ecosystem participants, connecting to it through an intelligent smart controller, can monitor their energy consumption and get the opportunity to optimize it.

## Electricity trading

With ecosystem development, it will perform the function of cross-border electricity trade and the ability to make electricity and related services payments.

## Electricity transmission

Ecosystem participants will be able to transfer electricity between the nodes, inside it, among themselves, and also to external participants.

## Special solution for mining

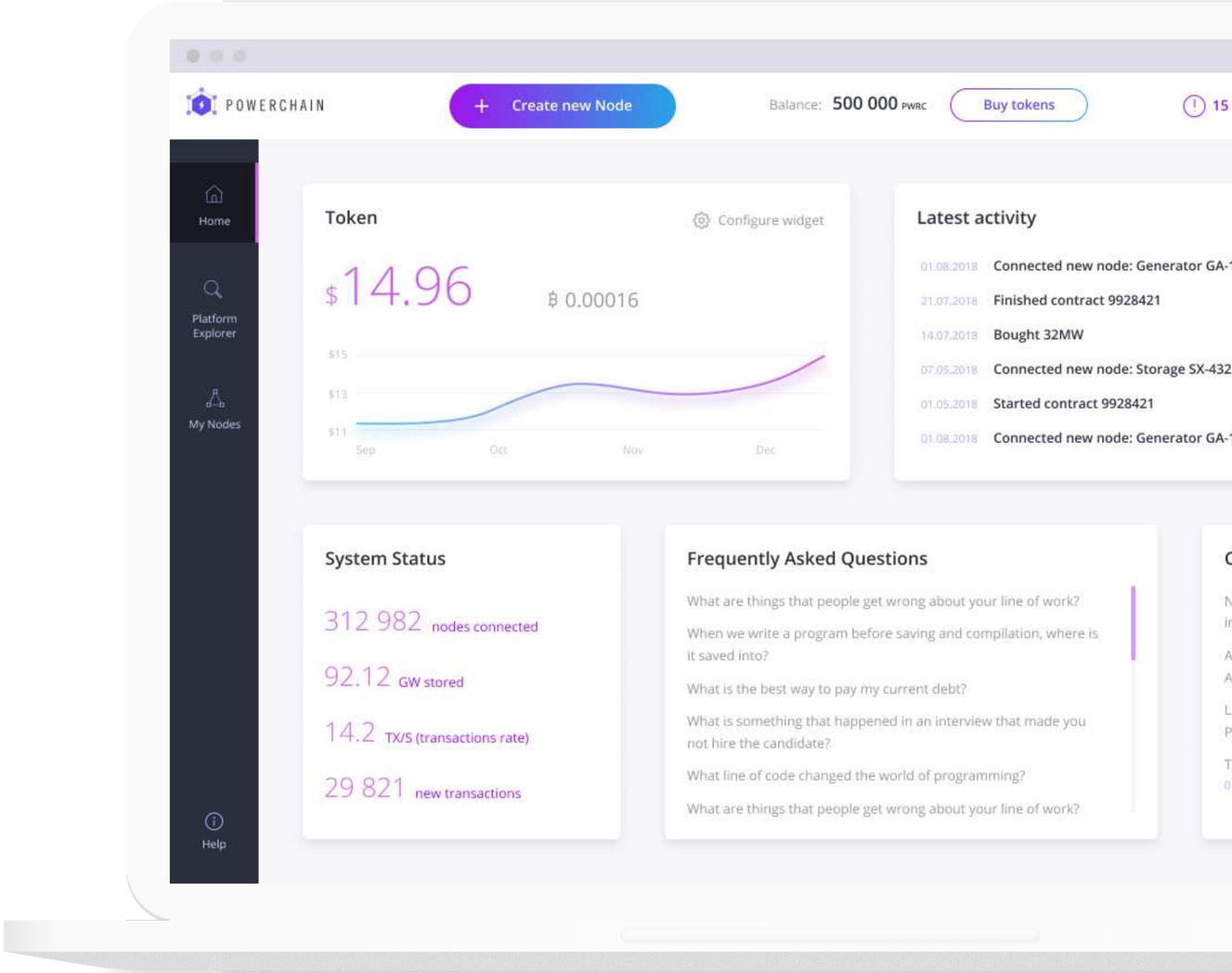
The Powerchain ecosystem creates possibilities for using reserve capacities and generators for cryptocurrency mining by connecting them to our unique high-performance mining containers.

# Dashboard

Powerchain creates an ecosystem for connecting different network participants: energy storage, consumers, miners, brokers, etc. We create a single interface for the rapid creation and convenient management of various node types, as well as for monitoring their work.

