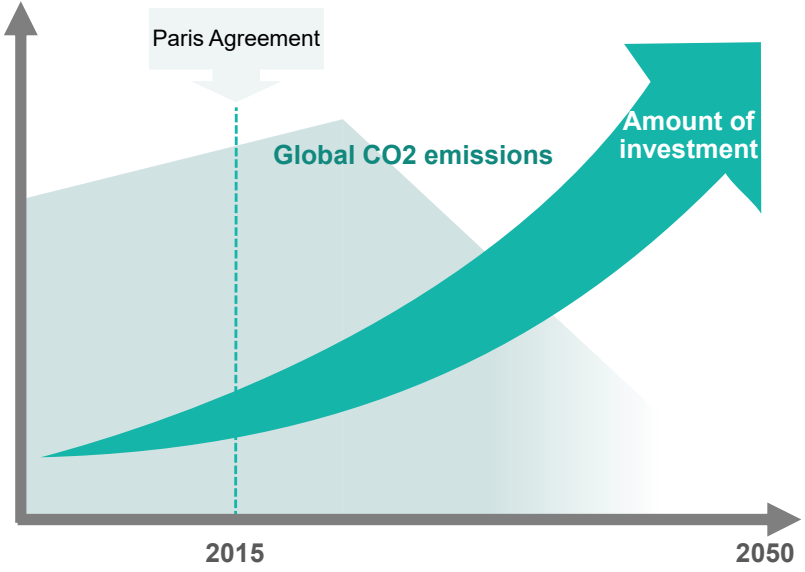
Initiatives for Next-Generation Energy Management Business

Shingo Ueno, Head of Energy Innovation Initiative

Social Structure Changes to Achieve a Carbon-neutral Society

- Since adoption of the Paris Agreement in 2015, there has been a dramatic acceleration of initiatives for the issue of global climate change. An enormous amount of ESG investment has been injecting into markets.
- To achieve a Carbon-neutral society, current CO2 emissions must be reduced to net zero by 2050 (annual CO2 emissions during 2020 were 33.9 billion tons).
- Game-changing efforts are needed to bridge the gap between actual and target emissions, and new value must be created (environment and innovation) while pursuing conventional economic value.



Diagnosis of the macro environment

1. **Forecast investment of 45–50 trillion USD per year by 2050**

Source: IEA - Net Zero by 2050: A Roadmap for the Global Energy Sector

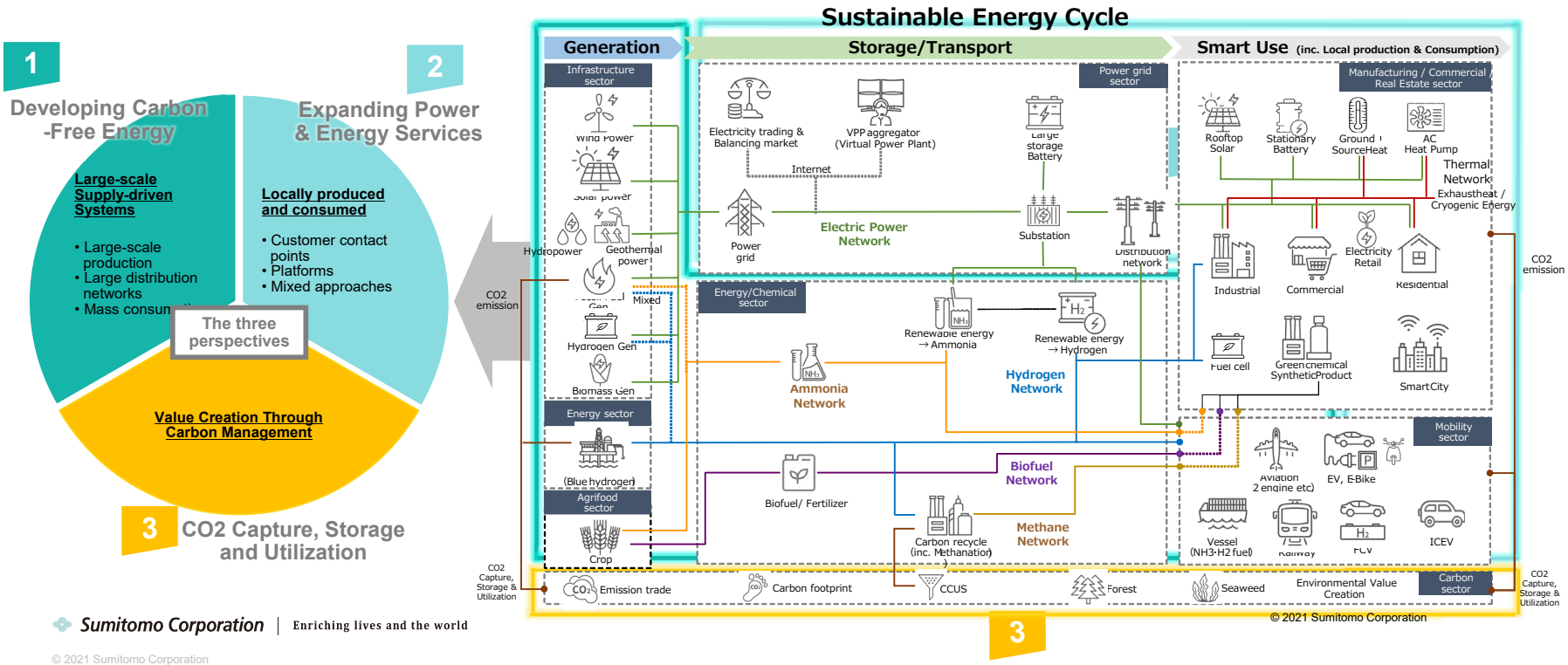
2. **Must reduce emissions from 33.9 billion tons per year to net zero by 2050**

