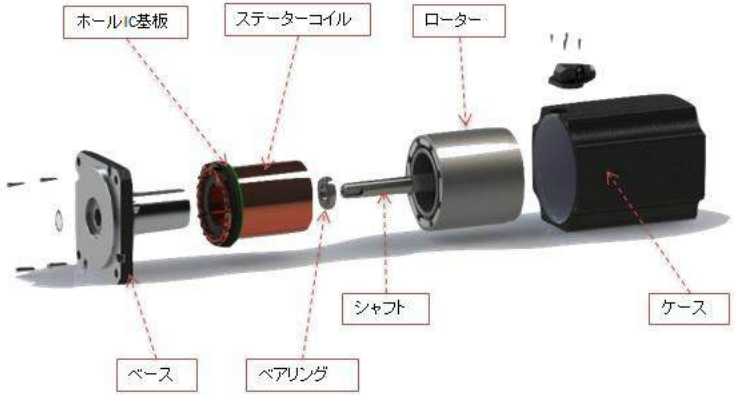
Proposal for Electric Vehicles (Three-Wheelers & Four-Wheelers) for Developing Countries

～ A Sustainable Mobility Solution Utilizing Coreless Motor and AI-Powered Battery Regeneration Technology ～

■ SSJ Holdings Co., Ltd.



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Phoenix Motors: An Electric Mobility Brand for a Sustainable Future

■ Launched as “Sustainable Automobiles”

Phoenix Motors was established under the concept of **“Sustainable Automobiles”**, with the mission to reduce environmental impact and promote the adoption of sustainable mobility solutions.
By leveraging cutting-edge **coreless motor technology** and a highly energy-efficient electric system, Phoenix Motors delivers next-generation mobility tailored to the needs of developing countries.

- **Symbolism:** Like a **phoenix**, the brand represents a new era of transportation rising from the old.
- **Key Values: Innovation**, **Sustainability**, **Affordability**
- **Vision:** “To provide clean and accessible mobility for everyone.”

■ “Made in Local Country” Model through Local Assembly Plants

- Instead of importing finished products, SSJ supplies parts and assembles vehicles at local factories in each country.
- This approach reduces transportation costs and creates local employment opportunities.
- Customized models are provided to comply with the regulations of each country.

■ Production System:

- Design & Parts Manufacturing: Led by SSJ Holdings
- **Parts Manufacturing Plant:** Planned to be established in China (currently under negotiation)
- **Production Guidance & Technical Support:** Provided locally to ensure quality and efficiency

PHOENIX MOTORS

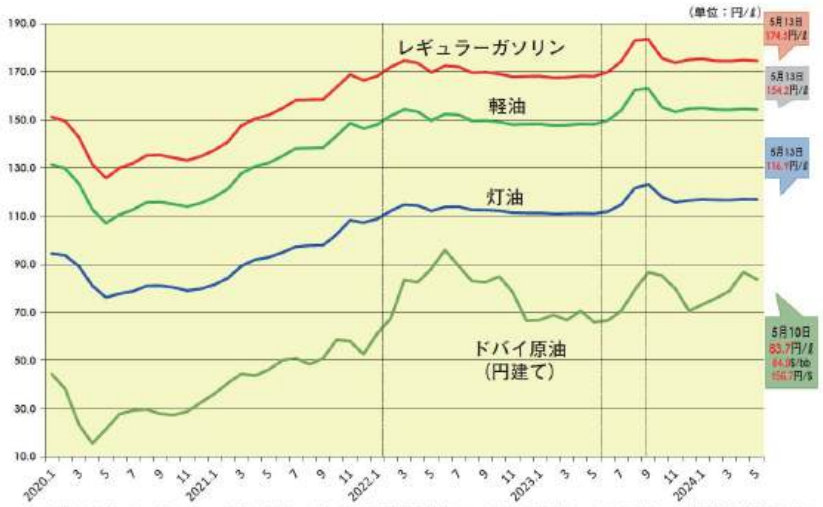
2． Project Overview （1/2）

Background

In developing countries, the demand for transportation is rapidly increasing due to population growth and urbanization. However, many regions face the following challenges:

- **Rising fuel prices:** The prices of gasoline and diesel are unstable, placing a heavy burden on low-income populations.
- **Environmental issues:** Lax emission regulations have led to severe air pollution in many cities.
- **Lack of infrastructure:** There are few paved roads, requiring durable vehicles for reliable transportation.
- **High transportation costs:** There is a strong need for affordable transportation options that low-income individuals can purchase and operate.

