

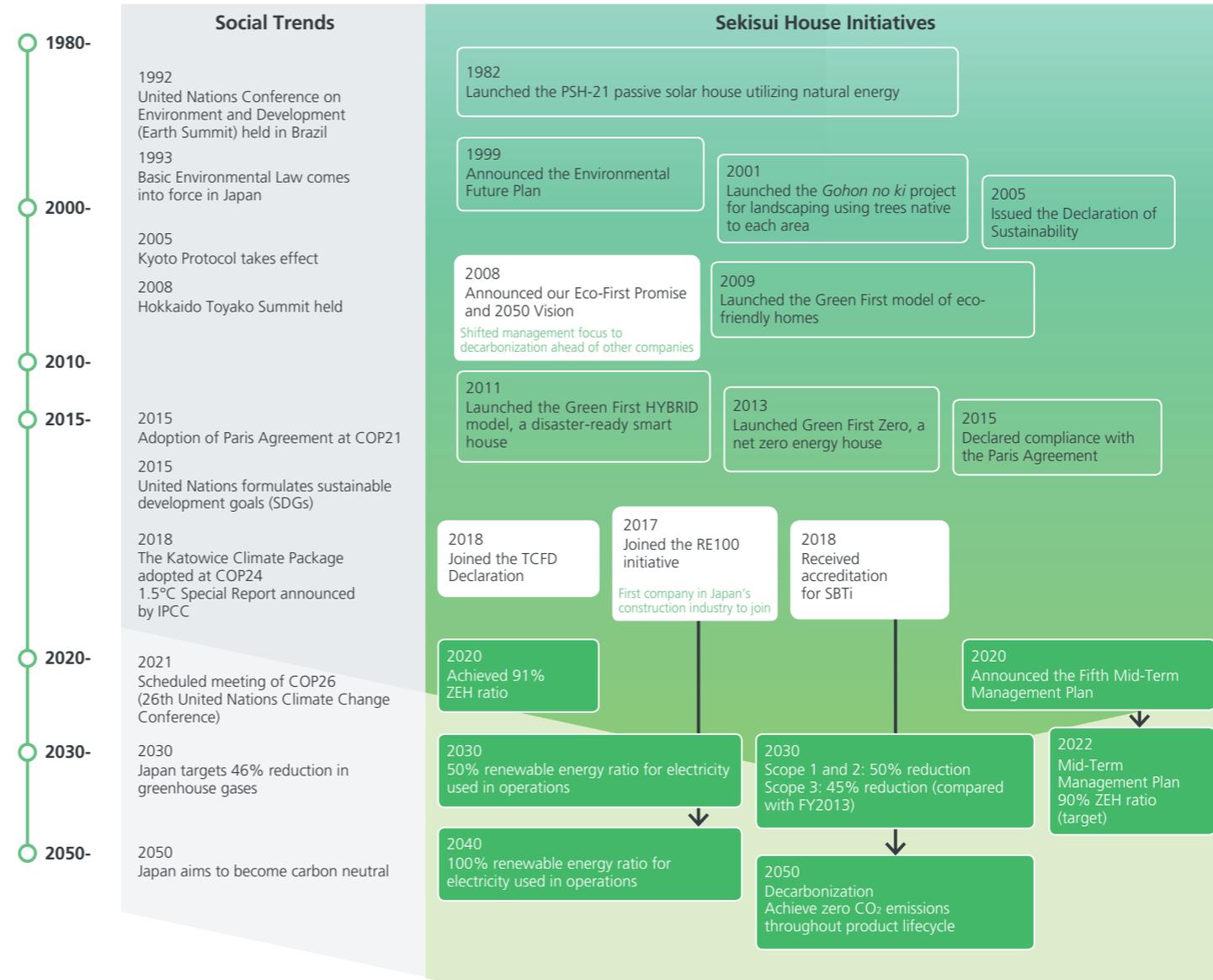
## Promoting the Integration of Environmental and Business Strategies to Fulfill Our Mission of Making Life Happy for Customers

Based on the belief that the environment is something on loan from the future and therefore should be handed back in good condition, Sekisui House announced its Environmental Future Plan in 1999 and systematically started various initiatives. This shows that for more than two decades, Sekisui House has been aware of the issue of intergenerational inequity and the need to resolve it. Regarding climate change, in 2008 we were the first Japanese company to issue a decarbonization declaration calling for zero carbon emissions from housing by 2050.

