

Efforts to Realize Zero-Emission Plants Friendly to Global Environment and People

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Environmental Regulations Surrounding World's Industries



A European Green Deal

Fit for 55

2030: Reduction of GHG emissions by 55% from 1990 levels

2035: All new cars or vans placed on the market in the EU from 2035 should be zero-emission vehicle.(2022)

Regulation on Ecodesign for Sustainable Products

Revised Regulation on Waste Shipments

Revised ELV (End-of life vehicles) Directive
Reuse/recycle: at least 85%
Reuse/recovery: at least 95%



New Energy Vehicle Industry Development Plan (2020)

2025: NEV sales account for 20% of the country's total vehicle sales by 2025.

Development Plan for the Circular Economy in the 14th Five Year Plan Period (2020)

China's Solid Waste Import Ban(2021)



Inflation Reduction Act (2022)

It provides \$369 billion for climate resilience and energy security.

2030: Executive order with 50% of all new passenger cars and light trucks sold in 2030 be zero-emission vehicles. (2021)

National Recycling Strategy (2021)

Recycling rate of 50% by 2030

Revised Clean Water Act



2035: All new cars sold to be electric

Revised Law Concerning the Promotion of the Measures to Cope with Global Warming (2022)

Act on Promotion of Resource Circulation for Plastics (2022)


Revised Basel Convention (2021)

Target scope expanded for regulations on import and export of contaminated waste plastics

Paris Agreement (2015)

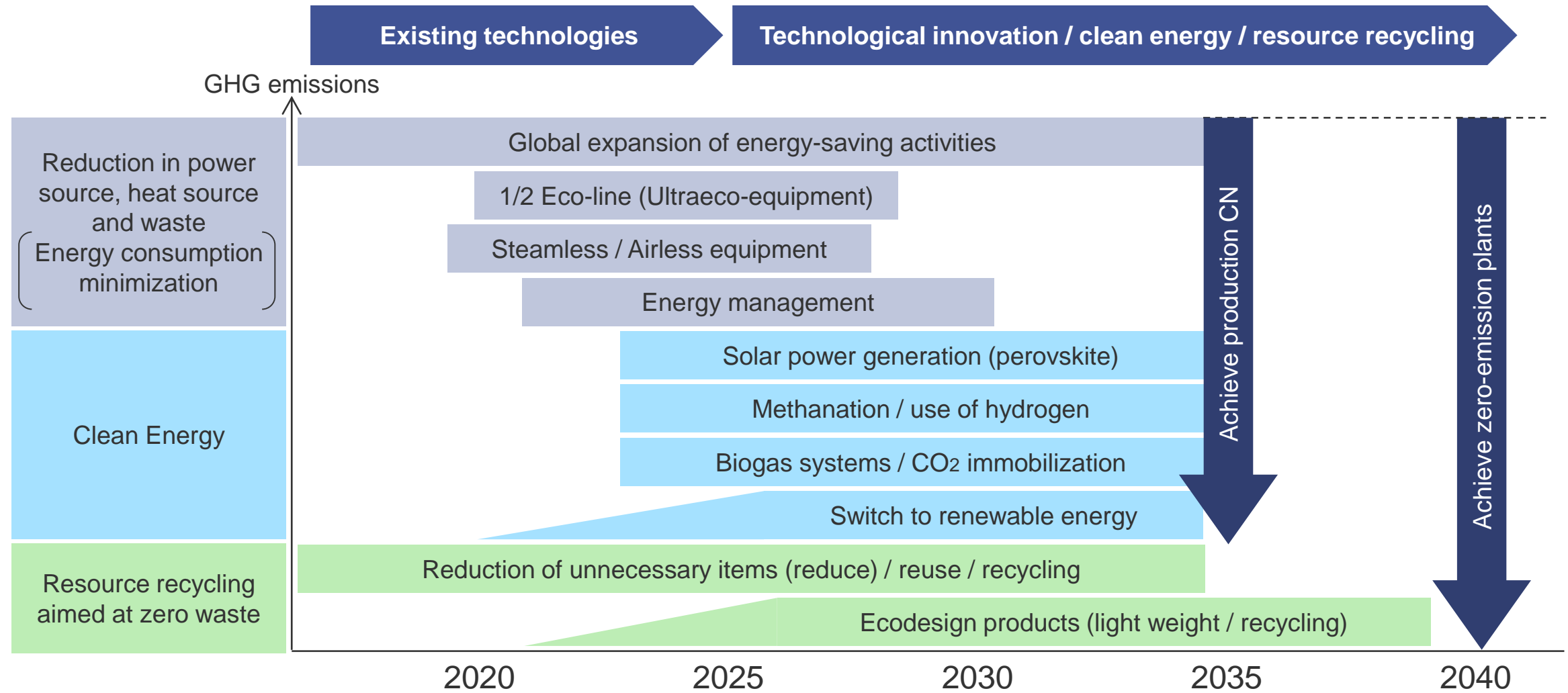
Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.

 : Energy, GHG

 : Resource recycling

Regulations on energy and resource recycling have become stricter


Roadmap for Zero-Emission Plants



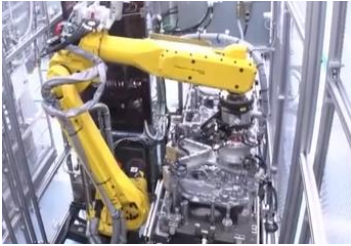
Work to achieve 2035 production CN and 2040 zero-emission plants

Roadmap for Production Lines by 1/2 (Half)

Linked / merged using sophisticated ICT



1 stroke press
(T/F → single)



Flexible robot unit
(compact, for multiple models)

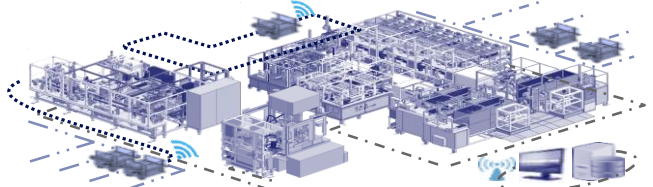


Flexible lines for mixed multiple-model production (35% less volume)

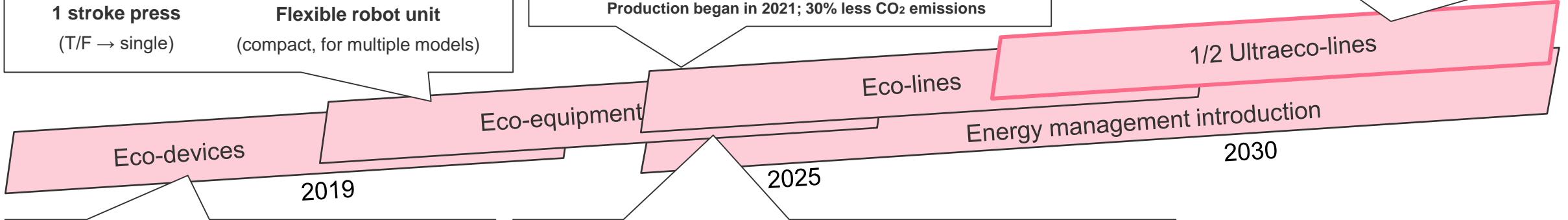


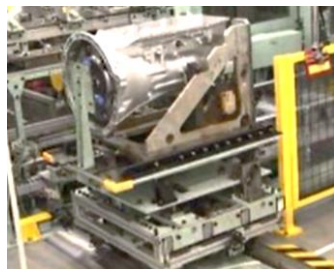
Production began in 2021; 30% less CO₂ emissions