To address these issues, **SSJ Holdings Co., Ltd.** has launched an electric vehicle project tailored for developing countries.



（出典）レギュラーガソリン，軽油，灯油 （店頭）：「石油製品価格モニタリング調査」 ドバイ原油：日本経済新聞社調べ等
図表１ 国内石油製品小売価格と原油輸入価格

2. Project Overview （2/2）

Objective

The goal of **SSJ Holdings Co., Ltd.** is to provide environmentally friendly, low-cost, and highly durable electric vehicles, and to promote a transportation revolution in developing countries.
This project is centered around the use of **coreless motor technology** and focuses on the following three key pillars:

1. **Providing Affordable Mobility**
   Develop low-cost electric three-wheelers that can be easily purchased and used by local communities.
2. **Eco-Friendly and Sustainable Transportation**
   Introduce electric vehicles that produce zero CO_2 emissions and do not rely on fossil fuels, thereby contributing to the solution of air pollution problems.
3. **Revitalizing Local Industries and Creating Jobs**
   Manufacture key components in China and assemble vehicles at local factories in each country to generate employment and support the local economy.

Vision

"Enrich lives and protect the environment through electric mobility."
SSJ Holdings Co., Ltd. aims to revolutionize transportation in developing countries and build a sustainable future.

- **Lower costs and broader adoption through local production**
- **Integration of battery regeneration technology** to provide long-lasting and sustainable vehicles
- **Implementation of coreless motor technology** to achieve lightweight, high-efficiency, and long-lifespan mobility solutions

Through this project, we aim to solve transportation challenges in developing countries while balancing **economic development** and **environmental protection**.

3. Features and Benefits of the New Mobility Concept

① Coreless Motor Technology × ② AI-Powered Battery Regeneration = The Ultimate Electric Mobility Solution

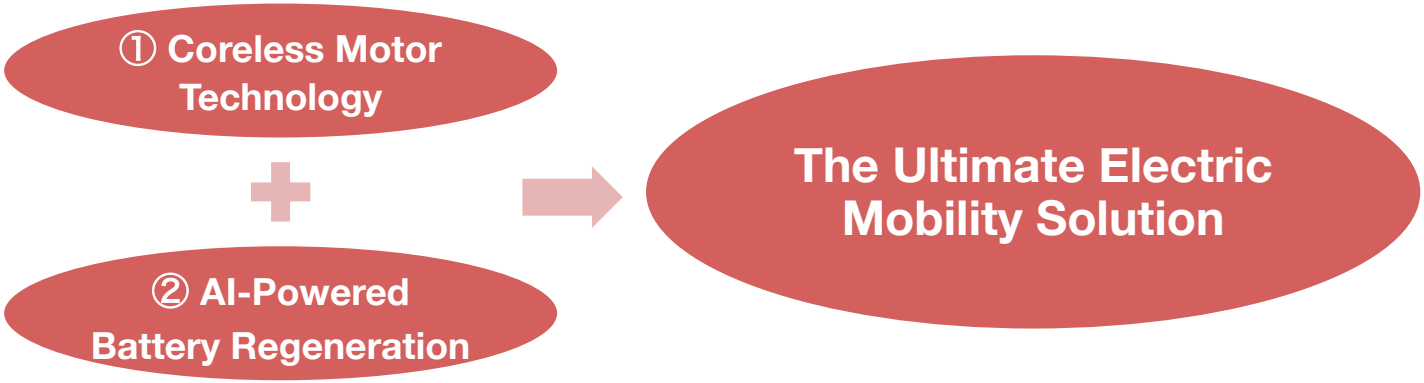
Phoenix Motors, a new brand launched by **SSJ Holdings Co., Ltd.**, introduces a new mobility category called **"Sustainable Automobiles"**, offering next-generation electric vehicles tailored for the future.
At the heart of this innovative mobility concept are **two advanced technologies**:

① Coreless Motor Technology – Integration of Drive, Brake, Charging, and Shifting Functions

By adopting coreless motor technology, Phoenix Motors' electric vehicles achieve five key functions with a single wheel: "Driving, Braking, Charging, Shifting, and Automatic Transmission."
This enables the development of a smooth, high-efficiency drive system that maximizes overall vehicle performance.