We believe that we do not just sell houses but also help make life happy by doing so. Green First Zero, the net zero energy house (ZEH) we sell, not only contributes to the prevention of global warming, but also has a variety of benefits that help to make customers happy, including improved insulation for comfort and health, and solar power generation for lower utility costs and resilience during power outages. We are also working to conserve ecosystems with the *Gohon no ki* project for landscaping using trees native to each area. The project is popular because it enriches customers' lives by attracting birds and butterflies to their gardens in addition to being environmentally friendly.

In ways such as these, our environmental initiatives are integrated into our business so that the more business we conduct, the greater our contribution to the environment. This is the basic policy behind the initiatives in Sekisui House's environmental strategy.

### Progress to Date



## Strengthening and Expanding Our Net Zero Energy House (ZEH)

In aiming to help create a decarbonized society, Sekisui House must first work to reduce CO<sub>2</sub> emissions from the housing it sells, which account for around 50% of the CO<sub>2</sub> emitted by its business activities. In other words, it must promote “energy saving in housing.” In line with the Japanese government’s policy of making all newly constructed houses ZEH on average by 2030, we have been selling our ZEH product Green First Zero since 2013. In fiscal 2020, 91% of the newly built detached houses by Sekisui House were ZEH, far greater than the approximately 13% for Japan overall, and the total of 60,843 units we have sold to date is the highest in Japan. The reason for promoting ZEH to this extent is our goal of working to create value for our customers.

For example, by significantly improving thermal insulation we have enabled people to enjoy warmth and comfort in large rooms with no partitions and to take in a view of their garden through large windows. We have also significantly improved energy efficiency with features such as photovoltaic power generation systems and high-efficiency air conditioning and hot water supply. In addition, we work to make houses beautiful. For example, we have developed original roofing tiles that incorporate photovoltaic panels. Installed in numerous buildings, they serve as both functional roofing materials and beautiful design elements. In addition to enabling customers to enjoy comfort and utility bill savings by simply living as they usually do, our designs also add to the beauty of the townscape. In 2020, we began full-scale promotion of these energy-saving initiatives for our Sha Maison rental housing and received orders for about 3,000 units, substantially exceeding the target of 2,500 units for the first year of the Fifth Mid-Term Management Plan. As society in general moves toward decarbonization, ZEH rental housing will meet the needs of the growing number of ethical consumers, and owners can expect long-term, stable management. We are also promoting a shift to net zero energy condominiums and non-residential buildings, as well as considering a rollout in our overseas business.

### Net Zero Energy House (ZEH): Targets<sup>1</sup> and Progress

- **Percentage of ZEH detached houses**

**Target: 90%**  
**Progress<sup>2</sup>: 91%**  
 (Cumulative total of 60,843 ZEH detached houses)

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- **ZEH rental housing units**

**Target: 2,500 units per year**  
**Progress<sup>3</sup>: 2,976 units**  
 (Cumulative total of 3,806 ZEH units)

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- **Total ZEH condominium units built**

