



# SP Coin

Change the world  
with new and renewable energy technology



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English

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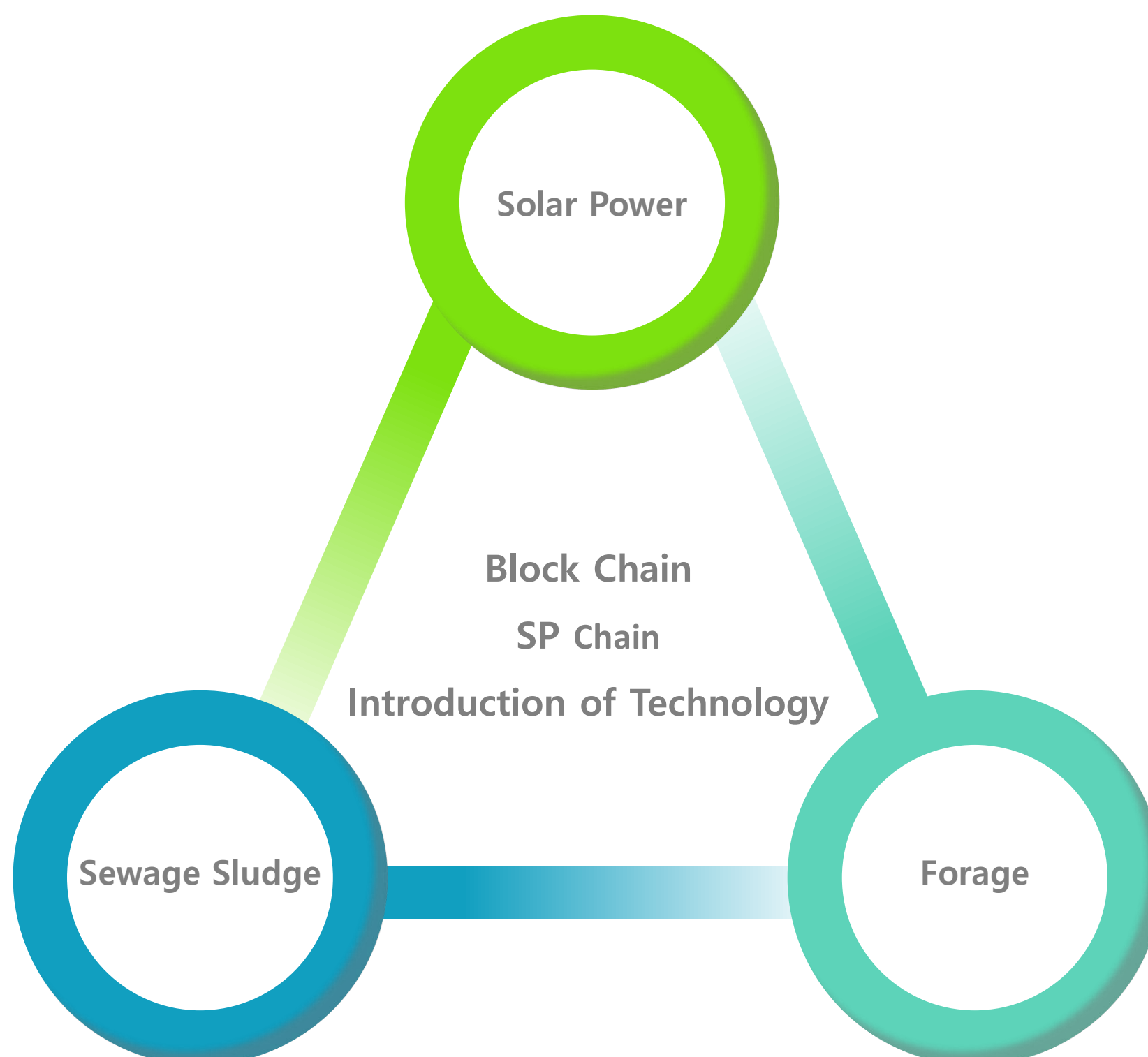
# Change the world

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## 1. Executive summary

The CIGS solar module manufacturing, sewage sludge reprocessing facilities, and mixed forage manufacturing industries are eco-friendly technologies required by this era that can realize symbiosis between humans and nature. Based on these technologies, we take the lead in solving environmental problems where humanity's attention is focused, and we do not consider corporate growth the best value, but strive to grow into a global leader who contributes to human life with the goal of a company that can contribute to the environment, society, and humanity. By combining our eco-friendly energy production technology and blockchain technology, which is emerging as the core of the Fourth Industrial Revolution, it will be the foundation for providing access opportunities and convenient and transparent management for everyone. With the activation of SP Chain, we will create a world where anyone can freely use clean energy and create a win-win future for businesses, society, environment, and all mankind.

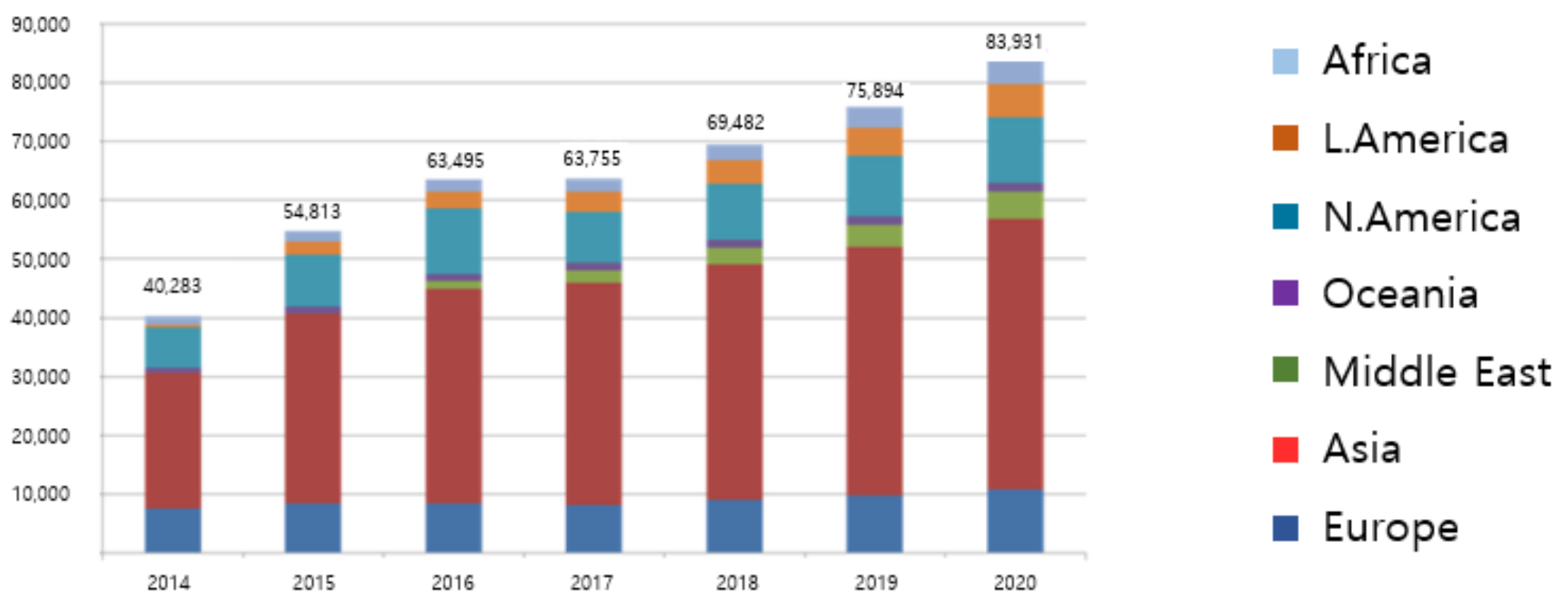


## 2. Introduction

- **The solar power market is growing rapidly all over the world.**

Major European countries such as Asia, North America, the U.S., Germany, France, and Spain, which are the centers of solar market growth, have recorded steady growth with double digits in 2019.

Demand from China, one of the largest solar power demand countries, is expected to slow down in 2020, but the U.S. market is expected to continue to show a good trend. It is expected to offset the decrease in China's demand as demand in developing countries increases, and the new solar power market is expected to generate about 83.9 GW of power in 2020.<sup>1</sup>



**Current status and prospects of new solar power installation in the world (2014-2020F, MW)**

The government plans to build a total of 48.7 GW of renewable energy facilities to achieve 20% of renewable energy generation in 2030, while the current government plans to build 12.4 GW for five years and 36.3 GW from 2023 to 2030. Of the total 48.7 GW of new facilities, solar power for 30.8 GW accounts for the largest portion, 63% of the total.