② AI-Powered Battery Regeneration – Sustainable Energy Management

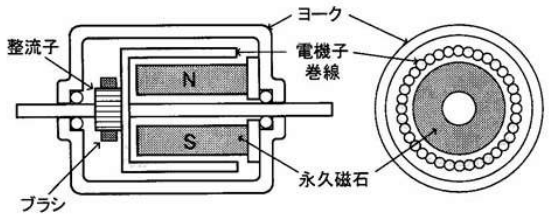
In addition, the integration of a proprietary AI-powered battery regeneration system allows the vehicle to automatically charge and restore the battery during non-driving hours.
This system helps reduce battery degradation, resulting in longer-lasting and more sustainable electric mobility.
The vehicles are also equipped with dual power sources—a primary and a secondary battery—to ensure stable power supply and provide drivers with peace of mind.
Even during long-distance travel, the risk of running out of power is minimized, enabling continuous and reliable operation.



Features and Benefits of Coreless Motor （1/4 ）

What is a Coreless Motor?

A coreless motor is a type of electric motor that does not contain a traditional iron core. In conventional motors, coils are wound around an iron core to generate a magnetic field. In contrast, a coreless motor generates motion by rotating the coil itself, eliminating the need for the iron core.
This unique structure results in a lightweight, high-efficiency, and low energy-loss design, making it an ideal choice for electric mobility.
Furthermore, our coreless motor adopts a hollow structure, allowing space inside the motor for an integrated gear unit.
In traditional motors, the gearhead is a separate component and typically accounts for about 50% of the total volume, making compact design difficult.
With our integrated design, the gear mechanism is housed within the motor, enabling a more compact and quieter configuration.
Additionally, by optimizing the gear ratio, the motor can fully leverage its efficiency at high rotational speeds.
This innovative technology enables the development of a lightweight, energy-efficient, and low-maintenance drive system, providing an optimal mobility solution for electric three-wheelers in developing countries.



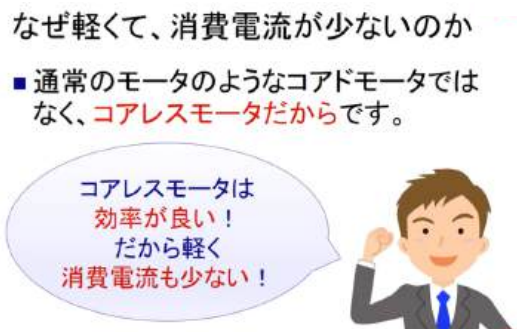
コアレスモータの構造

Volume reduced to less than 50% compared to traditional motor + gearhead configurations.

Key Features of Coreless Motors

The innovative structure of coreless motors offers the following characteristics:

#	Feature	Description	Benefit
1	Lightweight & Compact	No iron core, making the motor lighter than conventional types. Reduces vehicle weight.	Enables slim vehicle design and improves energy efficiency.
2	High Efficiency & Low Energy Loss	No core losses or hysteresis loss.	Reduces battery consumption and extends driving range.
3	Smooth Rotation (Low Cogging)	No cogging (jerky rotation), enabling smooth operation.	Provides stable torque even at low speeds, ideal for urban transportation.
4	High Torque & Fast Response	Lightweight rotor allows for high rotational speed and torque output.	Delivers strong driving power even on slopes or rough roads.
5	Long Life & Low Maintenance	Minimal mechanical friction and fewer wear parts. Low motor heat generation.	Requires less maintenance and ensures long-term usability.
6	Low Noise & Low Vibration	No magnetic distortion due to absence of iron core, resulting in quiet operation.	Suitable for use in urban and residential areas due to high acoustic comfort.