**Target: 540 units**  
**Progress: 32 units**

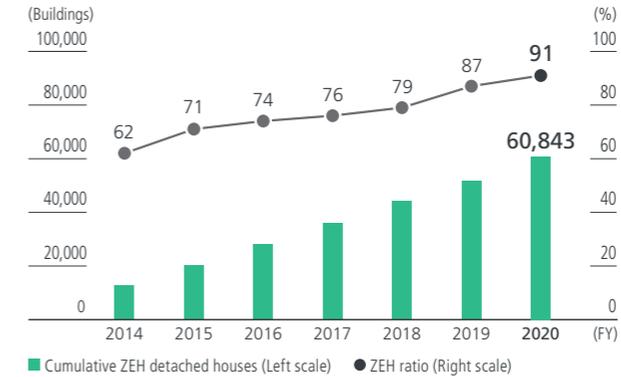
1. Targets for FY2022, the final year of the Fifth Mid-Term Management Plan  
 2. Results from April 2020 through March 2021  
 3. Results from February 2020 through January 2021



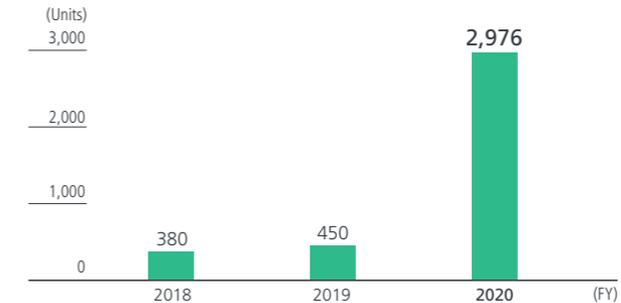
Example of Sha Maison ZEH rental housing (Saitama City, Saitama Prefecture)

Photovoltaic panels mounted on roof

### ZEH Detached Houses Progress



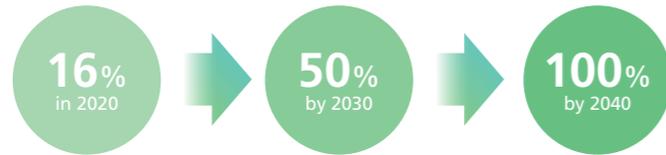
### ZEH Rental Housing Progress



Sekisui House, Ltd. received the Grand Prize at the Reiwa 2nd Year Climate Change Action Minister of the Environment Awards sponsored by the Ministry of the Environment in recognition of the Sekisui House Group’s efforts to create a market for ZEH-M rental housing. (Advanced introduction/Active practice category, Mitigation field)

## Promoting RE100

### Transition to renewable energy for all power used in business activities



We are promoting RE100, a major initiative to reduce CO<sub>2</sub> emissions from corporate business activities by transitioning to 100% renewable sources for the electricity used in business operations. In 2017, Sekisui House was the second company in Japan and the first in the country's construction industry to join the RE100 initiative. Although companies generally achieve their RE100 target through methods such as purchasing non-fossil fuel energy certificates or installing photovoltaic power generation systems, we have adopted a method that entails no additional cost.

As of 2017, when Sekisui House joined the RE100 initiative, photovoltaic panels with a total of more than 700 MW of capacity had been installed on the roofs of customers' homes, with expected annual power generation of 700 GWh or more. Our annual business power consumption is about 120 GWh, so purchasing 20–30% of the surplus electricity generated at our customers' homes can cover our needs.

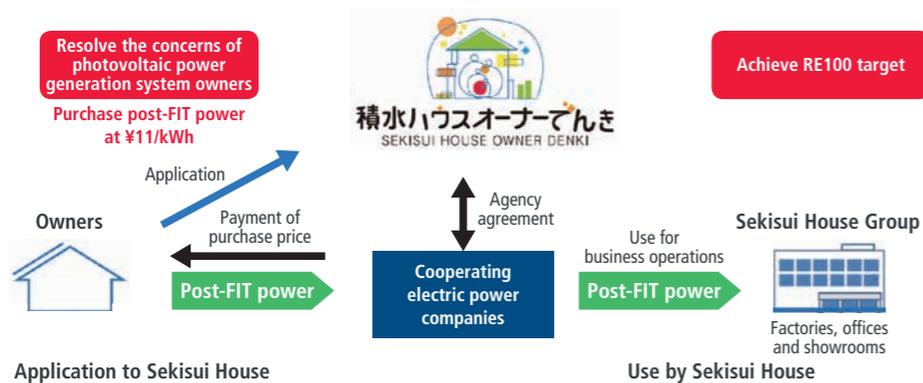
On the other hand, customers who own photovoltaic power generation systems were concerned about a potential loss of income from selling electricity after the end of the feed-in tariff (FIT) program (post-FIT\*). We therefore launched Sekisui House Owner Denki, which purchases post-FIT power from customers at the highest rate for use in our own business. This is part of Sekisui House's initiative to improve the environment of the future together with its customers. The number of applications has grown to about half of the homeowners eligible for post-FIT electricity sales, so we expect to achieve RE100 by around 2030, significantly ahead of our initial timeline of 2040.