<sup>1</sup> Jeonghwa KIM, Solar Industry Report for Q3 2019, The Export-Import Bank of Korea

## ● Current status and prospects of sewage sludge treatment facilities

As the marine discharge of sewage sludge has been strictly prohibited since January 1, 2012, it is currently being treated at public treatment facilities, reclaimed, or entrusted to private facilities. In preparation for the ban on marine discharge of sewage sludge, 101 out of 116 sludge treatment facilities (12,710m<sup>3</sup>/day) are in operation as of July 2014, and 16 (or 2,523m<sup>3</sup>/day) are under construction (or design, construction)<sup>2</sup> and the amount of treatment in private contracting-out facilities accounts for 21%. The amount of sewage sludge generated is increasing every year, and land reclamation and marine discharge, which have accounted for a large part of sewage sludge treatment, have become difficult, so it is expected to be continuously entrusted to private treatment facilities.

년도	2014	2015	2016	2017
발생량(톤/일)	15,245	14,929	10,279	11,431
처리량(톤/일)	9,663	10,526	9,810	11,415

**Amount of Sewage sludge generated and treated**

## ● Current status of domestic forage market prospects

As the consumption of Korean beef meat has increased rapidly, Korean beef breeding farms have changed to large-scale breeding nationwide, and the forage market is growing accordingly. Considering that feed costs account for 40-60% of livestock farm production costs, forage supply and demand and price stability emerge as the core of industrial maintenance and farm management stability. With a market size of 10 trillion won for formula feed and 3 trillion won for the forage, the dependence on imports of raw materials for formula feed is 70.8%, the forage is higher than 30%, and the price is also high. In the case of the forage, it is common to use existing chaff, imported hay, domestic cultivated hay, and weeds, and Livestock Cooperatives across the country are producing and supplying manufacturing facilities such as TMR and TMF forage.

<sup>2</sup> Status of sewage sludge treatment facilities nationwide (July 2014), Ministry of Environment



### 3. Problem & Solution

#### ● Inefficiency and social problems in the existing solar industry

Solar panels, which are currently being used in the solar power generation industry, are difficult to install, manage, and repair because they are made of materials that are not flexible. Temperature, rainfall, sunlight, and insolation should be identified and installed in a place that meets these conditions, and the slope of the product should also be considered when installing. According to the data from "Current Status of Mountain Solar Installation in Environmental Protection and Ecological Sensitive Areas," solar facilities were built in at least 272 environmental protection areas, including ecological landscape conservation areas, and first and second landslides over the three years from 2018 to 2020. In Jeollanam-do, it has been confirmed that solar power facilities have been built in seven legal protection areas designated for environmental conservation-related purposes, including ecological landscape conservation areas, wildlife conservation areas, wetland conservation areas, and water source conservation areas.<sup>3</sup> These phenomena caused not only environmental destruction and landscape damage such as forest green areas, but also landslides and soil leakage accidents.<sup>4</sup>



**A solar power plant built in the mountain area, Jangsu-gun, Jeollabuk-do (Source: The Hankook Ilbo)**

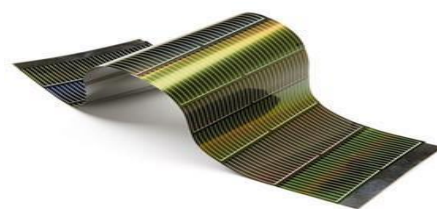
<sup>3</sup> Jun-Beom KWON, Indiscriminate installation of solar in environmental protection areas, Energy newspapers

<sup>4</sup> Solar panels covered with mountains and fields...Eco-friendly energy that destroys the environment. Hankyoreh

● **Emerging markets, product efficiency, and solutions to environmental problems.**

SPSI's CIGS thin-film solar panel has strong resistance to high and low temperatures, so it can withstand from minus 40°C to up to 90°C. Therefore, it can be installed and used in countries with extreme climates such as Southeast Asia, Africa, India, Middle East countries, and Russia. Moreover, even if a part of the product is damaged, such as tearing or forming holes, it can generate electricity, has strong durability against hail and typhoons, and is constructed as an all-in-one building, so there is no visual rejection. Since power generation is possible even on cloudy days with high light absorption, it shows higher power generation than silicon-based batteries and since it is a flexible panel of ultra-light (2.3 kg/m<sup>2</sup>) and ultra-thin film (2 mm), there is no load burden, and there is no restriction on installation because energy can be obtained regardless of the inclination angle. Therefore, it can be installed and used on curved roofs, walls, and outer walls, and can be used in various application products such as a military, vehicle, and leisure.

In 2019, the Ministry of Trade, Industry, and Energy reorganized the renewable energy supply support project and adjusted the solar power subsidy rate. Accordingly, the government decided to provide priority subsidies up to 50% for roof-integrated BIPV and 70% for outer wall vertical BIPV, while lowering the subsidy rate for general solar power to 30%. Therefore, the use of SPSI's solar panels, which can be installed on outer walls, can receive more subsidies than other companies' general solar panels, which can reduce the burden of installation costs




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8) BIPV: Building-integrated photovoltaics,

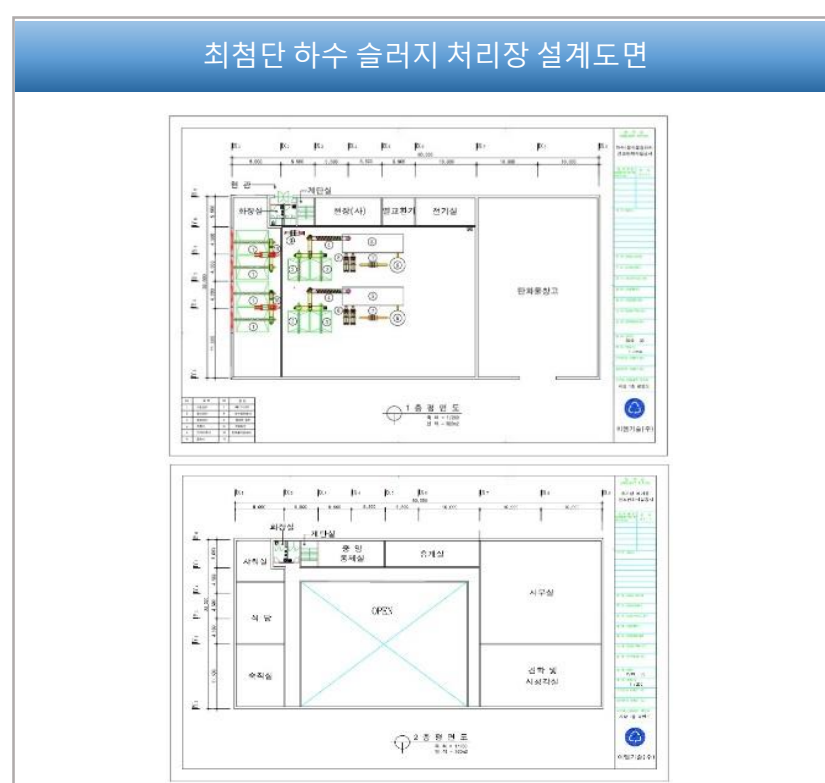
EIPV: Environment-integrated photovoltaics,



SPSI's sewage sludge treatment technology produces little air pollutants because the pyrolysis reaction takes place under anaerobic or cryogenic conditions and the amount of exhaust gas is lower than that of incineration facilities and other similar facilities.

In addition, waste heat is highly utilized, energy efficiency is high due to the waste heat recirculation system of the entire process, the low heavy metal content of final byproducts, and little elution, so there is no cause of secondary environmental problems and high reuse rate. Sewage sludge dry carbonization treatment is a waste treatment technology that reuses high-temperature waste heat from direct and indirect combustion deodorizers as heat sources, and in principle, the generation of acidic gases such as Nox. Sox is suppressed and harmless sewage sludge carbides.

In addition, this is less secondary environmental pollution such as air pollutants and odors, and by reusing discarded waste heat, the image is improved accordingly, and we are making every effort to prevent environmental pollution such as reducing greenhouse gases by recycling renewable energy. Therefore, it can solve the civil complaint problem, which is the biggest obstacle to the construction of sewage sludge facilities



**Design drawing and bird's eye view of sewage sludge treatment plant.**

## 4. SP Value

- **With the awareness of solar energy business and eco-friendliness, the users of SP chain quickly expand**

The solar panel process is divided into a pre-process and a post-process, and the product that can be obtained through the pre-process is a cell, and the completed panel can be obtained through the back-end process. Currently, back-end factory contracts are underway with companies in Turkey, Malaysia, India, and Saudi Arabia, and the established factory would be incorporated and managed as a subsidiary of SPSI. At this time, since each company has to purchase a cell with SP Coin, it becomes a structure in which it has no choice but to purchase SP Coin on the coin Exchange. Solar panels completed through back-end processes not only in Korea but also abroad are distributed to online stores, offline stores, and agencies so that individuals and companies can purchase them. In this case, consumers purchase SP Coin and switch to SP Pay points in the SP Coin electronic wallet to pay the bill. In each country where back-end process plants are located, including Korea, it is expected that back-end process plants will be based, and solar panel sales contracts will be carried out to neighboring countries to increase coin utilization and transaction volume.