Features and Benefits of Coreless Motor （3/4 ）

Comparison: Coreless Motor vs. Conventional Motor

#	Item	Coreless Motor	Conventional Motor
1	Weight	Lightweight ◎	Heavy (with iron core) X
2	Energy Efficiency	High efficiency (no core loss) ◎	Moderate (with core loss) △
3	Smooth Rotation	No cogging ◎	Cogging present X
4	Torque Performance	High torque & fast response ◎	Standard ○
5	Maintenance	Low maintenance ◎	High maintenance (with wear parts) X
6	Noise & Vibration	Low noise & low vibration ◎	Noticeable vibration & noise X

コアドモータ、コアレスモータの相違点

1. 重量
2. 高速回転の可不可
3. 消費電流値の好悪
4. コギングの有無

重量

- コアドモータ：重い
- コアレスモータ：軽い
- コアドモータは鉄心に銅線を巻いてコイルを形成しているため、重くなってしまう。

従来コアドモータ

当社コアレス

Advantages of Coreless Motors in Electric Vehicles

By adopting coreless motors in its electric vehicles, **SSJ Holdings Co., Ltd.** offers the following key benefits:

◎ **Extended Driving Range:** With minimal energy loss, vehicles can travel longer distances on the same battery capacity.

◎ **Enhanced Driving Comfort:** The cogging-free design provides a smooth and comfortable ride.

◎ **Low Operating Costs:** Reduced wear and tear enable long-term use and lower maintenance expenses.

◎ **Excellent Performance on Slopes and Rough Roads:** High torque output ensures stable driving even on unpaved roads common in developing countries.

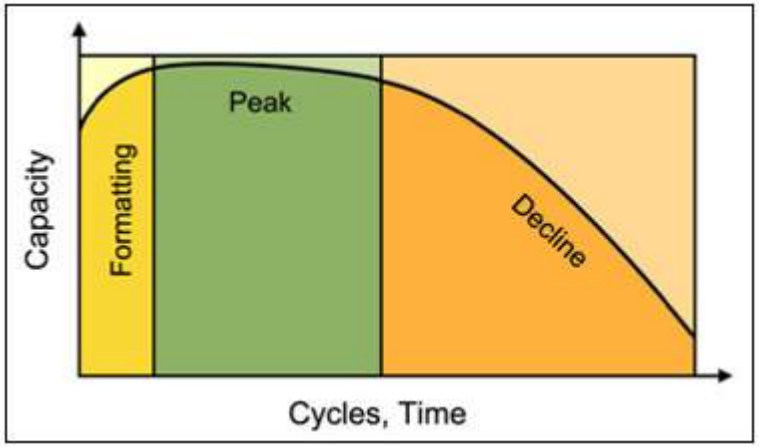
Applications of Coreless Motors

In addition to SSJ Holdings Co., Ltd.'s electric vehicles, coreless motors are widely used in various fields:

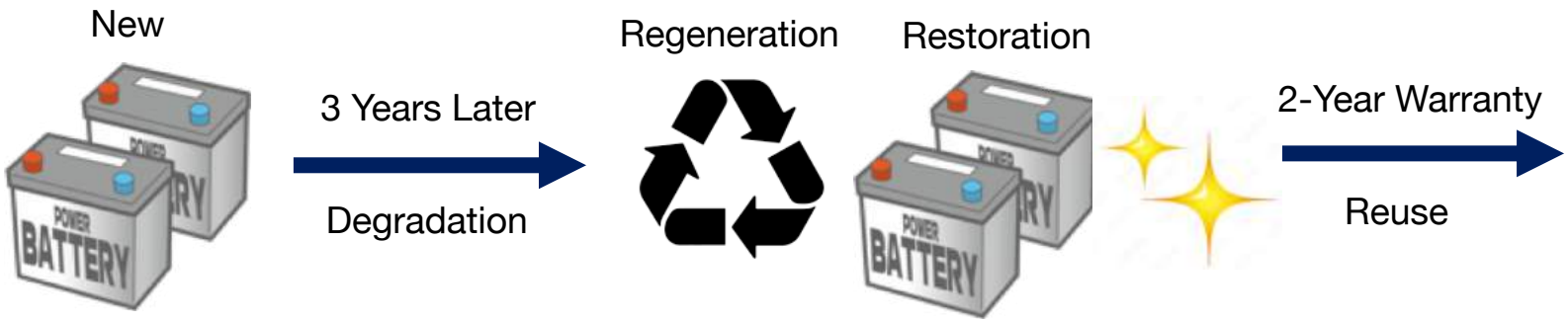
- **Electric Mobility** (three-wheelers, EV bikes, golf carts)
- **Drones and Aircraft Components** (where lightweight design is essential)
- **Medical Devices** (such as pumps and surgical robots requiring precision)
- **RC Cars and Robotics Industry** (applications requiring compact size and high torque)