\* Refers to the expiration of the 10-year (or 20-year) period for purchases of surplus electricity by an electric power company under a feed-in tariff (FIT) scheme.

## Gohon no Ki Project

Since 2001, Sekisui House has been conducting the *Gohon no ki* project to promote landscaping with greenery that takes local ecosystems into account. "*Gohon no ki*" means "five trees" in Japanese, and the project concept encourages planting three out of every five trees for birds and two for butterflies. This will link gardens with local nature, helping to conserve biodiversity and create vibrant townscapes. We also provide the *Gohon no Ki Yacho Keitai Zukan* (Wild Bird Mobile Phone Field Guide) for customers to easily check information on how to enjoy and care for the trees planted in their gardens and on the butterflies and birds those trees attract. Customers use their smartphones or other devices to read nameplates with two-dimensional QR codes that have been hung on the trees. Due to positive reception of this initiative, we decided to adopt these tree nameplates as a standard feature from 2020. As a result of this initiative, the total number of trees planted as of FY2020 reached 17.09 million, making biodiversity conservation one of the businesses of Sekisui House, the number one landscaping company in Japan. Furthermore, we have expanded this initiative from detached houses to rental housing and condominiums. In its landscaping business, Sekisui House helps make life happy for customers while contributing to the environment.

### Overview of Sekisui House Owner Denki

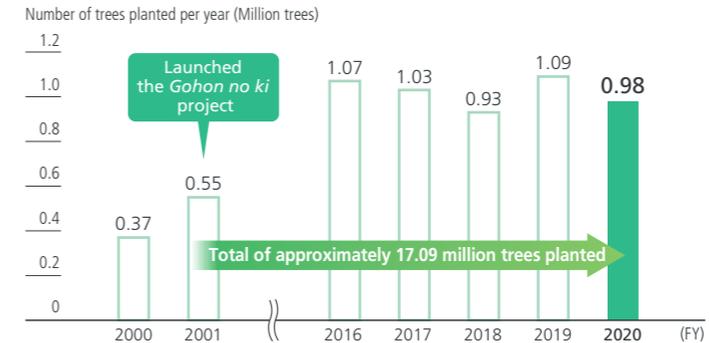


### 2020 New Energy Awards



In recognition of its advanced model that achieves both services for owners and the RE100 target, Sekisui House Owner Denki's initiative received the Director-General of the Agency for Natural Resources and Energy Prize at the 2020 New Energy Awards sponsored by the New Energy Foundation.

### Number of Trees Planted per Year Since the Launch of the Gohon no Ki Project



# TCFD: The Sekisui House Group’s Approach to Addressing Climate Change

## Section 1

### Strategy and Governance for Addressing Climate Change

Since 2008, the Sekisui House Group has been operating with the goal of achieving a decarbonized society. We will sincerely implement measures to address climate change through our businesses in order to realize our global vision to “make home the happiest place in the world.”