Fully automated 24h operating lines




60% less CO₂ emissions



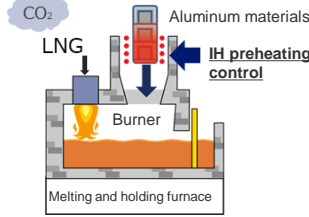


Karakuri mechanism
(nonpowered transport equipment)



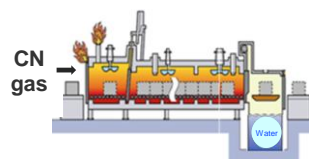
Nonhydraulic / low thrust
(press-fitting/assembly equipment)

Aluminum melting furnace

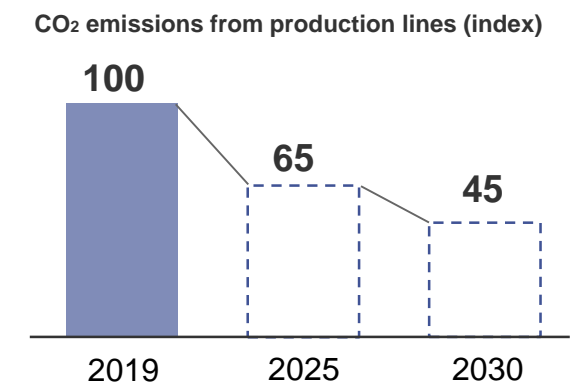


Hybrid melting (1/2 volume)
Implementation begun 2024
60% less CO₂ emissions

Carburizing furnace



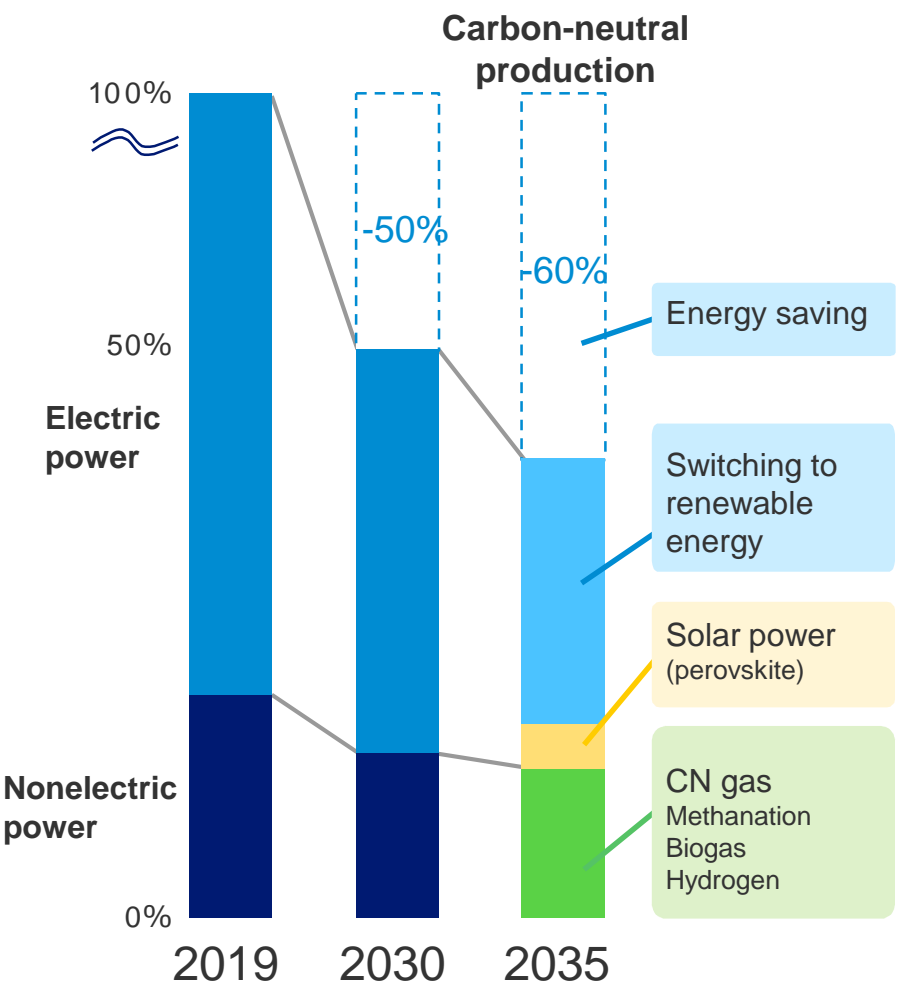
Inline compact heat treatment (cold oil/water quenching)
Implementation begun 2026
50% less CO₂ emissions



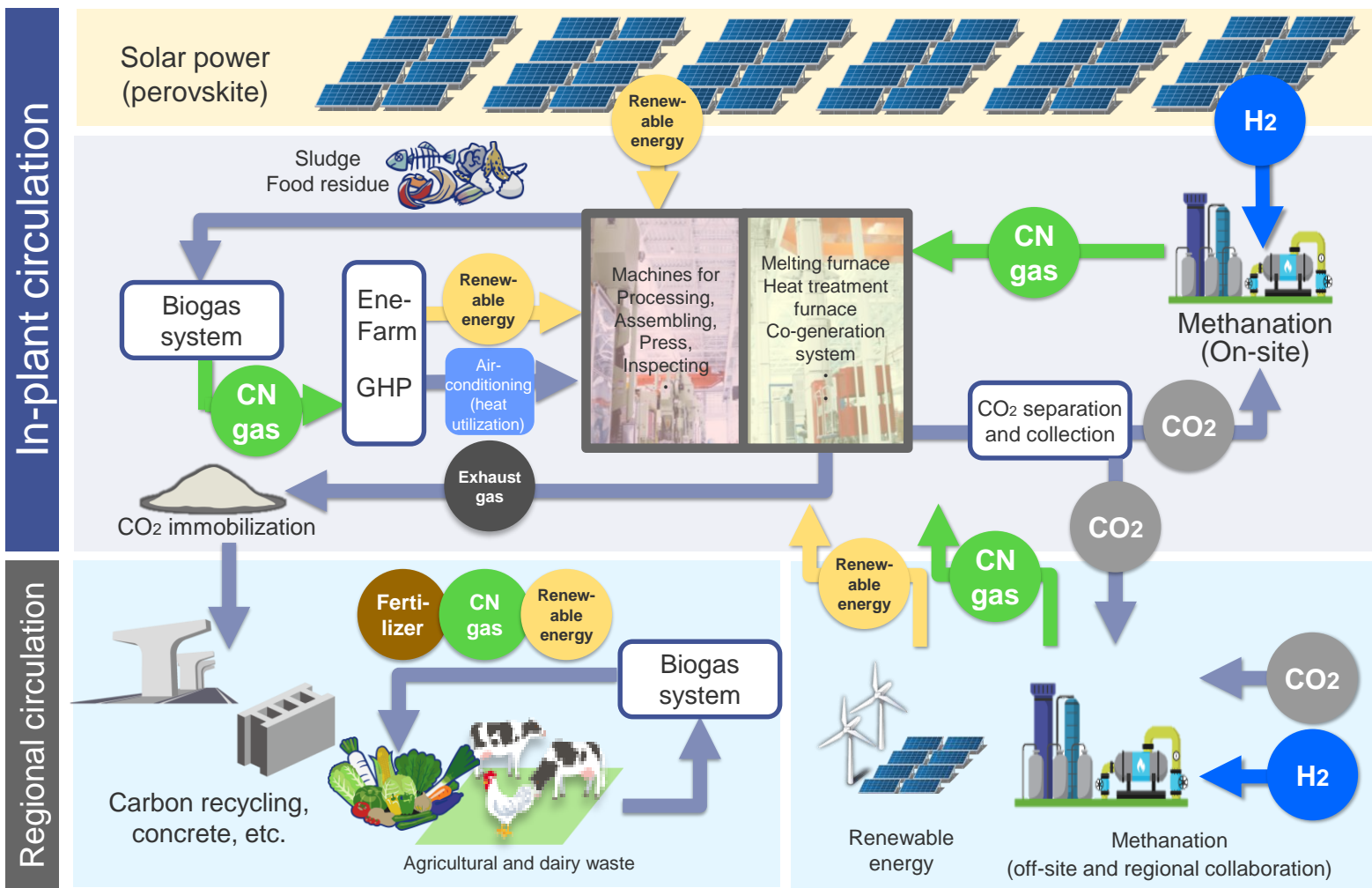
Reducing CO₂ emissions by innovative technologies and Ultraeco-lines