Source: IEA - Net Zero by 2050: A Roadmap for the Global Energy Sector

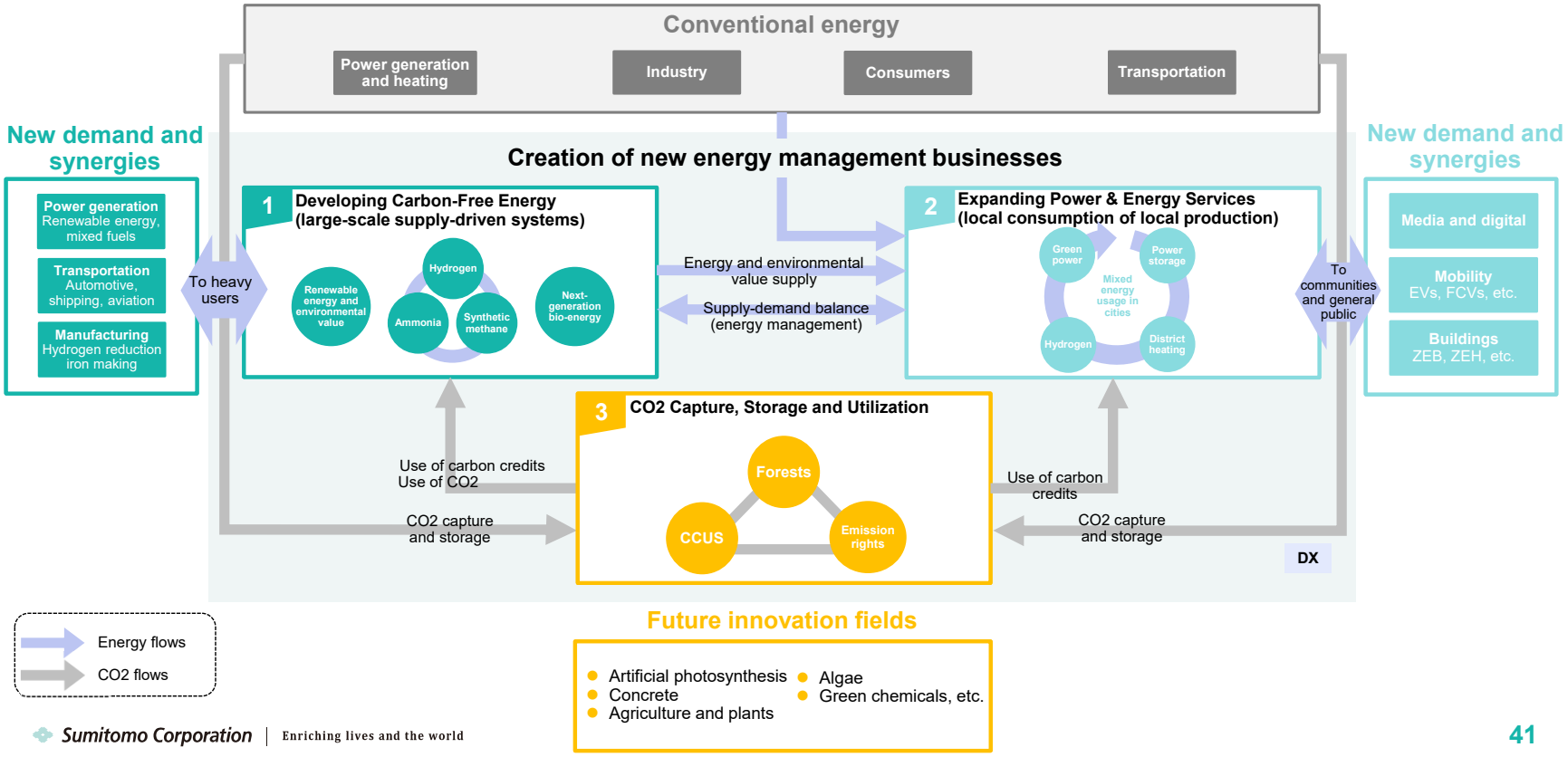
3. **Rules of the game must change; rather than economic value alone, creation of new value is required**