We use laconic interfaces and adaptive layout, so the ecosystem works equally well on all types of screens, and the speed of work does not depend on the quality of the Internet connection. In addition, we create mobile applications for iOS and Android.

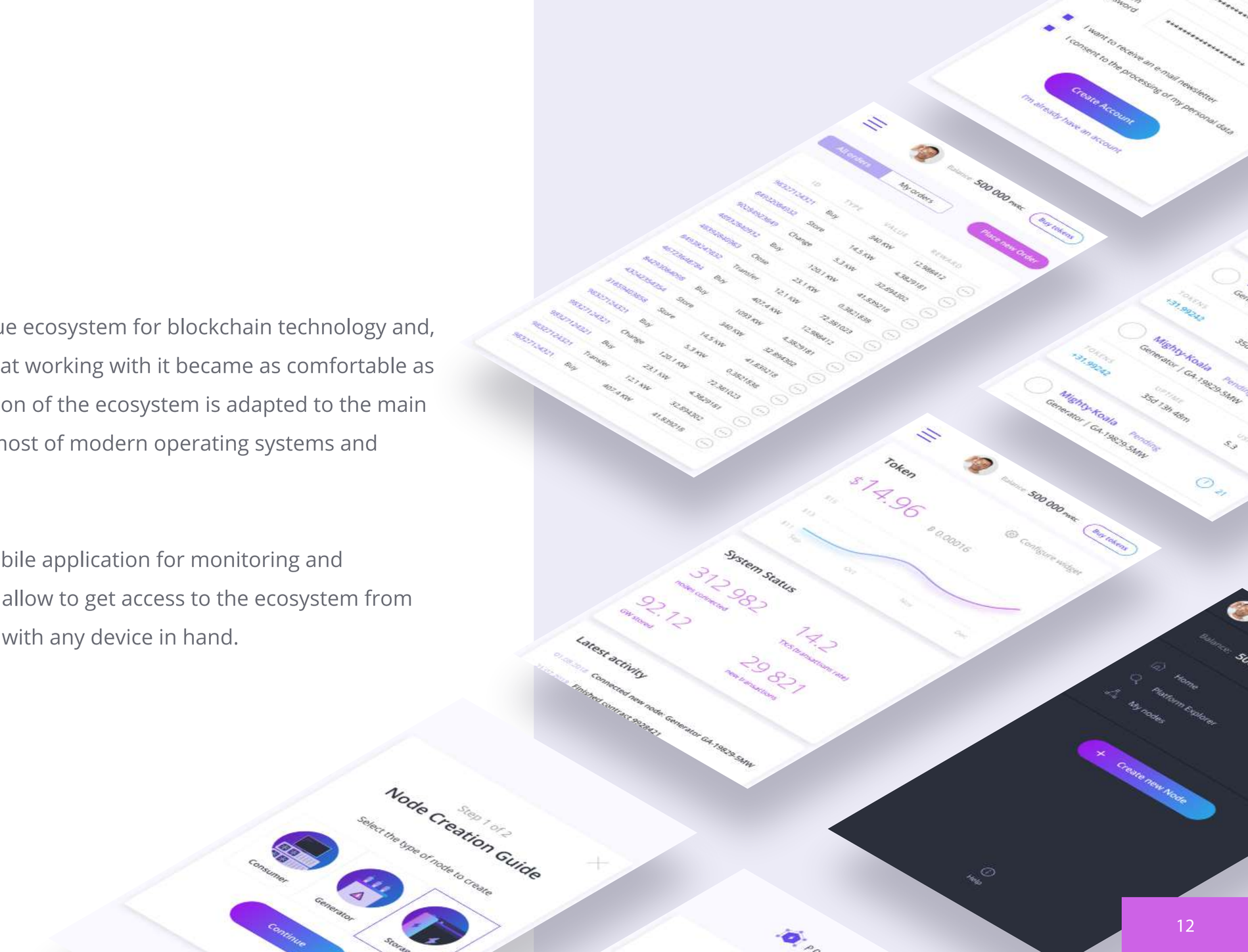
As the primary development tool, we use Node.js.(Internet of Things, IoT). It allows to create quick interfaces, apply animation, and has a minimal load on servers. Node.js is the core of the interfaces and simultaneously allows to interact with a wide range of hardware in its core. Can actively work with the blockchain.



# Mobility

Powerchain creates a unique ecosystem for blockchain technology and, of course, we made sure that working with it became as comfortable as possible. The browser version of the ecosystem is adapted to the main screen resolutions and to most of modern operating systems and browsers.