Clean Energy and Energy Circulation Activities

Aisin's production CO₂ reduction



Energy circulation

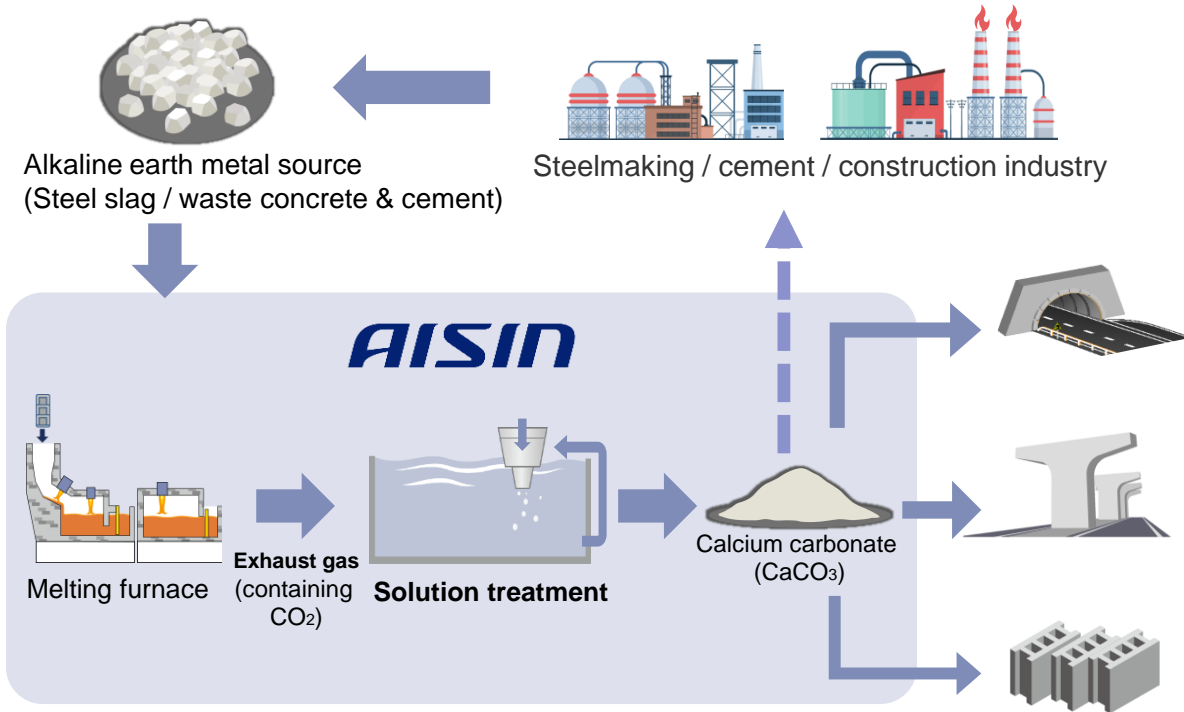


Circulating energy through the development and introduction of clean energy technology

Recycling CO₂ and Waste

CO₂ fixation

Recycling industrial by-products with the use of “plant exhaust gas and waste heat”

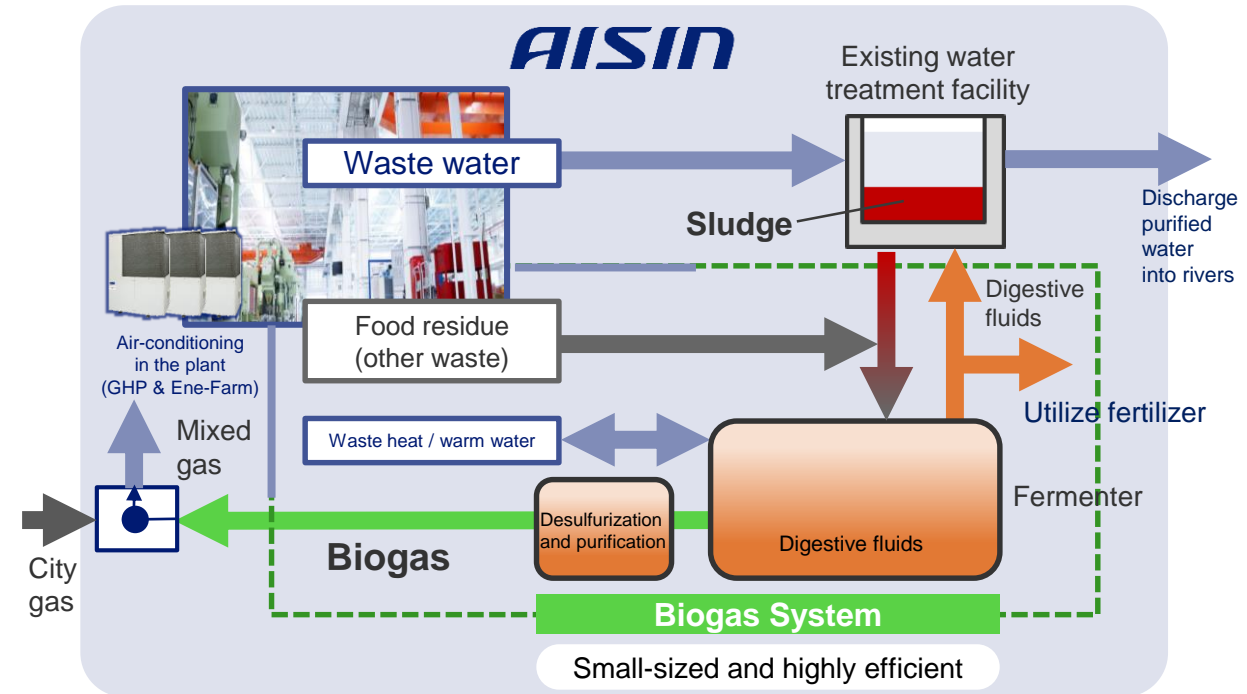


CO₂ utilization amount

2023	2025	From 2026
Start of test run at manufacturing line 2 t-CO ₂ /year	Start of test run at plants 200 t-CO ₂ /year	Upsizing market launch