#### The Sekisui House Group’s Approach to Addressing Climate Change

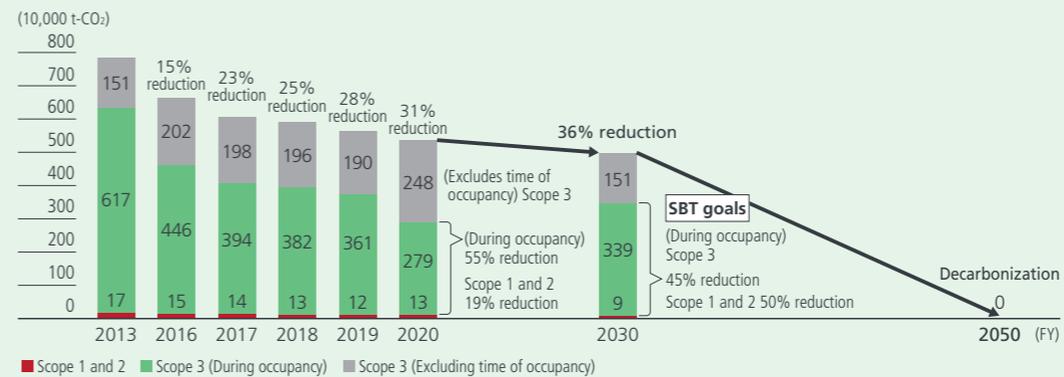
In 2008, the Sekisui House Group announced its 2050 Vision targeting net zero CO<sub>2</sub> emissions from housing, and shifted its management focus to decarbonization. We have already launched various initiatives including the use of renewable energy, with the goal of net zero CO<sub>2</sub> emission balance by 2050 throughout the entire lifecycle of our housing products, from material purchasing to production, sales, occupancy and demolition.

We have set milestones for achieving this goal. By 2030 (compared with 2013), we intend to reduce the Group’s Scope 1<sup>1</sup> direct CO<sub>2</sub> emissions from sources including factories, offices and vehicles by 50%; Scope 2 indirect CO<sub>2</sub> emissions from sources including electricity use by 50%; and Scope 3 CO<sub>2</sub> emissions (Category 11: Housing) by 45%. The Science-Based Target (SBT) initiative<sup>2</sup> has certified these milestones as science-based targets, and they are aligned with the Paris Agreement’s commitment to limiting global temperature rise to well below 2°C above pre-industrial levels. Our SBTs are not set for a 1.5°C scenario because our Scope 1 emissions include fuel consumption by heavy machinery at construction sites, so we judged that we would have trouble achieving that commitment as a single company. Studies to ameliorate this issue are ongoing.

As an RE100<sup>3</sup> member company, we will work to transition to renewable energy for 50% of the electricity we use in operations by 2030, and 100% by 2040. We have begun specific initiatives to achieve these targets (see Table 1), and progress has been good.

1. CO<sub>2</sub> emissions based on category established by the Greenhouse Gas Protocol.  
 2. <https://sciencebasedtargets.org/>  
 3. <https://www.there100.org/>

Diagram 1: Sekisui House Group Value Chain CO<sub>2</sub> Emission Reduction Plan and Progress



Note: Reduction rates are comparisons with FY2013.

Table 1: The Sekisui House Group’s Main Initiatives and Targets for Decarbonization

Main initiatives	<ul style="list-style-type: none"> <li>Developed and launched energy-saving and disaster-mitigating housing (2004)</li> <li>Announcement of Eco First Promise (2008)</li> <li>Launched the Green First model of eco-friendly homes (2009)</li> <li>Launched Green First Zero, a net zero energy house (2013)</li> <li>Declaration of compliance with Paris Agreement (2015)</li> <li>Joined the RE100 initiative and announced commitment (2017)</li> <li>Joined the TCFD Declaration and received accreditation for SBTi (2018)</li> </ul>
2030 target	<p><b>Achieving SBT goals</b></p> <p>With the goal of achieving zero CO<sub>2</sub> emissions throughout the housing lifecycle, we aim to reduce emissions by 50% for Scope 1 and 2 and 45% for Scope 3 (category 11: Housing) compared with FY2013 (SBT goal). Also, as a RE100 member company, we will ensure that 50% of the electric power consumed by our business activities is from renewable energy sources.</p>
2050 challenges	<p><b>Achieve zero CO<sub>2</sub> emissions throughout product lifecycle</b></p> <p>As a leading company in housing products, we will eliminate CO<sub>2</sub> emissions from the entire housing lifecycle, from materials purchasing to production, sales, occupancy and demolition, including renewable energy usage.</p>