We create a convenient mobile application for monitoring and managing user hubs. It will allow to get access to the ecosystem from anywhere in the world and with any device in hand.



# Mining

We have developed and prepared for production a new-generation mining containers with a capacity of 1.3 MW each. They are built on the basis of ASIC Bitfury and in addition to high computing power (hashit ≥ 7.5 PH / s Bitcoin) have an additional option of instant power transfer.

## Types of containers:

1. Based on SHA-256 ASIC Bitfury (Bitcoin), hashtrait - 7.5 PH / s;
2. Based on video cards NVidia GTX 1060 (universal GPU-miners):
   a. Ethereum, hashreit - 41,8 GH / s;
   b. Zcash, hashtreit - 501.6 KH / s;
   c. Monero, hashed is 1.358 MH / s;
3. Based on Scrypt ASIC Bitmain (Litecoin), hashtreit is 302.4 GH / s.

## The advantages of the POWERCHAIN mining complexes:

- can be delivered to the place by any mode of transport, have an estimated deployment or dismantling time of 2 working days;
- are equipped with switchgear of high or medium voltage 110 or 35/10/6 kV and lowering transformer substations with reducing voltage distribution devices in container version;
- are designed for installed capacity from 140 kW to 1150 kW with a length of 6 to 12 meters;
- are intended for operation in different climatic conditions in the temperature range from -40 to +38 °C;
- have a cooling system of the "fresh air cooling" type - outdoor air ventilation with the removal of heat into the environment;
- the average annual electricity consumption for cooling for different versions is 4.5-15% of the payload capacity.

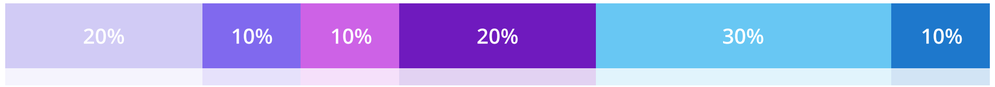
# POWEC Tocken

Max supply:
**100 000 000 000 (mintable)**

Name:
**POWEC**

Type:
**ERC20 (Ethereum)**


- **60%** ICO;
- **10%** Reserve fund (payments to the first miners);
- **20%** The team (3 years vesting);
- **5%** Advisers (1 year vesting);
- **5%** Development and marketing, including airdrops and bounty campaigns.




- **20%** Marketing and partnerships;
- **10%** Legal expenses;
- **10%** Administrative expenses;
- **20%** Business development;
- **30%** Product development;
- **10%** Operating activities.

# Tockensale Rounds

**Seed-funding**
NOW

Contact
to contribute

White List
Q2’2019

Supply: 6 000 000 000 POWEC

Token price: €0,005

Goal: €30'000'000

ICO
Q2’2019

Supply: 15 000 000 000 POWEC

Token price: €0,025

Softcap: €50'000'000

Hardcap: €150'000'000

# Comparison Table

* - *To Be Defined*

| Project | Green Power Exchange | NAD Grid | WePower | SunContract | Deneum | Grid+ | POWERCHAIN | PowerLedger | LIGHT |
|---|---|---|---|---|---|---|---|---|---|
| Token | GET | EDN | WPR | SCN | DNM | BOLT & GRID | POWEC | Sparks & POWR | LIGHT & EDEN |
| Total Raised | TBD* | TBD* | $30M | $2M | TBD* | $29M | TBD* | $26.6M | TBD* |
| Energy traing | + | + | + | + | + | + | + | + | + |
| Renewable Energy Support | + | + | + | + | | + | + | + | + |
| Business processes forecasting | | | | | | | + | | |
| Energy buffering | | | | | | + | + | | |
| Predictive analysis | | | | | | | + | | |
| Energy distribution | | | + | | + | + | + | + | + |
| Payment protection | + | + | + | + | + | + | + | + | + |
| Mining ready | | | | | | | + | | |
| Energy utilization | | + | | | | | + | | |
| Energy purchasing with tokens | + | + | + | + | + | + | + | + | + |
| One token model | + | + | + | + | + | | + | | |

# Road Map

### 2016

Idea

R&D (Research & Development)