Biogas System

Recycling “food residue / sludge, and other waste” (Utilization of plant waste heat)



Waste recycling

2023	2024	From 2025
Start of test run at plant 17 t/year	Expand to major plants 142 t/year	Expand to all Aisin group plants

Resource recycling by using exhaust gas, industrial by-products, and waste

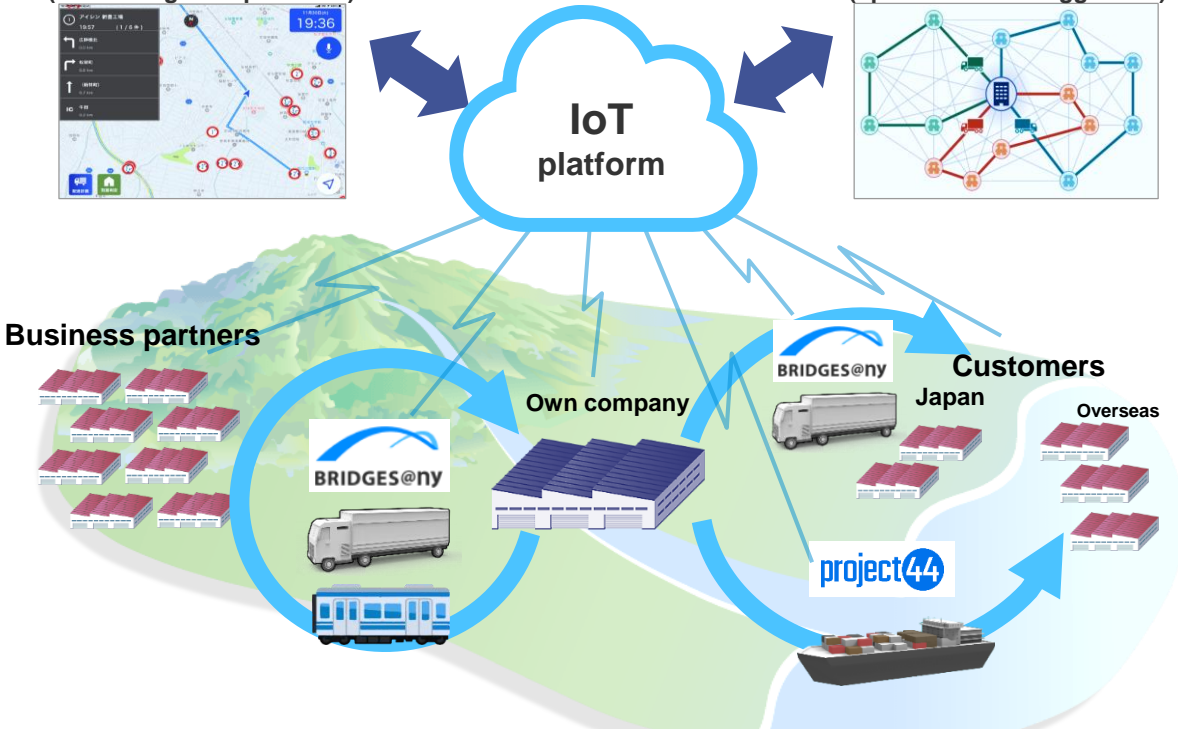
CO₂-less Logistics

Optimize and improve efficiency of entire logistics value chain

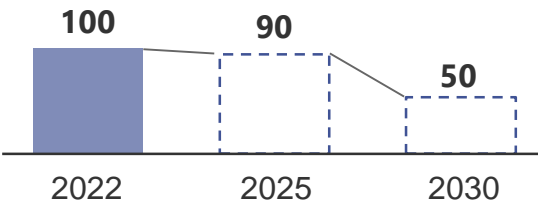
Status management
(visualizing transportation)



Quantum CP
(optimum route suggestion)



CO₂ emissions from transportation (index)

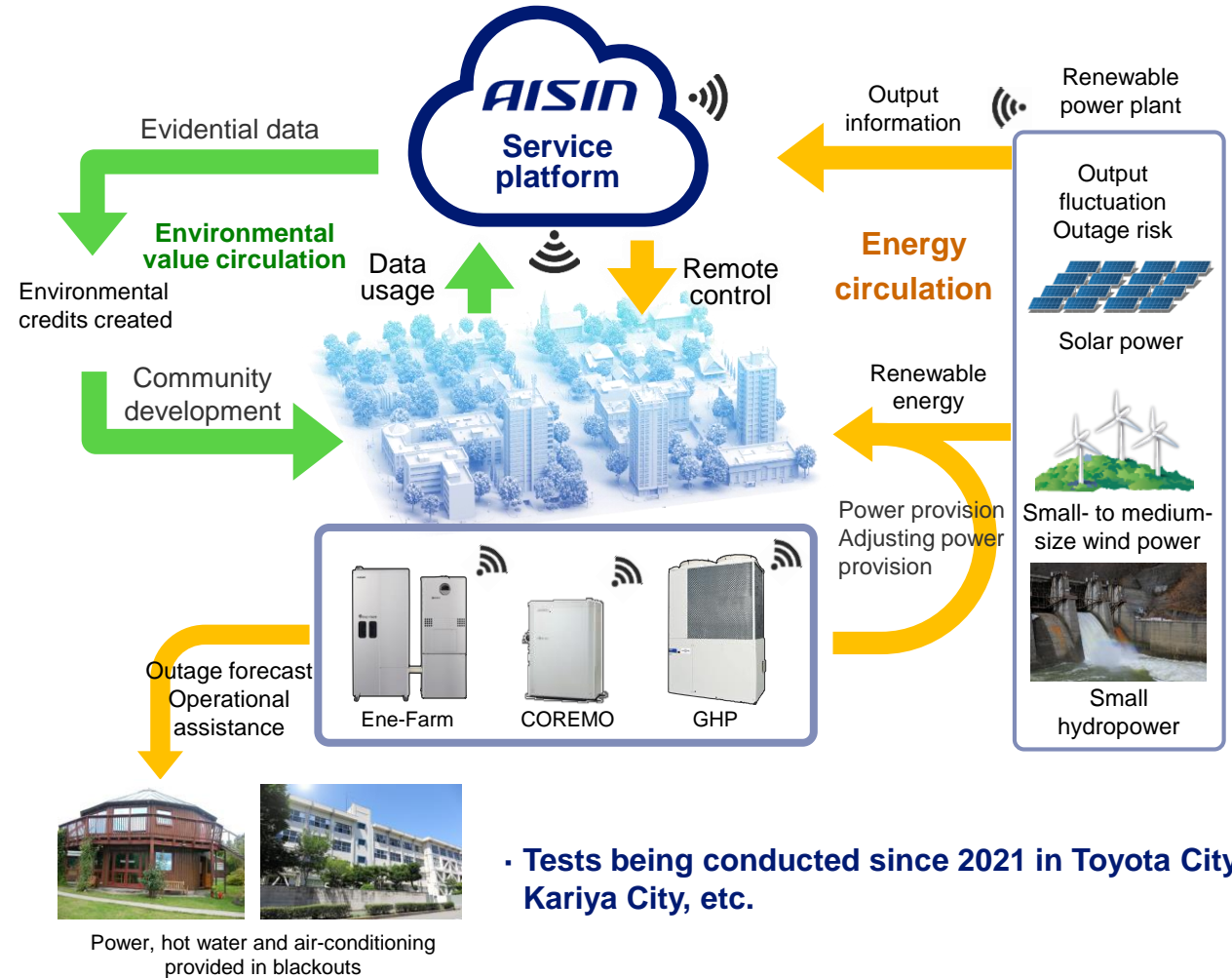


- Tests begun in 2022 on model routes
- To be introduced to all routes in period from 2025 to 2030

Contribution to Community Development



Contribute to reducing CO₂ emissions through circular community development



- Tests being conducted since 2021 in Toyota City, Kariya City, etc.