What is an AI-Powered Battery Regeneration System?

Lead-acid batteries are widely used in vehicles, ships, and other applications. Without these batteries, vehicles cannot start their engines, and essential functions such as headlights and air conditioning will not operate. However, batteries are consumable components and typically reach the end of their lifespan after about three years.
A **battery regeneration system** is a technology designed to restore used and degraded batteries to a condition similar to that of a new one. This technology makes it possible to **reuse batteries that would otherwise be discarded**.
Phoenix Motors' Sustainable Automobiles are equipped with this **AI-powered battery regeneration system**.



自動車用鉛バッテリー
（12V電圧）



Efficient Regeneration Using Pulse and AI Technology

The **AI-powered battery regeneration system** utilizes specific electrical pulses during both charging and discharging cycles to remove impurities inside the battery and restore its performance.
Furthermore, by leveraging **AI technology**, the system analyzes the battery's condition in real-time and automatically adjusts the regeneration process for optimal results.
This enables a more **efficient and reliable battery restoration** compared to conventional methods.

Shortening Regeneration Time with Nano-Based Dilute Sulfuric Acid Solution

A **nano-based dilute sulfuric acid solution** is used to **quickly and effectively remove impurities and sulfation (lead sulfate crystals)** from inside the battery, significantly shortening the regeneration time.
This specialized solution enables **rapid and thorough internal cleaning of the battery**, enhancing the overall efficiency of the regeneration process.
As a result, it is possible to achieve **high-quality restoration in a much shorter time** compared to conventional methods.
Thanks to these technologies, **Phoenix Motors' Sustainable Automobiles** deliver **high regeneration efficiency and reliability**, while also contributing to **environmental protection**.

① Pulse (Electrical Signal) → Removal of impurities inside the battery

② Utilization of AI Technology → Real-time analysis and optimization of the regeneration process

Nano-Based Dilute Sulfuric Acid Solution → Enables high-quality regeneration in a short period of time

5． Product Lineup （1/2）

Next-Generation Electric Vehicles Equipped with Coreless Motors

SSJ Holdings Co., Ltd. offers electric vehicles designed to support transportation, logistics, and social infrastructure in developing countries.
Utilizing coreless motor technology, these models contribute to **reduced environmental impact**, **low operating costs**, and the realization of a **sustainable society**.

1. Electric Three-Wheeler (E-Trike / Tuk-Tuk Type)

✓ **Key Features:**
- **Usage:** Passenger transport and logistics (taxis, deliveries, commercial use)
- **Motor:** Coreless motor (hub-in motor type)
- **Drive System:** Simple structure with a single motor
- **Battery:** Compatible with rechargeable lead-acid batteries
- **Range:** Up to 150 km per charge
- **Top Speed:** 50–70 km/h (depending on model)
- **Price Range:** ¥300,000–¥400,000

✓ **Benefits:**
- Lightweight design reduces battery consumption and enables long-distance travel
- Simple structure lowers production cost and allows for easy maintenance
- Ideal for passenger transport and delivery services

✓ **Target Markets:**
- Myanmar, Bangladesh, Nigeria, Laos, Indonesia, India

5． Product Lineup （2/2）

2． Electric Four-Wheeler (E-Car / Golf Cart Type)