Bird's Eye View and Three Priority Fields of a Carbon-free, Recycling-oriented Energy System

- Overhead view of a carbon-free, recycling-oriented energy system for achieving a Carbon-neutral society as envisaged by the EII
- Survey value chains to classify EII initiatives for value creation into the three characteristic perspectives and identify priority fields



Creation of Next-generation Businesses for a Carbon-free, Recycling-oriented Energy System



Organization & Structure

- Dynamic and effective project-based organization & structure

Management

Shingo Ueno
Head of EII
Senior Managing Executive Officer

Seiji Kitajima
Director of EII
GM of EII Design & Strategy Dept.

Hajime Mori
Director of EII
GM of Energy Division

Keiichi Mihara
Director of EII
GM of Global Power Infrastructure Business Division

Takayuki Sumita
Assistant CSO
Sumitomo Corporation Global Research Co. Ltd
EII Strategy & Design Dept.

Business Dept. / Team / Project

- Design & Strategy Dept.
- Hydrogen business Dept.
- Zero Emission Solution Business Dept.
- Wood Resources Business Dept.
- Woodchip & Biomass Dept.
- Team Power Frontier
- Subsurface Energy Team
- Next-generation Bioenergy Project

Total Staff: Around 100

Examples of Main Projects to be Promoted by the EII

- Driving projects that leverage the strengths (cross-organizational collaboration and global networks) of the Sumitomo Corporation Group

Green hydrogen manufacture and sales business

Hydrogen Business Dept.

We are involved in the manufacture and sales of hydrogen using electricity from solar power as the main power source. We aim to build a hydrogen community that consumes energy produced locally. (Australia)

Wood pellet business

Woodchip & Biomass Dept.

As the largest domestic importer of wood pellets, we will lead Japan's biomass industry and expand biomass power generation for many years to come. (Japan)

Next-generation bio-energy business

Next-generation bio-energy project

We aim to develop next-generation bio-energy, which utilizes agricultural resides, in collaboration with strategic partners. (Brazil)

Namie, Fukushima Prefecture project

[Photo supplied by Namie Town Office]

Hydrogen Business Dept.

Having entered a partnership agreement with the town of Namie in Fukushima Prefecture, we will develop cities that use distributed clean energy (hydrogen, etc.), with Namie as our starting point, and then take that "Fukushima Model" to the rest of Japan and the world. (Japan)

Distributed power source platform business

Team Power Frontier

We will work to develop a clean electricity platform business built around distributed solar power sources. (Japan, Asia, Africa)

Large storage battery business

Zero Emission Solution Business Dept.

In anticipation of issues facing electric power networks when large amounts of renewable energy are being used, we aim to build the base for large battery businesses that will install storage batteries in communities. (Japan)

Mixed energy service business

Zero Emission Solution Business Dept.

We aim to achieve carbon neutrality through our urban carbon management business following a concession format. (U.K.)