Achieve carbon neutrality by optimizing the logistics and development of circular communities

Market Implementation of Environmental Technologies

Logistics solutions



- Value chains
- Optimization

Perovskite solar power



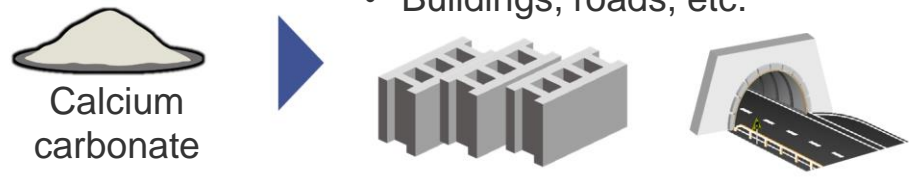
- Buildings and mobility areas

Biogas power generation system



- Dairy farming and agriculture

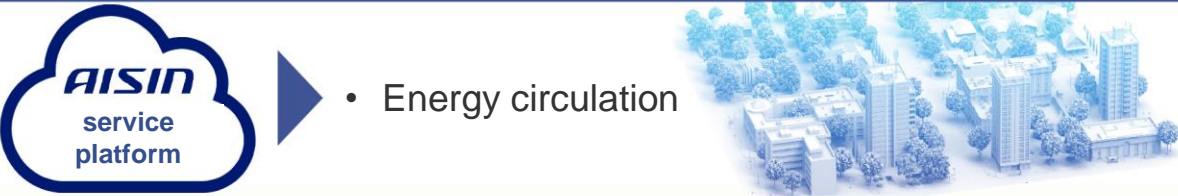
CO₂ fixation system



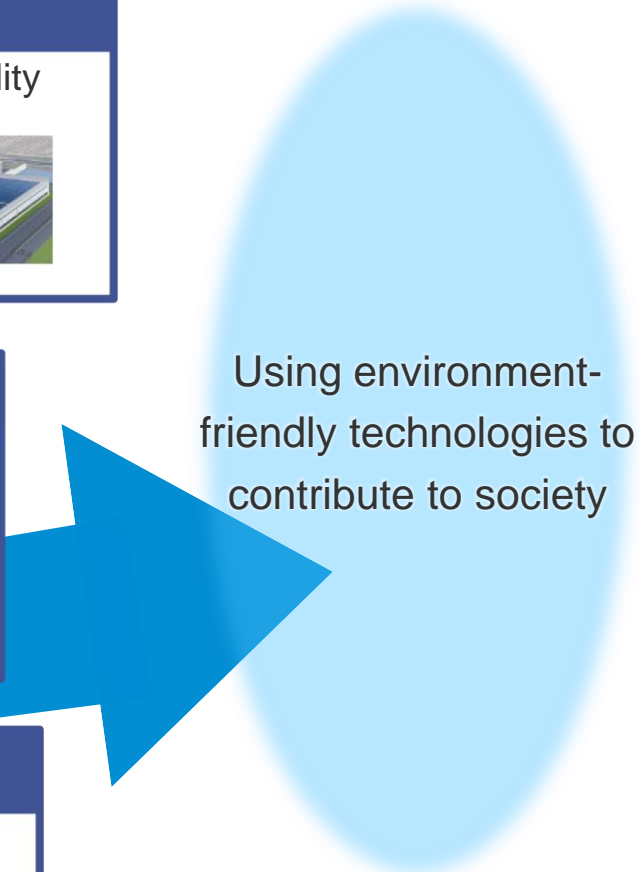
Calcium carbonate

- Buildings, roads, etc.

Energy device linking/use

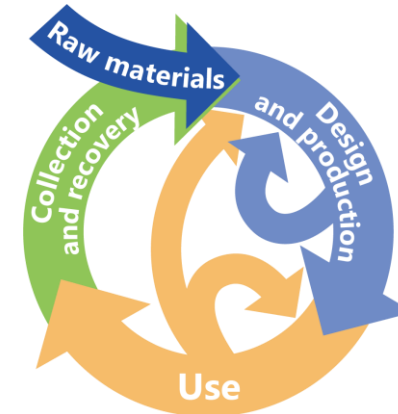
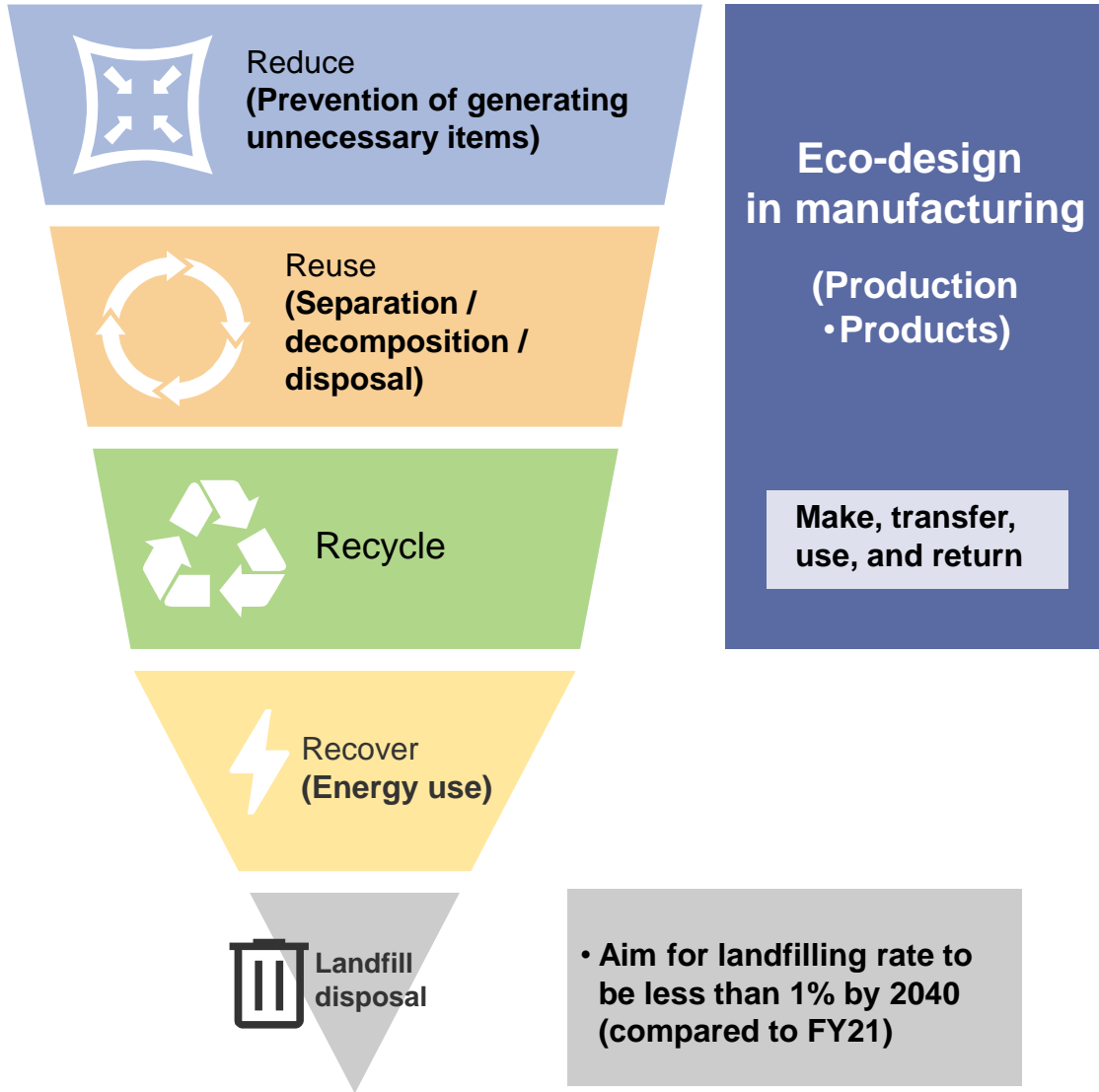