✓ **Key Features:**
- **Usage:** Short-distance travel, transportation within resorts, factories, and warehouses
- **Motor:** Equipped with 2 coreless motors (2-wheel drive)
- **Drive System:** Rear-wheel drive with optional 4-wheel drive
- **Battery:** Compatible with rechargeable lead-acid batteries
- **Range:** Up to 100 km per charge
- **Top Speed:** 50 km/h
- **Price Range:** ¥400,000–¥500,000

✓ **Benefits:**
- Environmentally friendly, ideal for use in resorts and industrial facilities
- Rechargeable, with lower maintenance and operating costs compared to gasoline vehicles
- Stable driving performance with two coreless motors

✓ **Target Markets:**
- Hotels and resorts, golf courses, factories, warehouses, tourist destinations

3． Special-Purpose Models (For Logistics, Agriculture, and Medical Use)x Electric Mini Truck (E-Delivery)

◆ **Electric Mini Truck (E-Delivery)**
- **Feature:** A compact logistics vehicle designed with enhanced load capacity for delivery operations

◆ **Electric Agricultural Vehicle (E-Agri)**
- **Feature:** A durable model ideal for transport and mobility on farms and agricultural fields

◆ **Mobile Medical Vehicle (E-Med)**
- **Feature:** A mobile clinic vehicle designed for rural healthcare services and disaster relief support

6. Target Markets and Expansion Strategy （1/4）

SSJ Holdings' Market Strategy to Lead Mobility Transformation in Developing Countries

SSJ Holdings Co., Ltd. aims to provide electric mobility solutions to address transportation challenges in developing countries, focusing on fast-growing economies. The company is particularly targeting countries experiencing rapid urbanization, where the demand for affordable and efficient transportation is increasing. The strategy is tailored to meet the specific needs of each local market.

1. Target Markets

Focus Countries: **Myanmar, Bangladesh, Nigeria, Laos, Indonesia, India**

#	Country	Market Characteristics	Target Users
1	Myanmar	Underdeveloped public transport infrastructure; high demand for three-wheeler taxis	Taxi operators, individual transport providers
2	Bangladesh	Severe traffic congestion in major cities; demand for eco-friendly transportation	Small logistics firms, delivery operators
3	Nigeria	Motorcycle taxis are common; heavily impacted by rising fuel prices	Taxi companies, individual vehicle owners
4	Laos	Limited transportation options in rural areas; high demand for affordable EVs	Farmers, logistics operators
5	Indonesia	Fuel transport is difficult in island regions; EVs help reduce costs	Delivery services, tourism businesses
6	India	Government is promoting electric mobility; infrastructure is developing rapidly	Taxi operators, rickshaw businesses

6. Target Markets and Expansion Strategy （2/4）

2. Deployment Strategy

① Local Assembly Cost Reduction & Job Creation

◆ **Establish local assembly plants in each country to promote a "Made in Local Country" model.**

- Assembling vehicles locally helps reduce transportation costs and create local jobs
- Models are tailored to comply with each country's regulatory requirements

② Affordable & Localized Models

◆ **To provide affordable electric vehicles suited for developing countries:**

- **Pricing:** ¥300,000–¥500,000 per unit (more affordable than conventional EVs)
- **Simple Design:** Facilitates easy maintenance and minimizes repair costs
- **Localized Solutions:** In areas without charging infrastructure, swappable battery models will be introduced

③ Introduction of Financing Models

◆ **Easy purchasing through installment plans and leasing:**

- Lower upfront costs through monthly installment payments
- Leasing plans available for taxi operators and small businesses
- Launch of EV programs leveraging government subsidies

④ Partnership Strategy

◆ **Accelerate market entry through collaboration with local businesses and governments:**

- Reduce initial investment burden via financing options
- Tailored leasing plans for taxi companies and small enterprises

6. Target Markets and Expansion Strategy （3/4）

3. Marketing Strategy

■ SNS & Digital Marketing

- Utilize platforms such as Facebook, YouTube, and WhatsApp to boost brand awareness in local markets
- Share real user reviews and demonstration videos to enhance purchase motivation