Otaru heat utilization business


[Photo reprinted from Otaru Town Office website]

Underground Energy Team

We aim to build the world's largest and Japan's first fifth generation district heating supply network (5G) in the city of Otaru, and create a wide-area heat supply and sales business. (Japan)

Forestry business

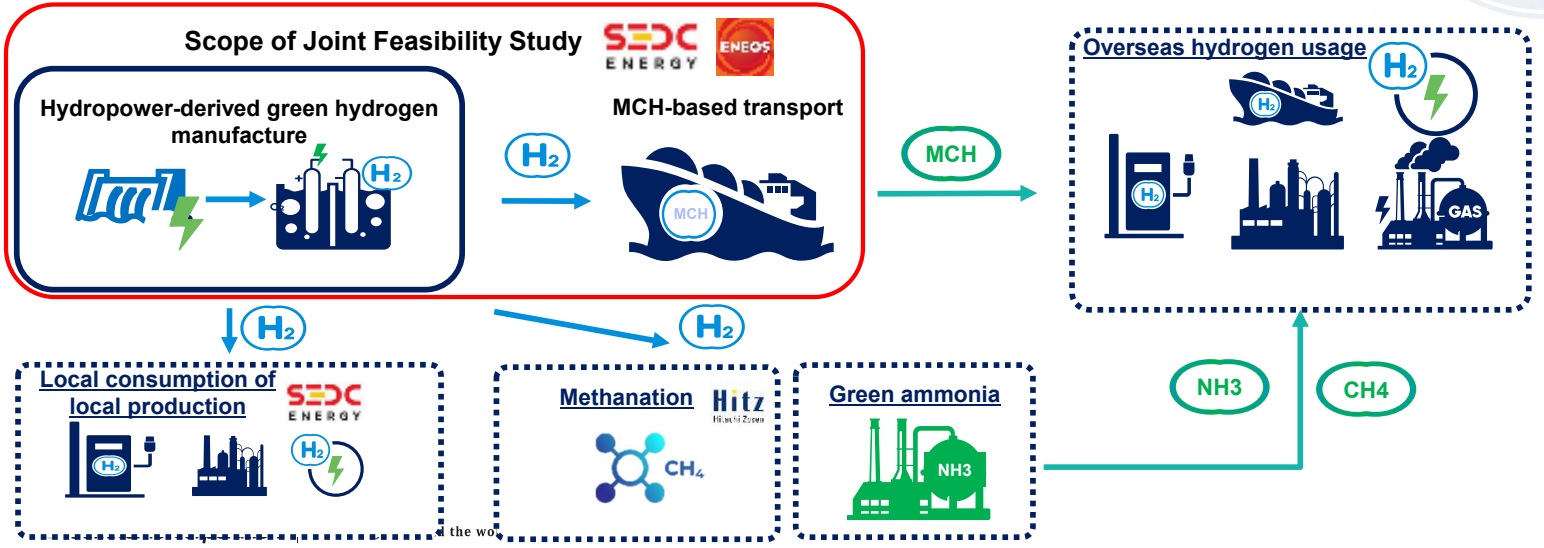
Wood Resources Business Dept.

As a trading company with the largest amount of forest resources, we will work on new environmental value creation projects based on CO2 capture and storage. (New Zealand, Russia)

Project Introduction (1): Hydropower-based Hydrogen Manufacture in Sarawak, Malaysia

Green hydrogen manufacturing project using the abundant, low-cost hydroelectric power generation capabilities of the state of Sarawak

- We signed an MOU with SEDC, the statutory investment body of the Sarawak government, and started pre-feasibility studies from November 2019.
- We aim to start manufacturing 3,000 tons of hydrogen per year from 2023 as a target (for local consumption).
- We aim to gradually increase production volumes until 2030 when we aim to produce and export between 100,000 and 300,000 tons.



Project Introduction (2): Green Electricity Platform Business

Green electricity platform business generated from distributed renewable energy electricity