- Energy circulation



Develop new business areas, worth 100 billion yen, by environmental technologies

Resource Recycling That Aims at Zero Waste

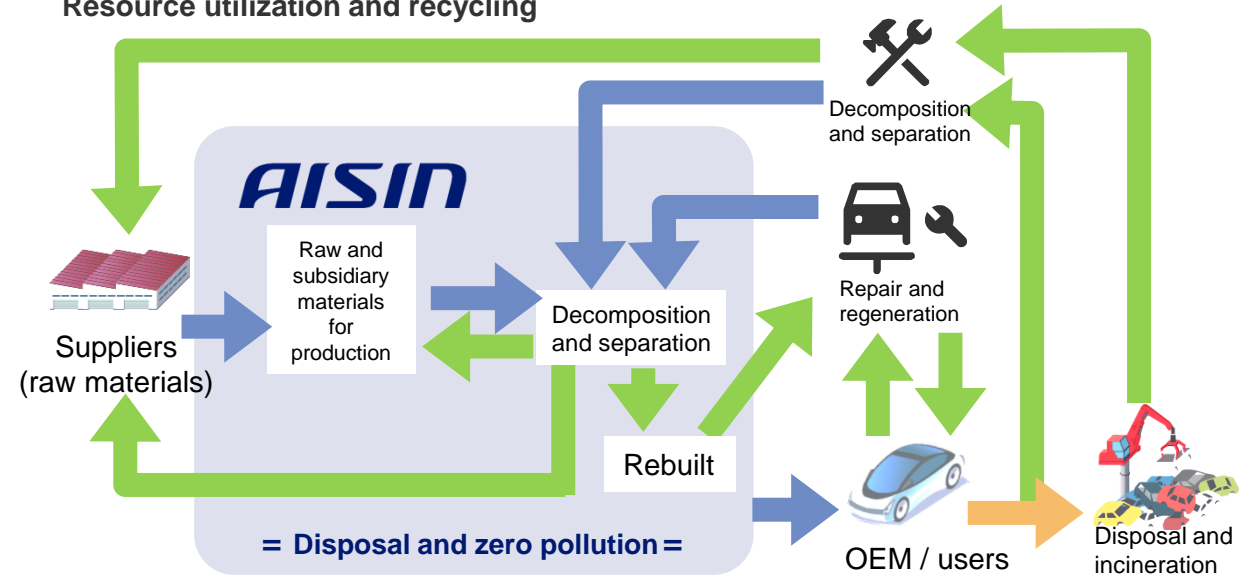


Concept of resource recycling (Aiming for zero waste)

Eco-design

- Produce no waste or pollution
 - ...Small, light, and reduced environmental load
- Continue to use materials and products
 - ...Reuse and recycling, long life
- Regenerate the natural system
 - ...Utilize recyclable resources

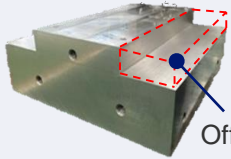
Resource utilization and recycling



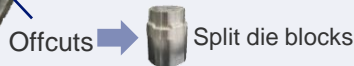
Create a recycling-oriented society through recyclable utilization of limited resources

Eco-design for metals (dies / jigs)

Reduce



Compact, light-weight cassettes (80% less volume)
Use of offcuts in components (23% reuse rate)



Reuse, Recycle



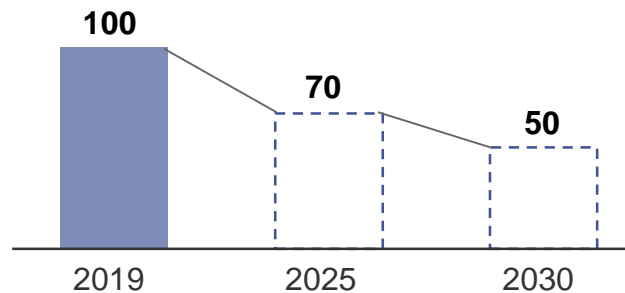
Reuse at time of update, using common designs
(75% reuse rate)

Life extension



Thermal shock mitigation/high-precision surface conditions
(30% longer life)

CO₂ emissions from metalwork (index)



Eco-design for plastics (logistics supplies, etc.)

Reduce



Thin, lightweight packing specifications
Optimization of usage amounts
(18% less waste)

Reuse, Long life



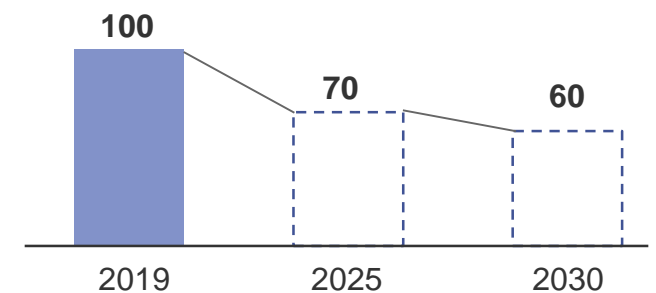
Circulation and reuse using returnable/high-strength designs
(14% less waste)