## Section 1

### Strategy and Governance for Addressing Climate Change

The Sekisui House Group's strategy for these initiatives is premised on increasing corporate value while contributing to the transition to a decarbonized society. We are committed to making life happy for customers by providing safe, secure, comfortable and healthy housing. However, life cannot be happy in a world where natural disasters caused by climate change occur frequently. We must therefore act to mitigate and adapt to climate change in order to realize our global vision to "make home the happiest place in the world." As the world's number one housing supplier, we believe that we have a responsibility to take the lead in implementing relevant initiatives, and that we can contribute significantly.

#### The Sekisui House Group's Vision and Challenges in Achieving It

As stated in the 2050 Vision mentioned earlier, we believe that the Sekisui House Group must lead the way to a decarbonized society. A major feature of our decarbonization strategy is that it is consistent with our business strategy. For example, we started selling eco-friendly homes in 2009 to address climate change. As a result, we have reduced CO<sub>2</sub> emissions by a significant 86.1% compared with 1990. Moreover, unit price per home has increased by about 30% through 2020 compared to 2008, the year before we began selling eco-friendly homes. At the same time, the percentage of customers indicating in surveys that they were "very satisfied" increased about 10% (rated on a seven-level scale ranging from "very satisfied" to "satisfied," "somewhat satisfied," "neither satisfied nor dissatisfied," "somewhat dissatisfied," "dissatisfied," and "very dissatisfied"). Respondents indicating they were "very satisfied," "satisfied," or "somewhat satisfied" comprised 96% of the total). While our decarbonization strategy cannot be the only factor behind these results, we believe it has contributed significantly.

Making these kinds of specific decarbonization initiatives a component of business growth is crucial for achieving decarbonization. The development of housing with high energy-saving performance will not contribute to decarbonization unless it meets consumer needs and generates sales. The Sekisui House Group emphasizes consumer acceptance in developing and selling such housing. Increasing our brand value and market share while working toward decarbonization will position us for further corporate growth. This approach helps fund the development and marketing of higher-performance housing that addresses climate change. As an RE100 member company, we will also increase the proportion of renewable energy we use in our business processes.

Strategically allocating the right resources at the right time is key to achieving our goals, and predicting the future business environment as accurately as possible is essential to choosing an appropriate strategy. However, climate change makes the future even more difficult to predict because it involves long-term uncertainties. The Sekisui House Group is therefore pivoting to a business that can respond to a broad array of possible scenarios brought on by climate change.

#### Governance for Addressing Climate Change

The Sekisui House Group has established the ESG Promotion Committee under the Board of Directors to determine and implement action policies while confirming that all ESG management initiatives are reasonable and in line with societal expectations. The committee meets once every three months. Addressing climate change is a key task of the committee, which evaluates the adequacy and progress of action policies and reports key concerns to the Board of Directors.

The Company-wide, cross-departmental Environmental Subcommittee reports to the ESG Promotion Committee. Mainly composed of individuals in charge of the head office departments involved in environmental management and the environmental managers of each business division, this subcommittee conducts more granular and detailed discussions. In addition, the Environmental Subcommittee broadly disseminates the decisions of the ESG Promotion Committee for adoption throughout the Group, including affiliated companies.

The ESG Promotion Committee ensures effective, timely management oversight by providing the directors responsible for each business and other managers with routine reports and instructions on the implementation of ESG initiatives.

As part of its Group-wide risk management process, the Sekisui House Group conducts assessments to determine climate change-related risks and opportunities based on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

▶ See page 62 for details on the ESG Management Promotion Structure.