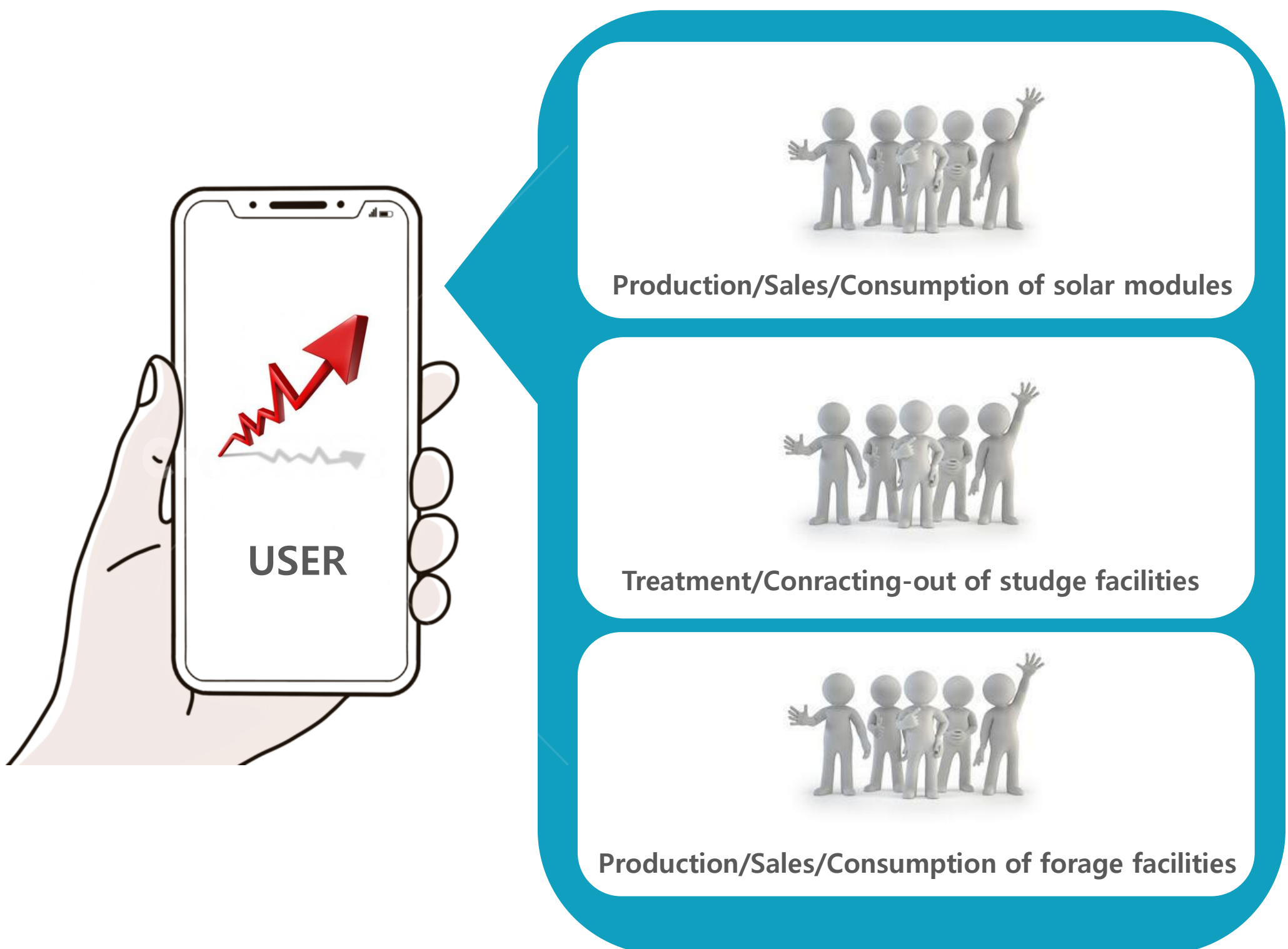
- **Expanding users of SP chain with transparency in the sludge treatment process with blockchain**

Sewage sludge emissions are increasing day by day and marine discharge is strictly prohibited and managed, so transparent management and treatment of sewage sludge are essential. Therefore, when a local government agency entrusts sludge treatment to a sludge treatment plant, we will record the amount, date, and information on sludge discharge on the blockchain and keep it transparent. The carbide obtained after sludge treatment is sold as fuel coal to thermal power plants. In this case, information such as thermal power plant information, carbide amount, and transaction date is also recorded and stored in the blockchain. At the sludge discharge site, the trust fee is paid with coins to the treatment plant, and at the thermal power plant, the carbide purchase fee is paid with coins. Therefore, the sewage treatment plant to entrust sludge and a thermal power plant to purchase carbide have to purchase SP Coin.

● **Securing users as consumers and producers looking for high-quality Korean beef**

In the mixed forage business, SPSI currently established Taesan agricultural corporation in Jeungpyeong to produce mixed forage, and the forage produced here will be sold with SP Coin at SP Coin online shopping mall.

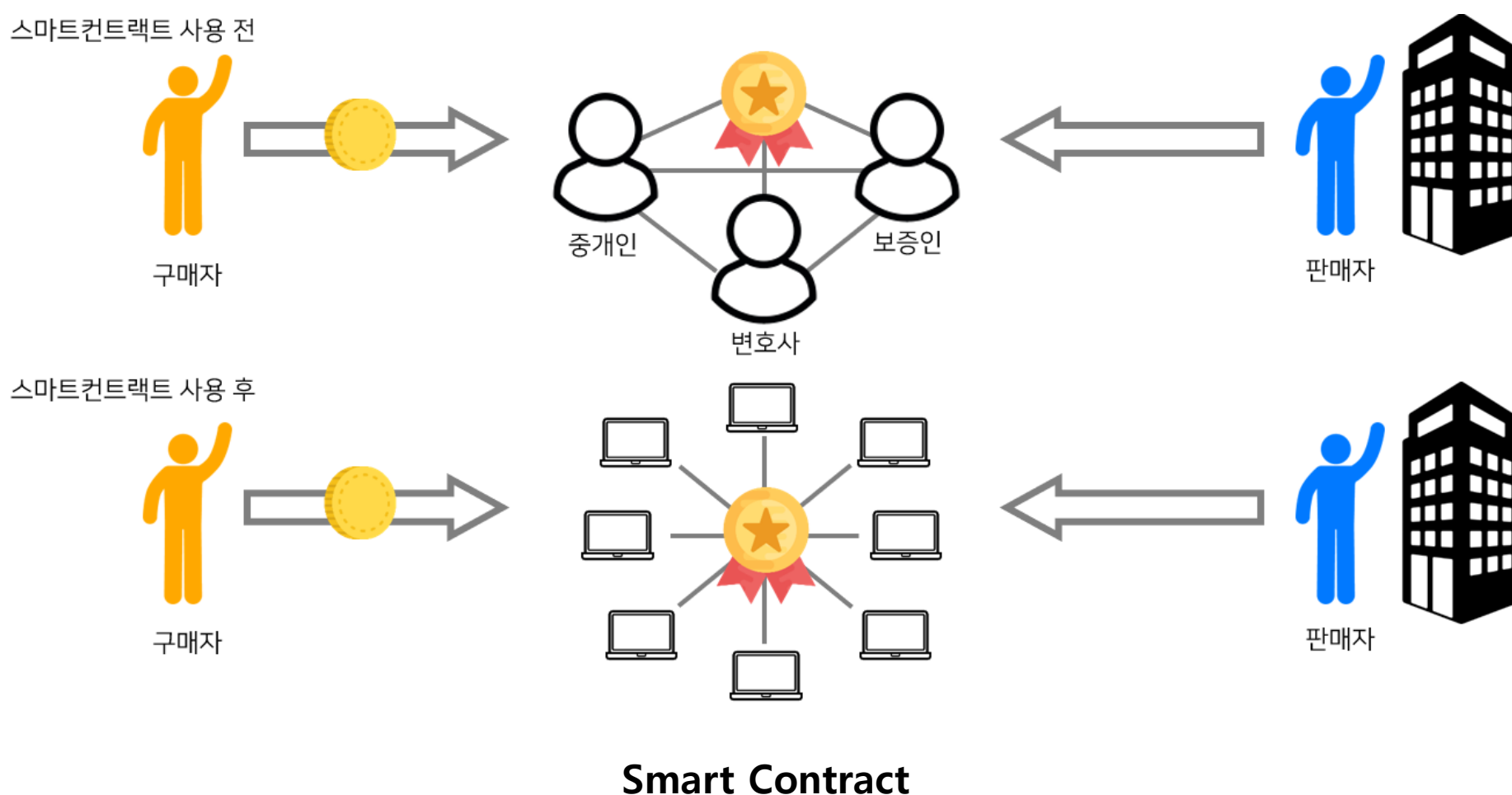
By recording and transparently disclosing information on Korean beef that ate mixed forage as well as product history, it can raise trust from customers and the number of consumers who trust and want to buy reliable and nutritious high-quality Korean beef increases as well, and both ordinary and Korean farmers trade with SP Coin, and the demand for SP Coin naturally increases.