Recycle



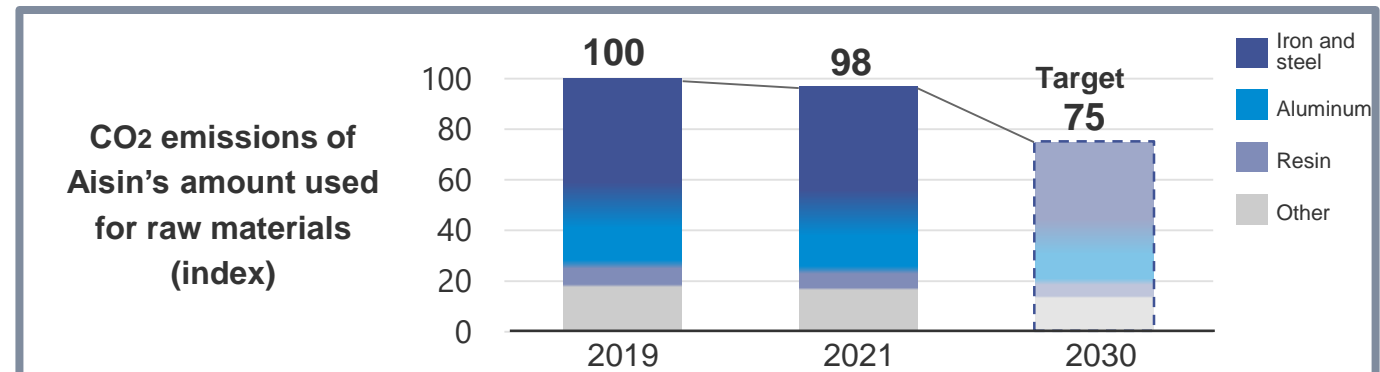
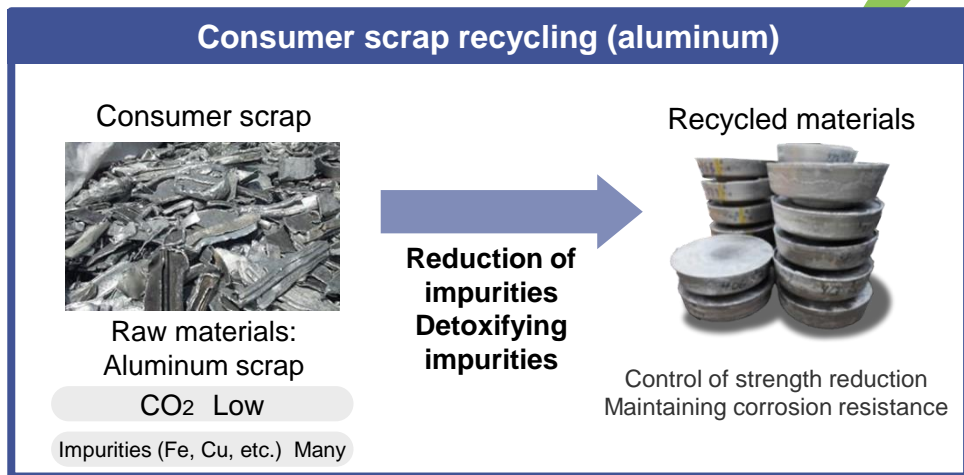
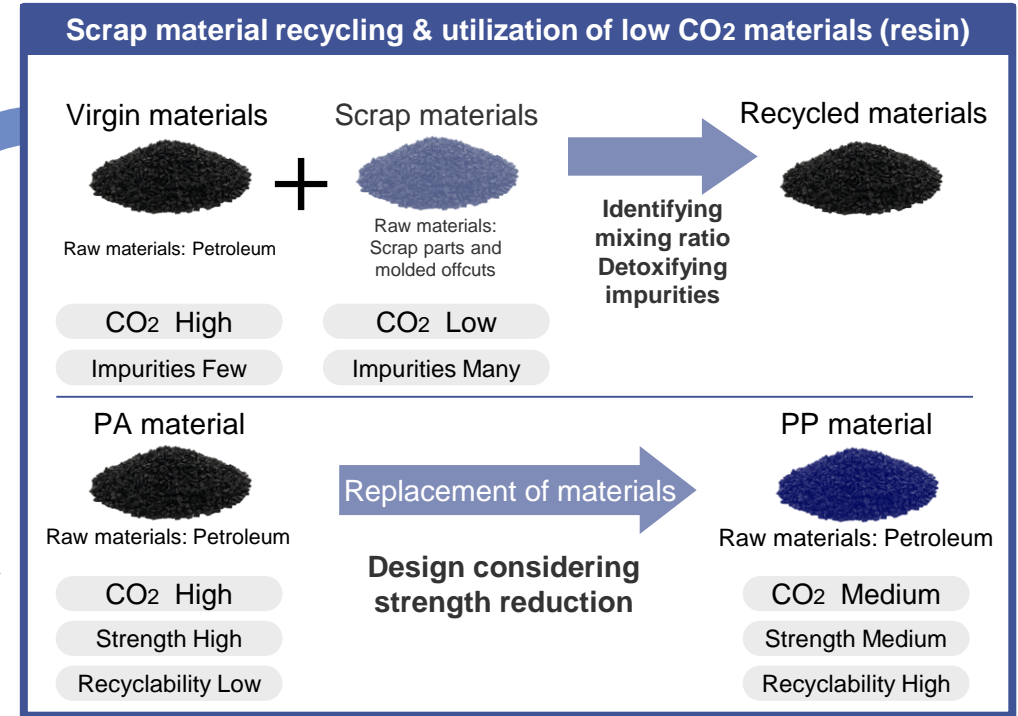
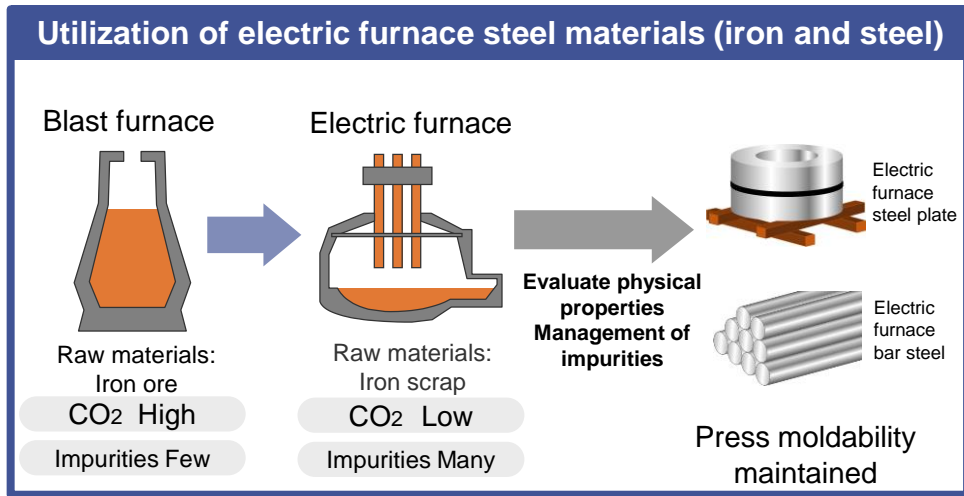
Use of bioplastics
(Development work underway for introduction in 2025)

CO₂ emissions from packing materials (index)