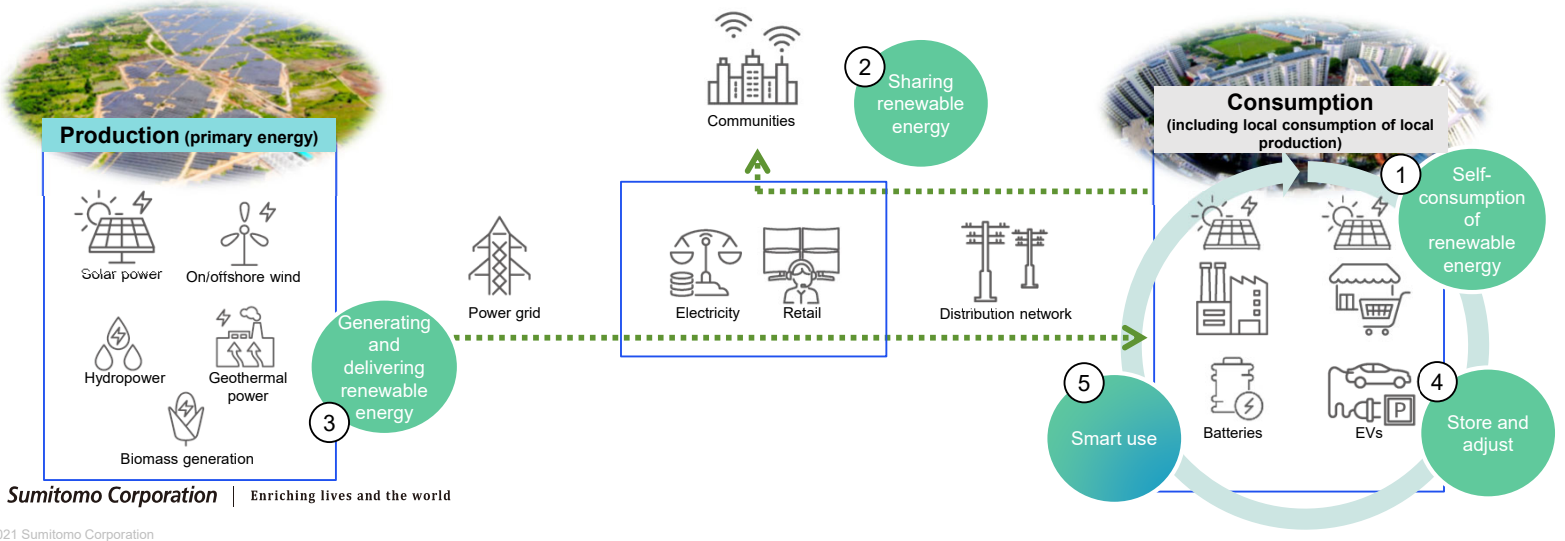
- Step (1): Adopt distributed renewable energy electricity → Start with self-consumption of renewable energy
- Step (2): Roll out a P2P electricity trading platform for unused excess renewable energy electricity → Share green electricity
- Step (3): Generate electricity for the grid from renewable energy → Realize goals of the RE100
- Step (4): Combine renewable energy with EVs and batteries → Stabilize supplies of renewable energy electricity
- Step (5): Adopt energy management systems → Integrated management and optimization

Project partners

SUNSEAP

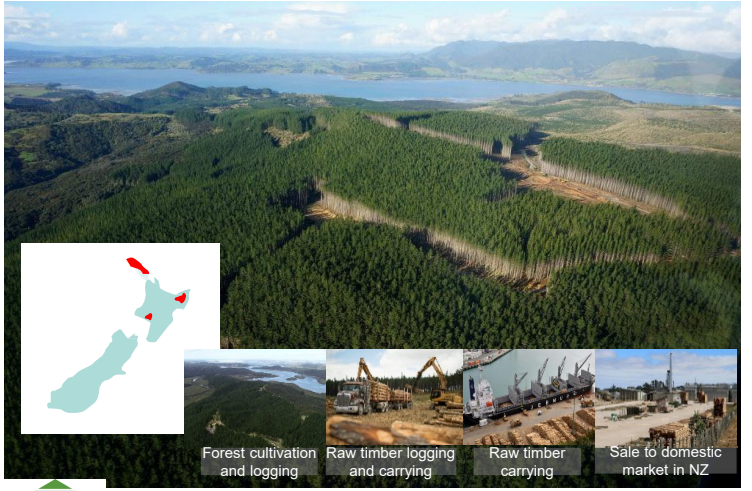
LO3 ENERGY

サミットエナジー株式会社 Summit energy



Project Introduction (3): Forestry Business and Carbon Management

As a trading company with the largest amount of forest resources, we will work on new environmental value creation projects based on carbon management.



Terneyles JSC

Founded:	1992
Head office:	Plastun, Far East Region, Russia
Area of logging forests:	2.85 million ha (1.5 times the area of Shikoku, Japan)
Ownership:	49%

Summit Forests New Zealand Ltd.

Founded:	2013
Head office:	Auckland, New Zealand
Area of logging forests:	37,000 ha (about 6 times the inner area of the Yamanote Line, Tokyo)
Ownership:	100%

Goals of the EII

Establishment of a future earnings base for Sumitomo Corporation

Achievement of a Carbon-neutral society by establishing a decarbonization and recycling energy system