## 5. SP Platform

### ● SP Chain과 Smart Contract

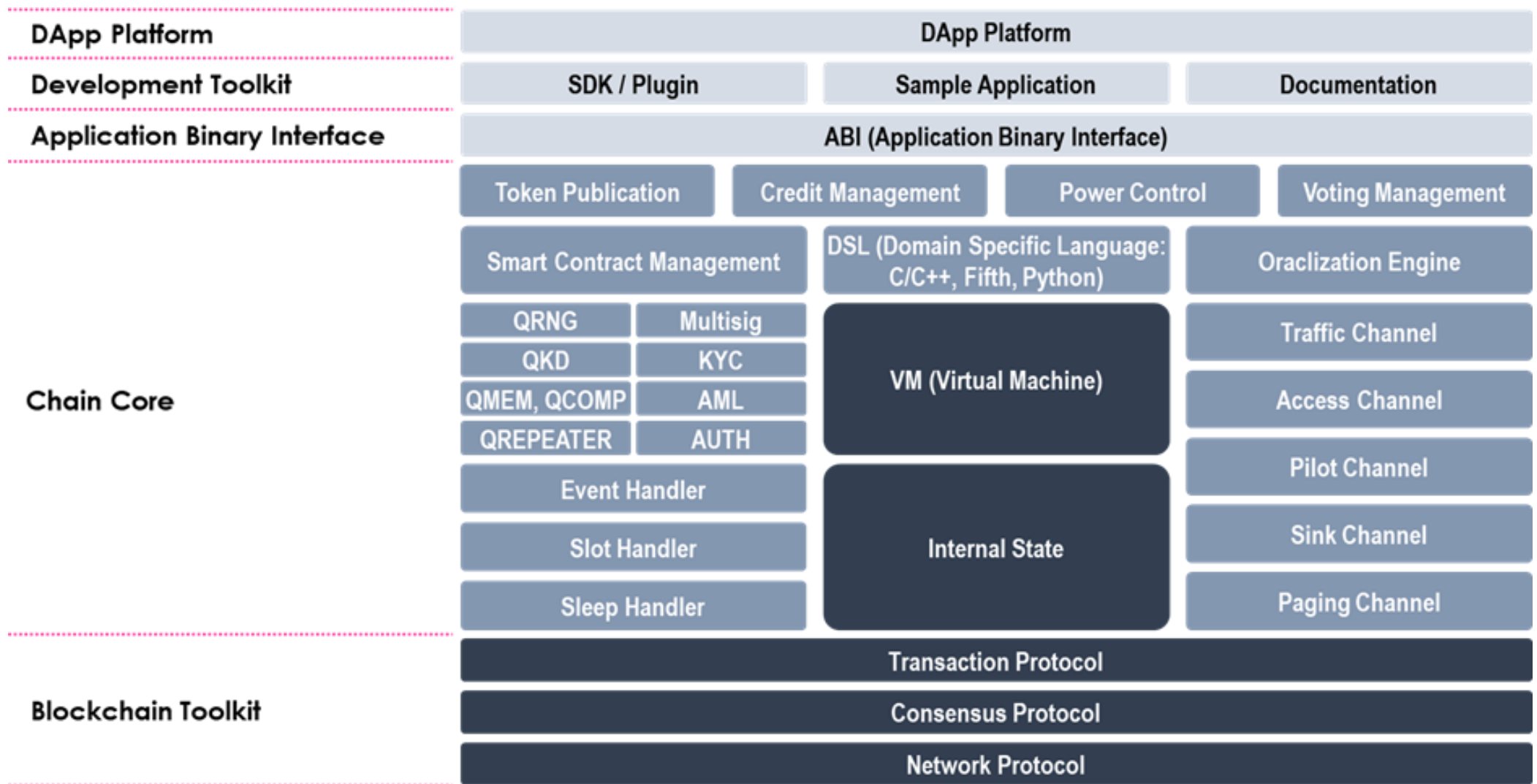
SP Coin is an eco-friendly coin created by the combination of SPSI's high-efficiency solar panel technology and eco-friendly sewage sludge treatment technology and blockchain, which is used for solar panel sales, power trading, sewage sludge trust, and carbide trading. Blockchain technology allows all transactions related to SPSI to automatically implement transactions and conduct safe transactions through Smart Contract technology without intermediary intervention. Smart Contract is placing a 'commitment' on the blockchain and adds a code to the transaction to do something if certain conditions are satisfied.



Prior to the use of Smart Contract, there had to be at least one intermediary to purchase goods. However, after using Smart Contract, a third party is not required, and if only the set conditions are satisfied, the contract is automatically concluded. In other words, since the code is contained in the contract, certain conditions are entered into the block, and when the conditions are satisfied, the set items are automatically implemented. SP Chain can also use Smart Contract technology to make simple transactions. For example, if the amount of coins required by the seller meets the consumer's demand, the transaction is automatically concluded to sell solar panels, power, sewage sludge trust, carbide, and mixed forage.

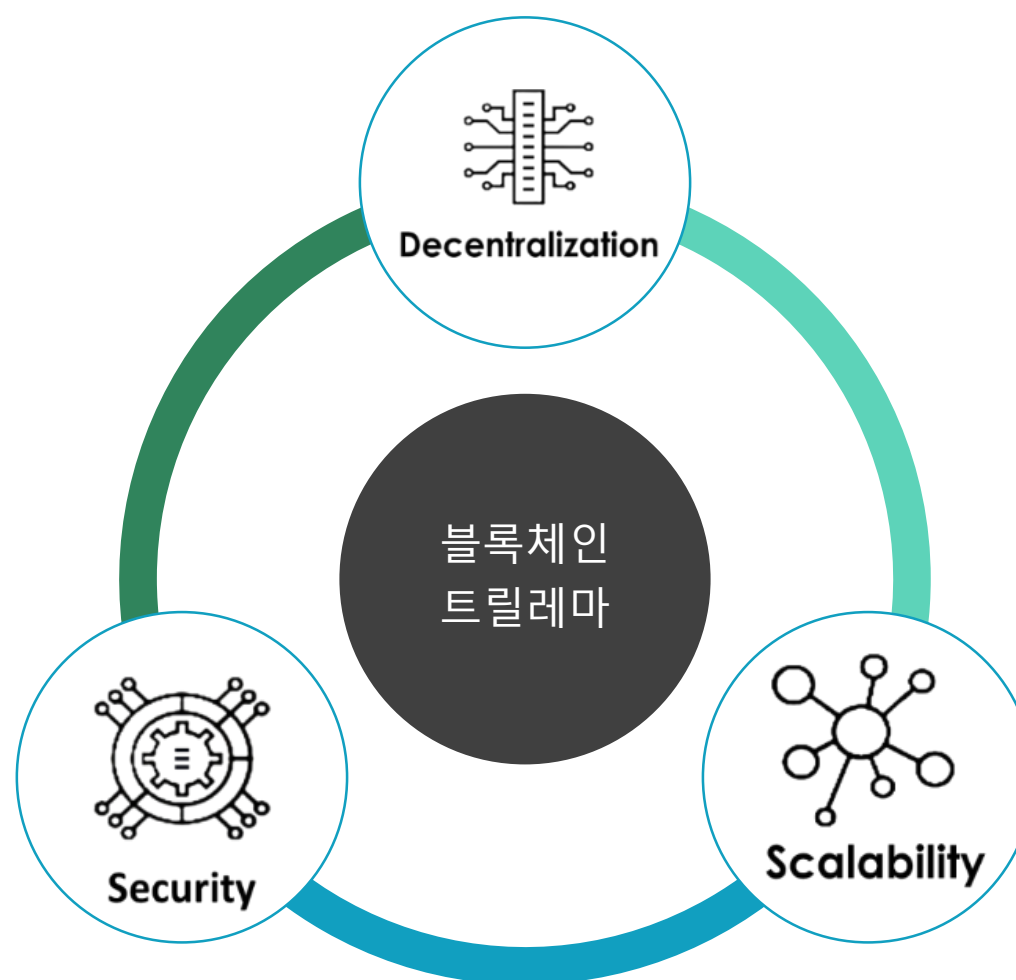


● Characteristics of SP Chain



SP Chain Architecture

Since cryptocurrencies on the market are known to be physically impossible to satisfy trilemma at the same time, as they can solve one or two issues of decentralization, security, and scalability



Trillema of Blockchain Technology.