DONE

### 2017

First Usage Cases

Patenting and Samples Production

DONE

### 2018 Q1

Team Building and Project Design

DONE

### 2018 Q3

White Paper

Seed Funding

### 2018 Q4

Ecosystem Development, Legal, Negotiation with Grid Companies

Deploy Nodes and Energy Storages

Invite-Only Beta

### 2019 Q1

MVP Release

Smart Contract Deploy and Testing

Ecosystem TestNet Deploy

### 2019 Q2

Network Growth

Pre-ICO

ICO

### 2019 Q3

Token Distribution

Token Listing

### 2019 Q4

Ecosystem Testing, Auditing, and Compliance Certification of Protocol

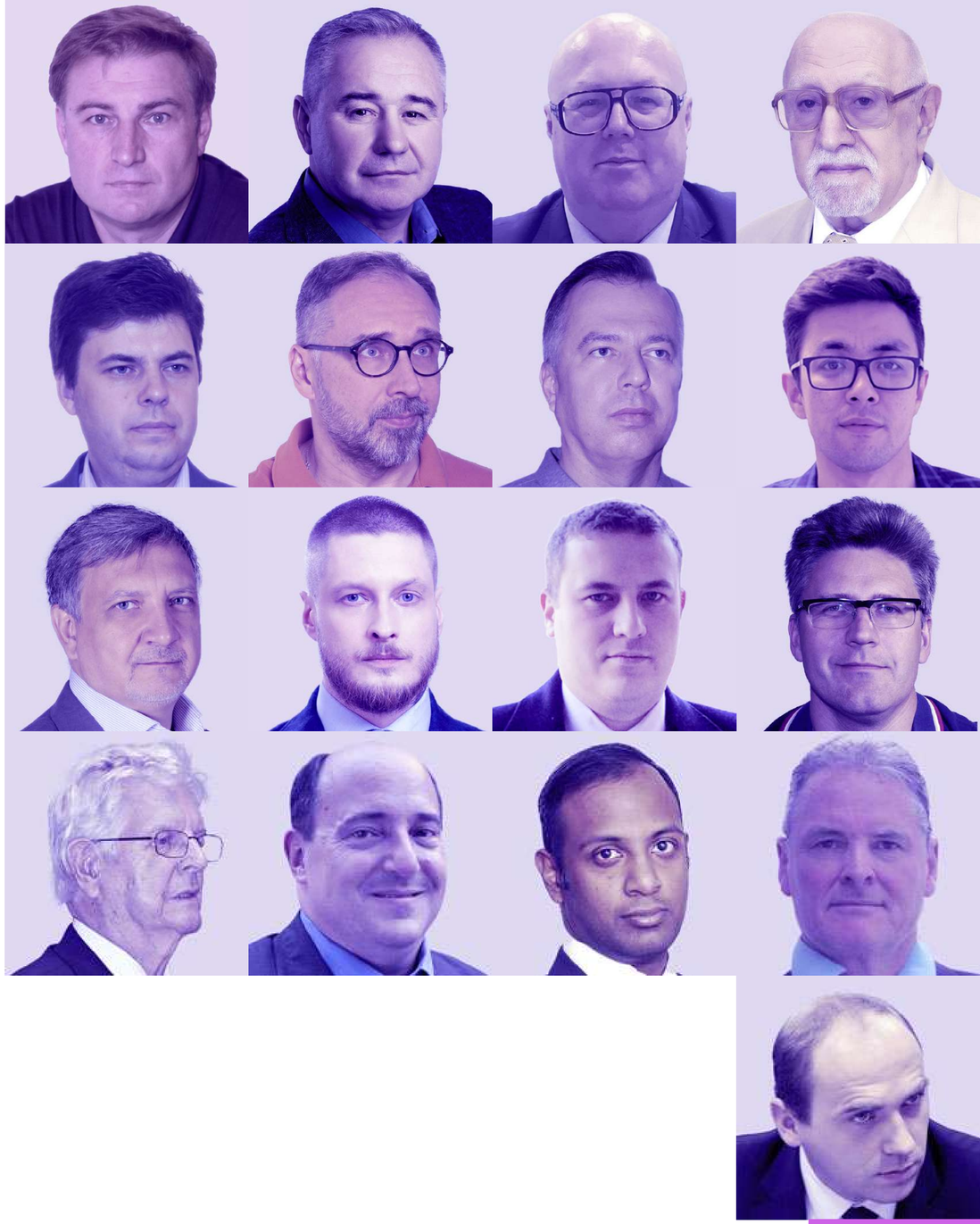
Ecosystem Deploy, Pre-Release

### 2020 Q1

Powerchain Ecosystem Release

# The Team

We have put a dream team together: it is decentralized, distributed across countries and even continents, with unique practical experience and knowledge in all critical areas of our project. Our experience includes working with existing companies operating in the real economy and real sectors: energy, transport, oil, and gas sector. The implementation of Powerchain project is impossible without our advisors recognized as industry experts, reliable partners, and experienced team members.



# Contacts

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# Redesign the Grid.

## Now everyone can save on energy saving.

https://powerchain.energy