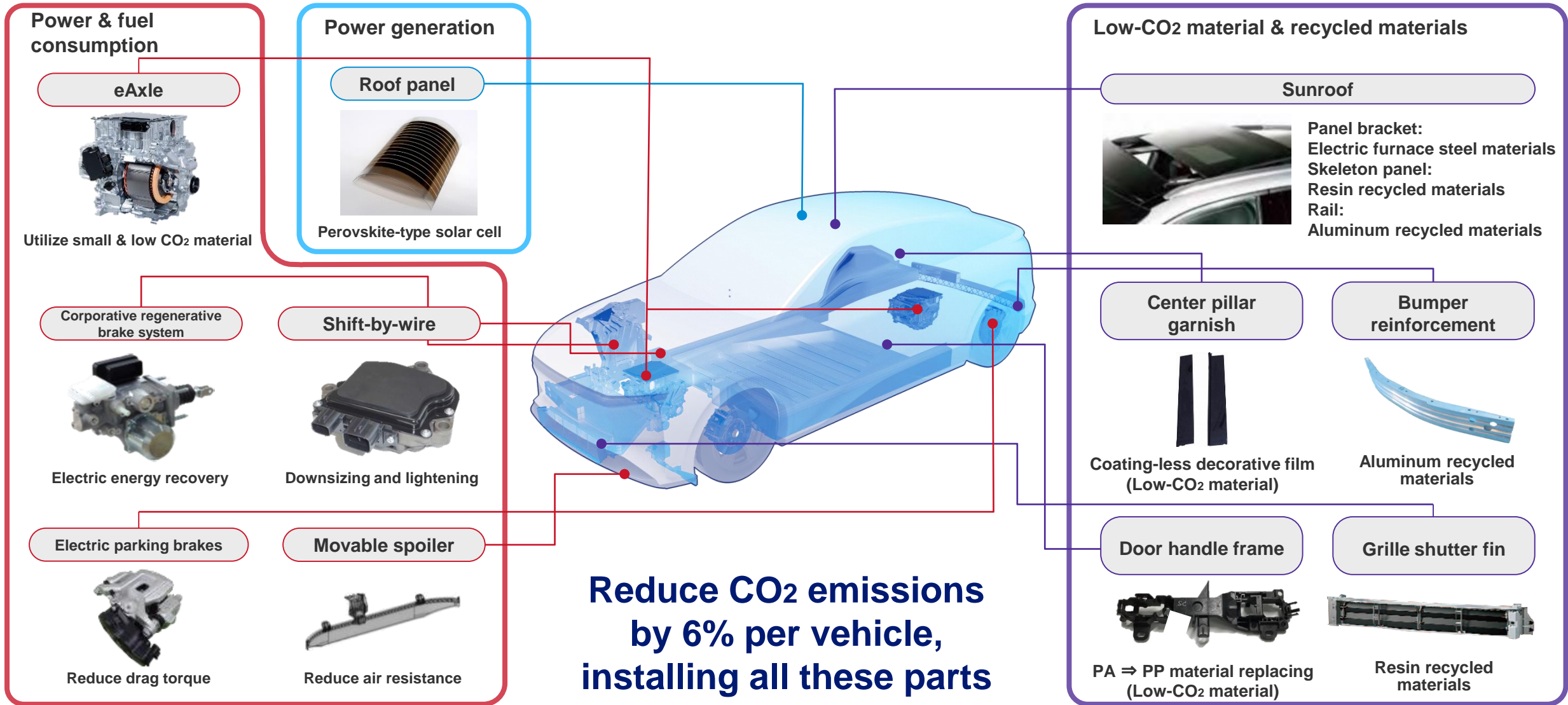
Using Eco-design in manufacturing to reduce waste and recycle materials

Eco-design (Development of Eco-materials)



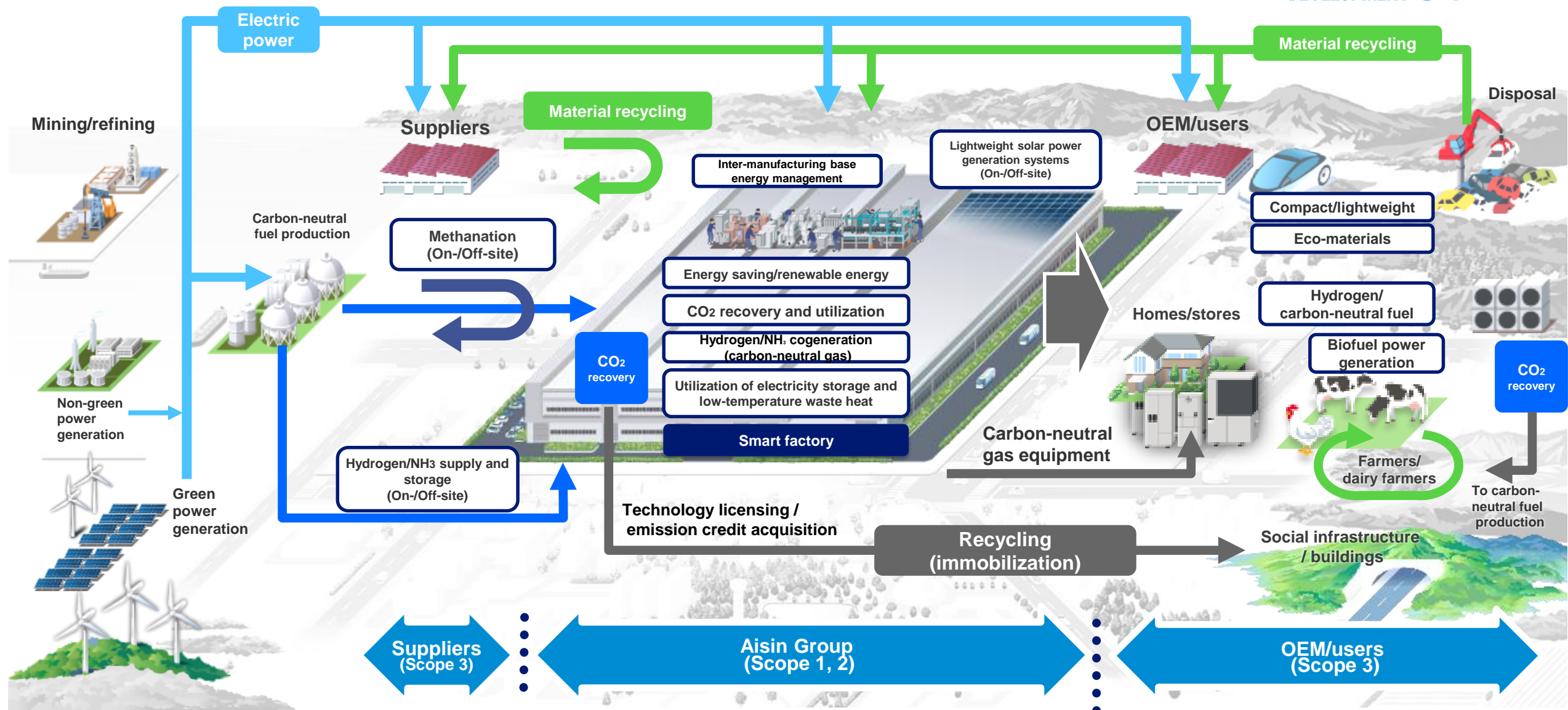
Provide environmental-friendly products by promoting material recycling technology

Expansion of Carbon Neutral Technologies for Mobility



Contributing to creating mobility society that is friendly to the Earth

Overview of Aisin's Efforts Toward Carbon Neutrality (Energy and Resource Recycling)



We contribute to the circulation and spread of energy and resources in local communities through carbon-neutral activities.

A pair of hands is shown from the left, gently cupping a small, translucent globe. The globe has a grid pattern and a silhouette of the Earth. The background is a soft-focus bokeh of green and yellow light spots, suggesting a natural, outdoor setting. The text is centered in the upper right portion of the image.

We continue to deliver beauty
to the future Earth.