In the case of Bitcoin and Ethereum, which focus on decentralization and stability, it is the issue that transaction processing is very slow now that the number of users is very large. The irony is that the two biggest obstacles for blockchain to solve the scalability problem are decentralization and stability. Therefore, these three concepts are grouped together and called the trilemma of the blockchain.

SPchain optimally maintains and develops decentralization and security, while at the same time overcoming Trilemma, the biggest challenge in the blockchain industry, based on its best scalability. In particular, SPchain has dramatically improved items such as security and user accessibility compared to the existing blockchain platform.

### Decentralization

The SP chain mainnet uses DPoS (Delegated Proof of Stake) consensus algorithm, pursues fairness in block creation and verification, and has been developed as a blockchain that does not focus hash power on a small number of holders. Through this, the consensus process is decentralized efficiently and fairly, and governance, a method of consensus on facts and decisions, is secured.

### Scalability

The consensus method of SP Chain Mainnet is highly scalable because it uses efficient and fair transaction processing and block creation consensus algorithms rather than block generation by some users who own a large stake.

### Security

SP chain ensures that when real-time data is exchanged between producers and users operating between smart contracts on the blockchain, it has a sufficient and complete system to protect that data, ensuring that critical data in the system is not tampered with.

● **SP Coin Economy**

SP Coin is a coin that users can use as a payment method in various ways within SP Chain's service. It is used as a major medium for economic activities within the ecosystem of SP Coin.

SP Coin is used as 1. means of purchasing products and using services 2. means of obtaining non-monetary membership benefits 3. platform payment fees

● **SP Coin FLOW**



## ● Manufacturing, sales, and management of solar panels

We intend to build a platform that is convenient for maintenance, repair, and management by storing all information in the blockchain.

The solar panel manufacturing process is all automated. Therefore, many automated machines are used and managed. We plan to store and manage information on each machine by blockchain the manufacturing process as well. All information such as manufacturing timing and failure repair details of automated machines is recorded and stored in the blockchain to manage the machines, preemptively inspect the machines based on the information recorded in the blockchain to prevent failures and minimize the production of defective products. In addition, if a problem is found on the panel by recording and storing the serial numbers of the panels produced by each machine, the machine that produced the panel can be inspected immediately to find the cause of the problem and quickly check whether there is a problem with the panels produced together.

Information on Copper, Indium, Gallium, and Selenide, as well as parts used, is stored and recorded in the blockchain when manufacturing CIGS solar panels. All relevant information, including the production site of raw materials and parts, manufacturers, and suppliers, is stored in the blockchain. In addition, when a defective product is produced due to a defect in raw materials or parts, the cause can be quickly analyzed and delivered to a problematic raw material or part supplier, and all processes can be managed and supervised transparently because it is impossible to modify or delete information.

Even when a solar panel is manufactured and delivered, all information such as the company that delivered the solar panel, serial number and information on the delivered panel, and quantity are stored. This can be used as a means of authenticating genuine products and can be useful when repairing or managing panels for a 25-year product warranty period.

Through the establishment of this platform, the reliability of the product is increased by providing data generated throughout the entire process from production to sales to all participants. In addition, we intend to build a platform that is convenient for maintenance, repair, and management.

## ● Power trading platform.

It records and manages not only information on the overall product but also information on power obtained through the panel in real-time. When consumers who purchased the panel enter and register the serial number of the panel, they purchased on the power transaction platform developed by SP, they can check the power produced by the panel, used power, and surplus power on the app.

Since it is a figure that is directly connected to a panel that generates power, we can gain trust from users because the amount of power is managed transparently without exaggeration or error. It connects those who want to sell surplus power within the platform and those who want to purchase power, and furthermore, we plan to enable power transactions and payments within the platform.

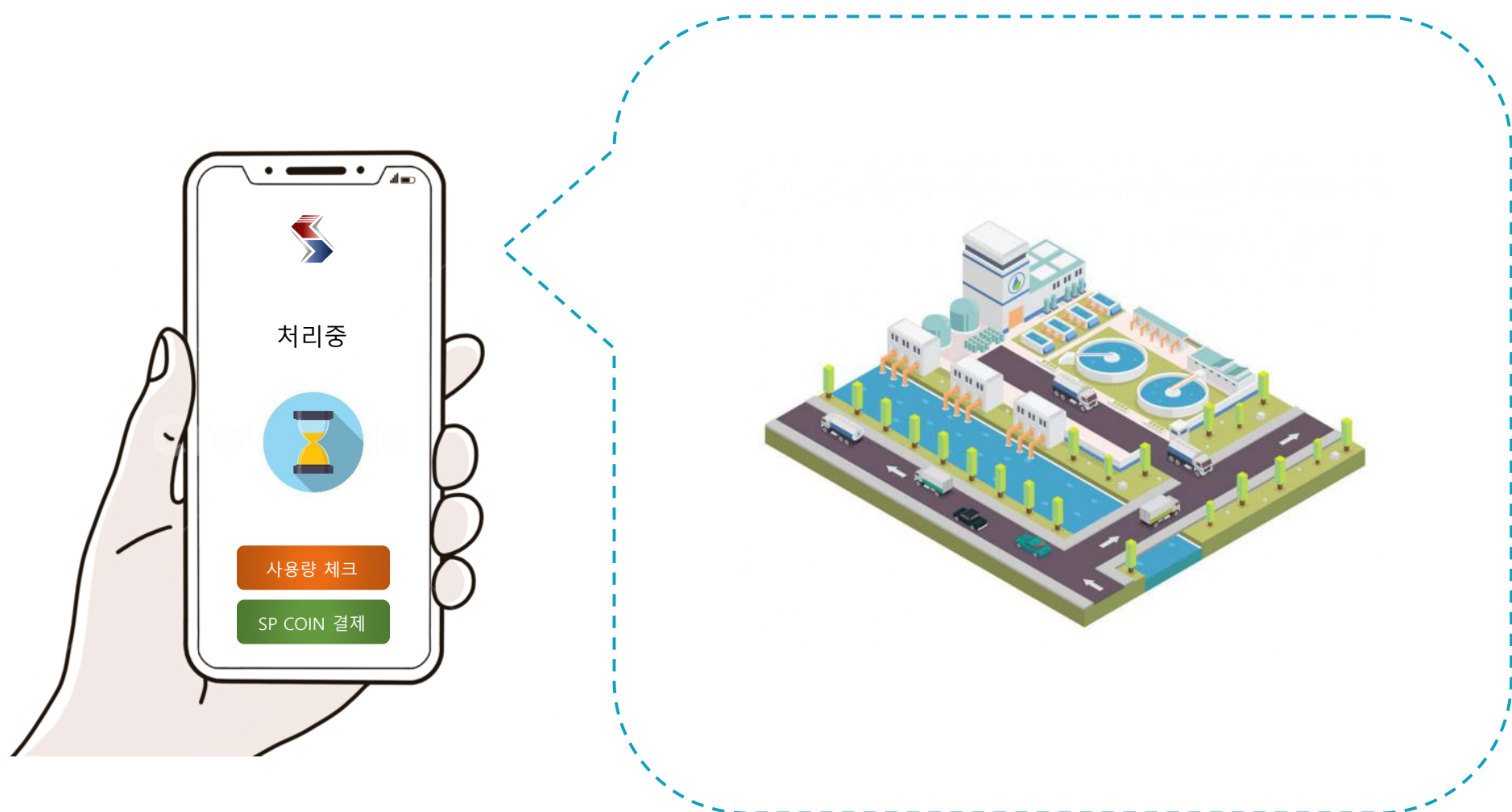
We intend to develop a power trading solution that allows panel owners to earn additional income from the sale of surplus power and power buyers to purchase and use reliable power at a lower price.