■ Local Events & Test Drive Experiences

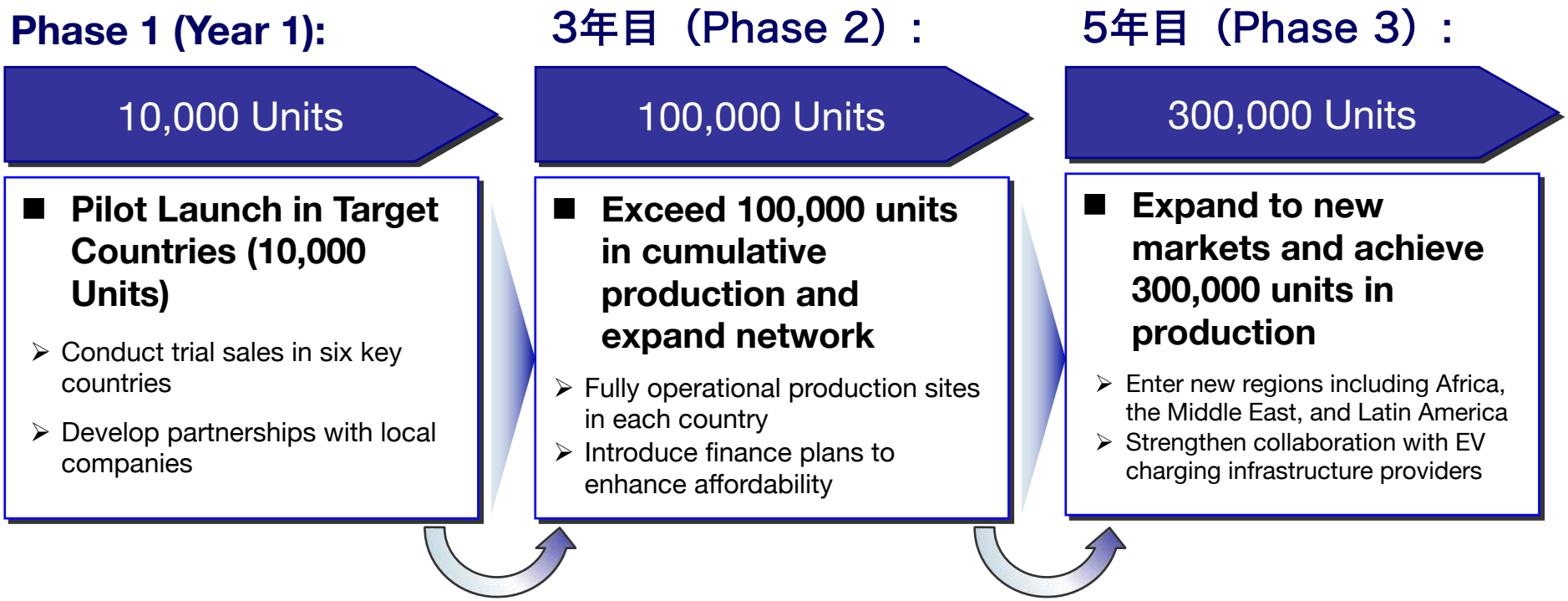
- Organize test drive events in target markets to allow users to experience ride comfort
- Establish local sales networks through partnerships with local dealerships

■ B2B Promotions

- Offer corporate discounts to delivery service providers and taxi companies
- Collaborate with commercial facilities and tourist destinations for pilot programs in EV sharing services

6. Target Markets and Expansion Strategy （4/4）

4. Phase-Based Market Expansion Plan



SSJ Holdings Co., Ltd. will offer affordable, high-performance electric vehicles tailored to the needs of developing countries. By adapting sales, production, and financial strategies to local infrastructure and markets, we aim to build a **sustainable EV market** based on:
Local Assembly × Localization × Finance Models.