## ● Sewage sludge treatment platform.

We plan to record all information related to the entire process of sewage sludge treatment, such as sludge discharge, emission, sludge treatment date, carbide amount, and carbide purchase site, and develop a solution that collects and links information from sewage sludge treatment plants nationwide.

As the seriousness of environmental pollution emerges, sewage sludge discharge is strictly managed. For a more transparent treatment of sewage sludge, we intend to record and manage all relevant information such as sludge discharge source and amount of sludge on the blockchain when sludge treatment is entrusted. In addition, we would like to link information on sewage sludge treatment plants nationwide to provide a platform to see briefly the current manageable plants and unmanageable plants and to transparently disclose sludge treatment costs. Through this platform, we aim to prevent illegal marine discharge of sewage sludge





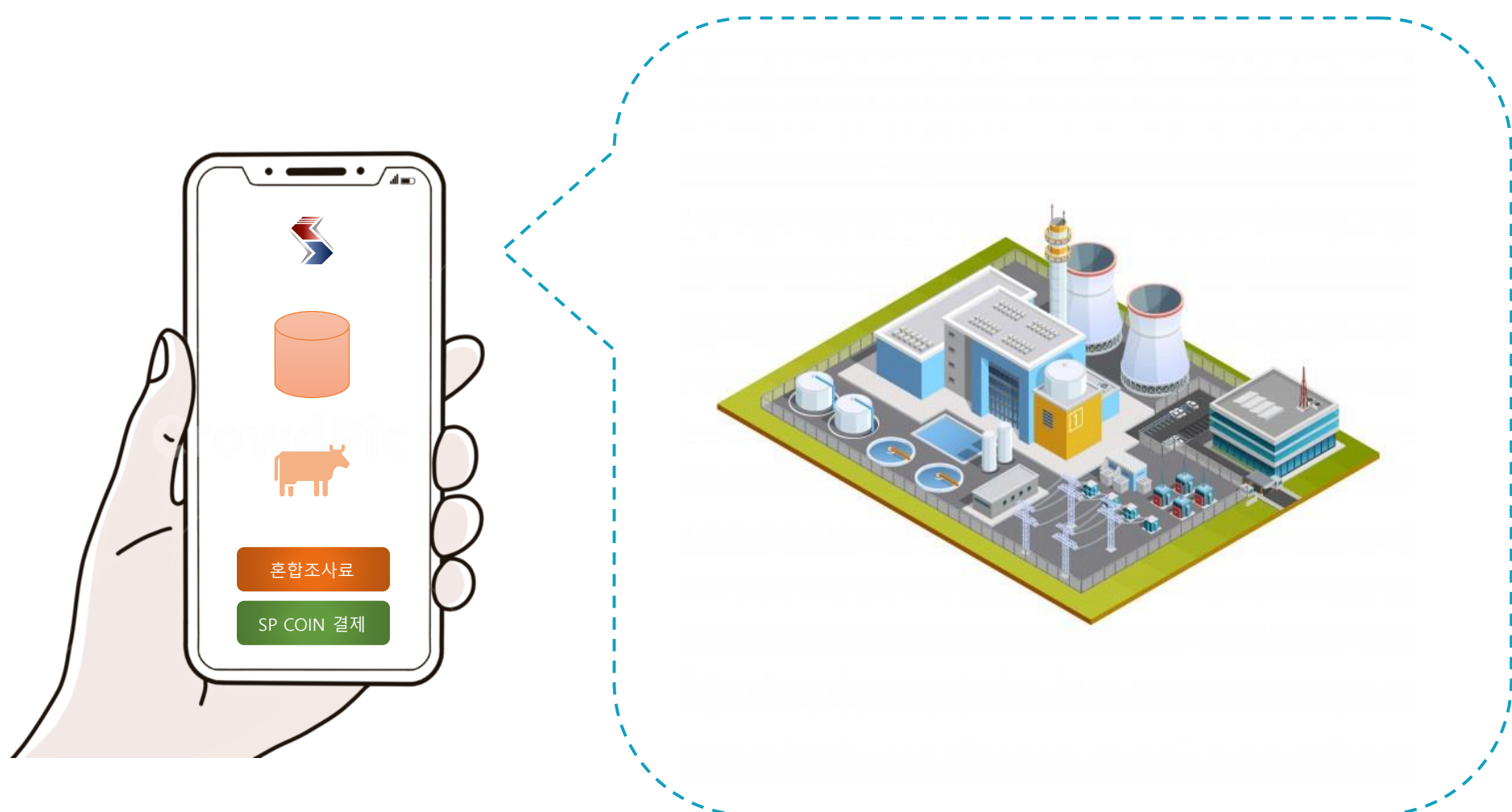
## ● Mixed forage platform

Currently, SPSI has established Taesan agricultural corporation in Jeungpyeong to produce mixed forage and plans to sell the forage produced here as SP Coin at SP Coin online shopping mall.

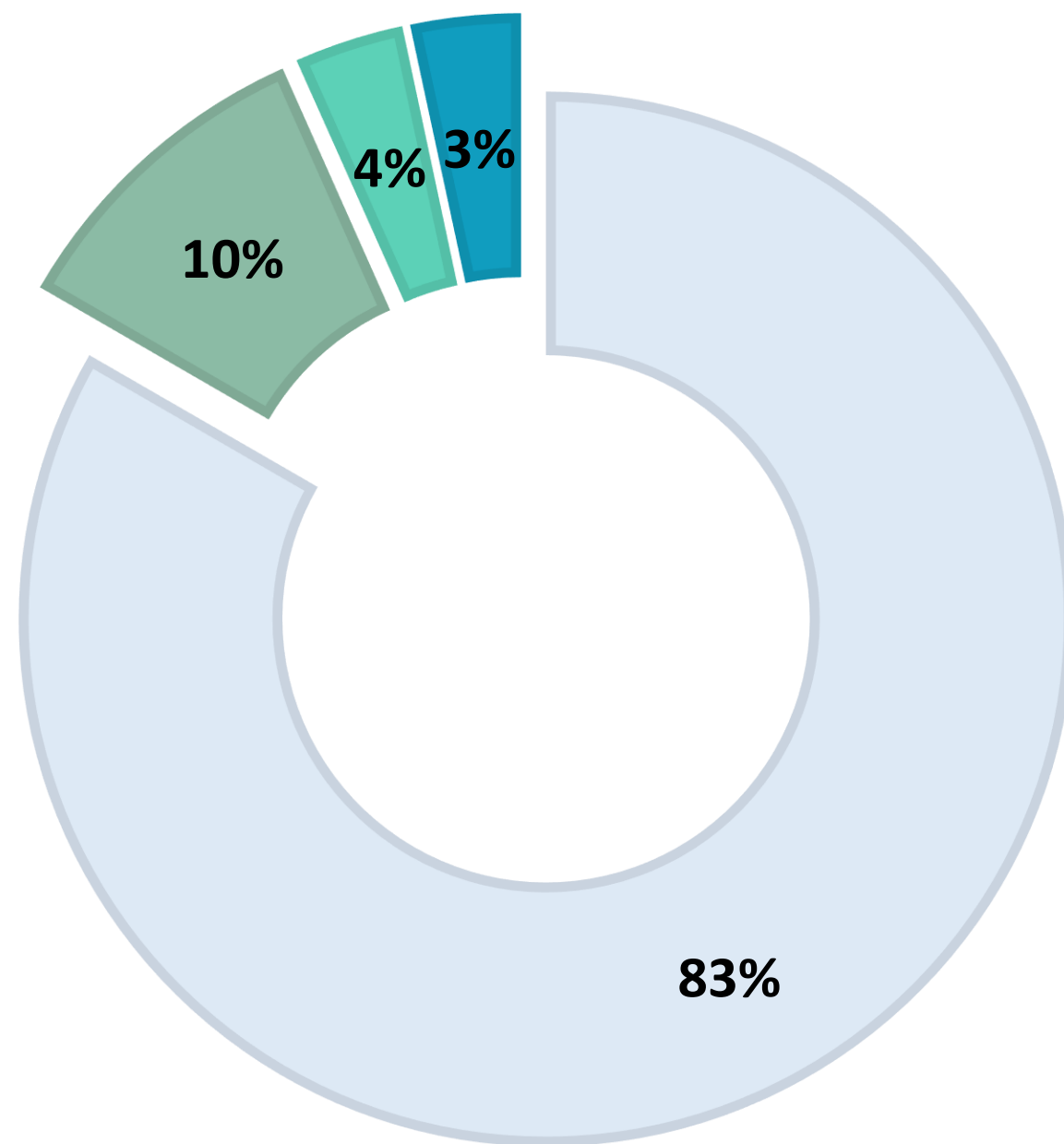
It provides data generated throughout the entire process from production to distribution and sales of products to all participants, from initial producers to end consumers. Both producers and consumers can track the product's history, which increases reliability and efficiency, thereby increasing product reliability.

It is not only a product history but also a transparent disclosure of information on Korean beef that ate mixed forage, transparently disclosing the grade of Korean beef that ate mixed forage to consumers, increasing the number of consumers who trust and purchase Korean beef.

Both farms and Korean beef farms are traded with SP Coin, and the demand for SP Coin naturally increases.



## 6. SP Distribution



Distribution	
Private Sale	3%
Operations / Marketing / Team	4%
For overseas and affiliated transactions	10%
Company holdings ( to be incinerated after listing )	83%

### ● SP Coin incineration

SP Coin will be incinerated up to 83% of the total issuance, and all transactions will be recorded on the blockchain.

## 7. Roadmap

### ✓ Growth period(2020~2025)

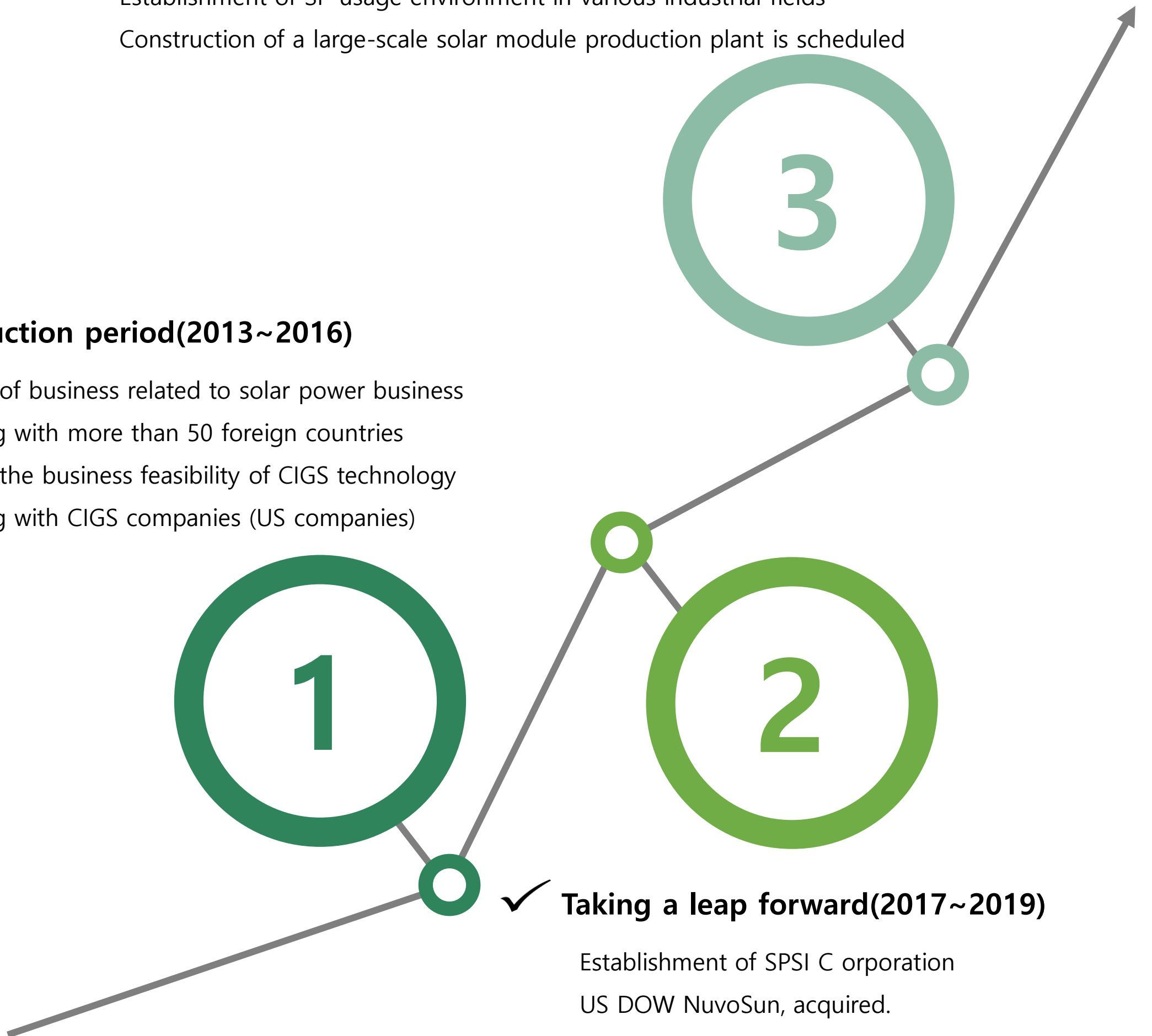
- Plant 1 of sewage sludge will be established.
- The solar pilot plant is scheduled to start construction
- Scheduled to be listed on the SP Coin Exchange
- Establishment of SP usage environment in various industrial fields
- Construction of a large-scale solar module production plant is scheduled

### ✓ Introduction period(2013~2016)

- Review of business related to solar power business
- Meeting with more than 50 foreign countries
- Review the business feasibility of CIGS technology
- Meeting with CIGS companies (US companies)

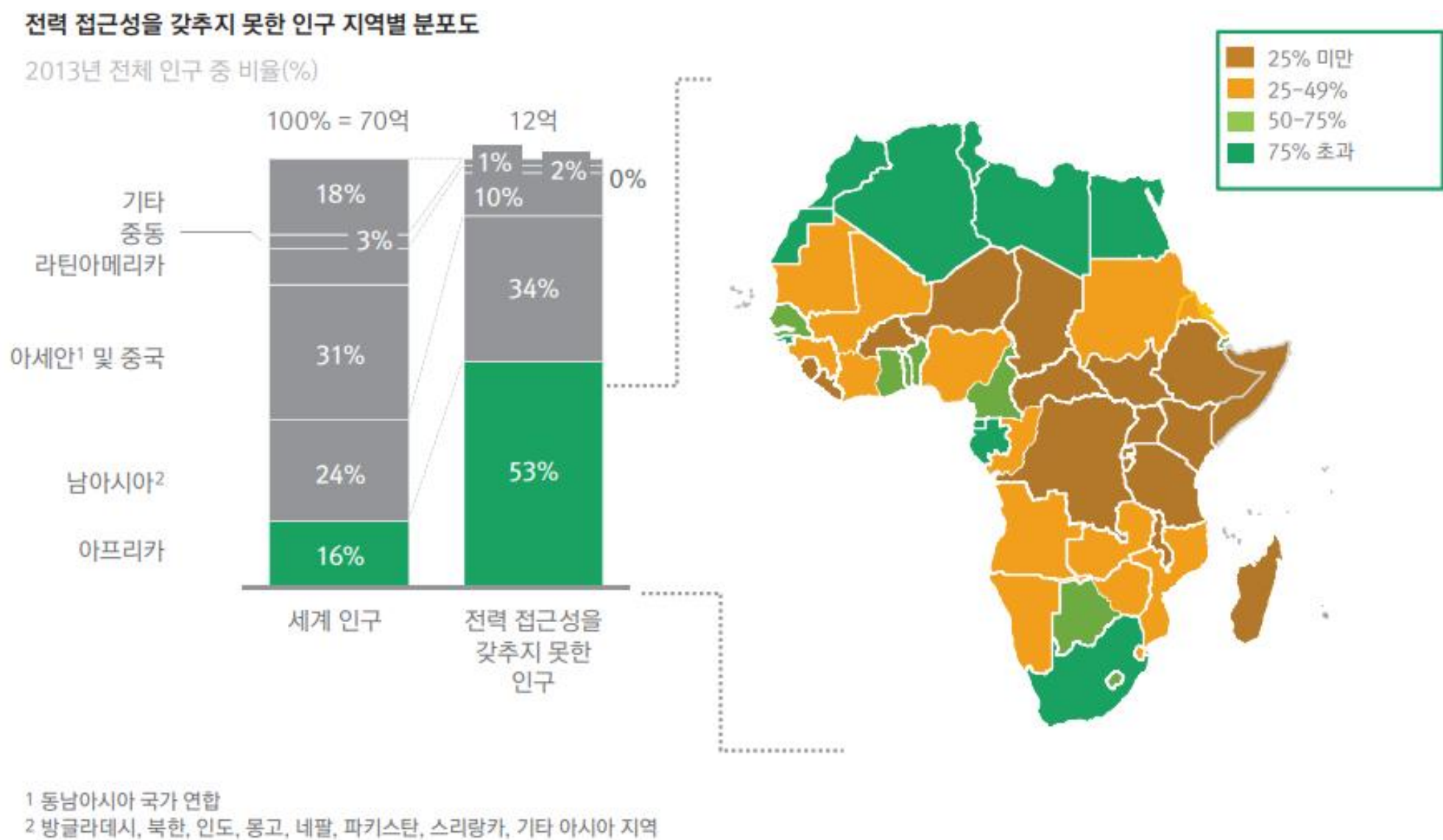
### ✓ Taking a leap forward(2017~2019)