7. Production Plan and Objectives （1/3）

Cost Reduction and Market Expansion Strategy through Local Production

SSJ Holdings Co., Ltd. aims to establish a large-scale supply of electric three-wheelers and four-wheelers suited for developing markets. To achieve this, we are promoting production base optimization and a scalable manufacturing strategy.
By gradually increasing production starting from the first year, we plan to build a sustainable supply system with a goal of **1 million cumulative units produced by 2030**.

1. Establishing Production Bases and Local Manufacturing Model

Main Production Sites:

- **Design & Development:** SSJ Holdings (Headquarters)
- **Parts Manufacturing:** China (Factory negotiations underway)
- **Local Assembly:** Myanmar, Bangladesh, Nigeria, Laos, Indonesia, India

We will set up assembly plants in each country and promote a “Made in Local Country” model:

- ✓ **Reduced Transport Costs:** Instead of exporting finished vehicles, we supply parts and assemble them locally.
- ✓ **Job Creation:** Introduce assembly lines operated by local staff.
- ✓ **Tax Incentives:** Benefit from reduced import duties through local production.

7. Production Plan and Objectives （2/3）

2. Production Schedule and Expansion Plan

Production will be scaled up in **three phases**:

Phase	Target Production Volume	Strategy
Phase 1 (2025)	10,000 units	Conduct market testing and launch sales in the six key target countries.
Phase 2 (2028)	100,000 units	Full-scale operation of local production lines and market expansion to neighboring countries.
Phase 3 (2030)	300,000 units	Establish additional production bases and expand into Africa, the Middle East, and Latin America.

Cumulative production goal by 2030: 1 million units

3. Strategies to Improve Production Efficiency

SSJ Holdings Co., Ltd. will implement the following strategies to reduce production costs while improving quality:

Modularization and Standardization of Parts

- Standardize key components for both three-wheelers and four-wheelers to reduce procurement costs.
- Unify specifications for coreless motors, batteries, and frames.

Partnerships with Local Suppliers

- Source some parts locally to reduce component costs.
- Customize production to meet the regulatory requirements of each country.

Introduction of Smart Manufacturing Technologies

- Optimize production management using IoT solutions.
- Automate quality inspection to reduce defect rates.

7. Production Plan and Objectives （3/3）

4. Sales & After-Sales Service Structure

SSJ Holdings Co., Ltd. is simultaneously expanding its sales network and enhancing after-sales service.

- **Establishing Sales Channels**
  - Build a network of authorized dealers and partner with local retailers.
  - Introduce an online sales platform to improve purchase convenience.
- **Strengthening After-Sales Service**
  - Set up service centers in each country to reinforce maintenance support.
  - Introduce a battery exchange system to enable quick battery refresh and replacement.

5. Conclusion

SSJ Holdings Co., Ltd. aims to achieve both cost reduction and market expansion through phased production scaling and the implementation of local production models.
By 2030, the company targets a cumulative production of **one million units**, positioning itself as a leading EV manufacturer in the mobility market of developing countries.




8. Company Profile

Company Name	SSJ Holdings Co., Ltd.
Date of Establishment	September 29, 2011
Location	Yanmar Tokyo Building, 12th Floor, 2-1-1 Yaesu, Chuo-ku, Tokyo 104-0028
Contact Information	TEL: +81-3-6664-9254 FAX: +81-3-6664-9255
Capital	60,500,000 JPY
Representative	Hitoshi Hajime
Business Activities	• Planning, development, manufacturing, and sales of small generators • Planning, development, manufacturing, and sales of various electrical machinery and equipment • Planning, development, manufacturing, and sales of special materials • Planning and development of various manufacturing technologies • Management consulting for companies
Banking Partners	Mitsubishi UFJ Bank, Jiyugaoka Branch、Gunma Bank, Tsumagoi Branch
Key Clients	Domestic: JA Zen-Noh, Zen-Noh Livestock Service Co., Ltd., JR and private rail companies, NEXCO West Japan, Japan General Housing Services, G-Three Holdings, Image One Co., Ltd., Unilot Co., Ltd.Overseas: SSJ Korea, SSJ China, NAHFCONNECTS (Nigeria)
Development Projects	Flat panel speakers, JA Zen-Noh products, disinfection robots