- Establishment of SPSI Corporation
- US DOW NuvoSun, acquired.
- Corporate contract related to SPSI's post-sunlight process.
- Completed the sales contract with SOSI Solar panel Best Edge Jaolan.
- High-tech sewage sludge technology.
- Exclusive license acquired
- Developing SP Coin



## 8. Social Responsibility

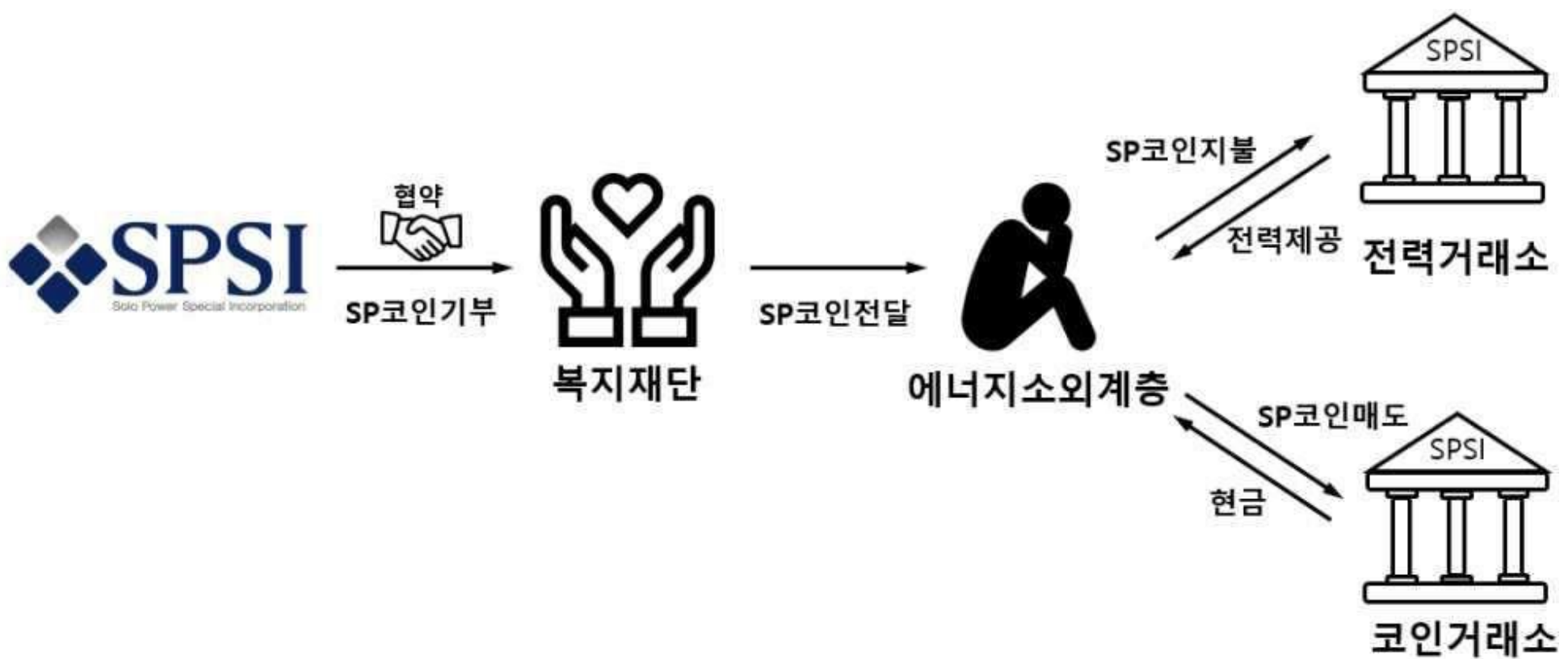
More than 50% of the world's power-inaccessible population lives in Africa. It is estimated to be about 600 million, and more than 90% of African elementary schools suffer from power shortages, hindering the educational environment of African children, and many are losing their lives due to lack of power in African hospitals. Africa's poorest pay the world's most expensive electricity bill, given that a woman living in northern Nigeria pays 60-80 times more per unit than a woman living in New York or London. SPSI aims to support the village's self-sufficiency by installing solar panels of SPSI in areas where the power supply chain is unstable, and the minimum power required for daily life is not supplied.



**Distribution chart by power-inaccessible population**  
(Source: African Development Bank Group)

13) 아프리카 에너지 뉴딜, 아프리카개발은행그룹

Polarization of power in Korea also emerges as a serious problem. SPSI plans to donate SP coin to the energy poor through proven organizations. If those who donated SP Coin want to purchase electricity directly, they can purchase electricity through the SPSI Power Exchange, and if they need cash, they can use it in cash on the coin exchange. SPSI will grow into a global leader who contributes to human life, creating sustainable earth and society by respecting human rights and playing a social and ethical role in contributing to social welfare and human development with four core values: human respect, mutual trust, social contribution, and pioneering.



SP coin donation plan



## 9. 회사소개

√ **Company name:** SPSI Co., Ltd.

√ **CEO:** MANJAE LEE

√ **Business field**

Manufacturing and selling flexible thin film type CIGS solar cells

√ **In progress**

- Completed the NuvoSun license of DOW Chemical in the U.S acquisition contract
- Scheduled to construct CIGS thin film solar module 150MW Korea Production
- MOU investment contract with a Malaysian investment company for a local post-process production plant.
- Investment consultations with investment companies in India, Turkey, and Saudi Arabia are underway.
- The contract was signed to purchase all of the products produced with Japanese company Best Edge.

### 전략 방향



### 핵심 가치

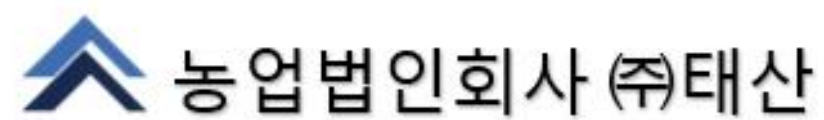


## 10. Partners



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### Affiliates



## Waiver

This white paper is intended only to convey information and is not an investment recommendation or proposal, but to help investors understand, so it is prohibited from using it for other purposes.

This white paper is not a contract or agreement and may be changed at any time at the discretion of the Company (including all individuals, advisors, institutions, etc. acting on behalf of the Company and its subsidiaries). In this case, we are not obligated to provide notification of the amendment, change, or amendment of this white paper.

We do our best to accurately provide the latest information on SP in this paper, but with advances in technology, we are free and actively changeable without prior notice, have no guarantee of the appropriateness, accuracy, and completeness of the information, and are not responsible for the absence of specific information. This white paper contains phrases for future predictions such as "Expectation," "Intention," "Planning," "Determined," "Scheduled," "Objectives," "Purpose," "Can," "Will," "Possible," "Planning," and "Scheduled." It also presents plans through roadmaps. These future forecast statements include known or unknown risks and uncertainties, and events or results can be quite different from those contained in this paper.

We will faithfully implement the contents of this white paper and strive for the development of SP, but such commitments do not guarantee SBT's intrinsic value, specific value or price increase, or return. In addition, SP does not belong to our equity capital and does not have the rights and powers.

The information specified in this white paper has not been reviewed or approved by any regulatory authority and therefore does not mean that the distribution of the white paper has complied with the relevant laws and regulatory requirements.

Cryptocurrency is not a legal currency, price volatility is very high, and it can be seriously affected by market conditions, government regulations, and technical limitations. In addition, regulators around the world are very cautious about cryptocurrency-related businesses and operations. In this regard, regulatory measures or investigations by the authorities may affect the business and delay or hinder the development of our future business. Therefore, cryptocurrency investors must decide to invest only at the discretion of the investor, and the responsibility for the loss also belongs to them. If necessary, the investor must fully consult with an expert on technology, law, finance, tax, or other issues under his or her responsibility before deciding to invest.

We are not liable for any direct or indirect loss caused by the information provided by the investor in this paper