## Section 2

# Scenario Analysis: Risks and Opportunities

We conducted an analysis using the 1.5°C and 4°C scenarios in identifying risks and opportunities that could have a significant impact on the Sekisui House Group's business. The outcomes did not identify any immediate major risks, but did suggest potentially outstanding opportunities arising from progress in the transition to decarbonized products.

## Features of the Sekisui House Group's Approach to Climate Change Scenarios

Companies need to transition to decarbonized operations to limit global warming to 1.5°C so that we can halt the progress of climate change. Transition risks are the primary risks in this case, and the physical risks are significantly lower than in the case of 4°C warming. However, the Earth might warm by 4°C even if companies target an increase of only 1.5°C. The Sekisui House Group therefore decided it needed to prepare simultaneously for the transition risks of a 1.5°C scenario and the physical risks of a 4°C scenario. This is the Sekisui House Group's approach to climate change scenarios.

The Sekisui House Group has assessed the overall physical risks from climate change for all of its businesses. At that time, it analyzed the suitability of existing strategies using the 1.5°C and 4°C scenarios, taking into consideration the inherent characteristics and useful lives of assets during current business activities and during future periods of business activity in which we expect to invest resources, among other factors.

## Confirmation of the Resilience of the Sekisui House Group's Existing Strategies

Our analysis did not identify any critical threats from risks in transitioning our businesses with the shift to a decarbonized society or from the physical risks of global warming. We have already begun decarbonizing products and addressing abnormal weather with a strategy that encompasses the environmental performance, disaster-mitigation and essential high quality of the housing we provide (see Table 3 on page 69).

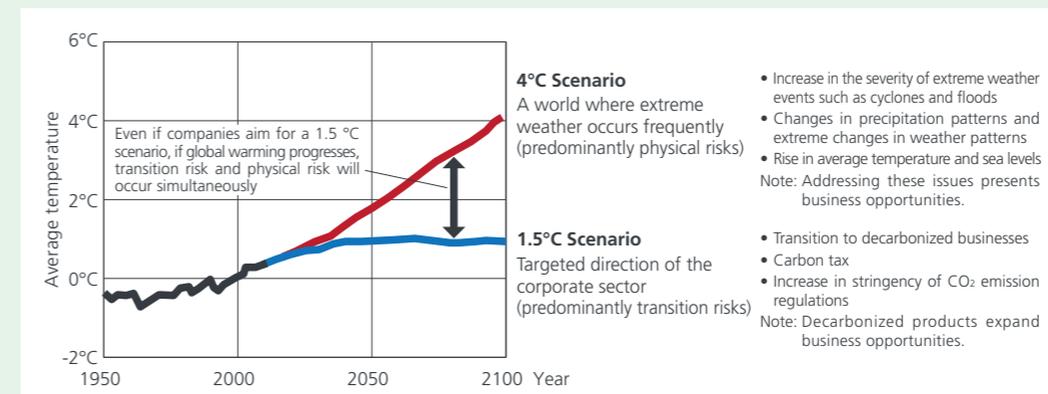
We have transition plans for all existing businesses according to their specific situations to deal with physical risks. Plans for longer than 10 years are also included in related targets.

Table 2: Scenario Analysis Assumptions

Item	Assumptions
Scenario	A business environment in which society has decarbonized according to the 1.5°C scenario (IPCC's RCP2.6 and IEA's WB2D scenarios), but where temperatures have also risen as per the 4°C scenario (IPCC RCP8.5). The nationally determined contribution (NDC) announced by the Japanese government and related announcements are also considered in this scenario. In addition, we conduct assessments of transition risks based on potential scenarios related to legislation, technological development and market conditions, as well as assessments that are consistent with the useful lives of assets and the expected lifespan of business activities.
Subject companies and businesses	All existing businesses of Sekisui House Group companies* (including the entire upstream and downstream of the value chain)
Quantitative and qualitative	Mainly qualitative analysis of all existing businesses of Sekisui House Group companies. Quantitative estimates of the financial impact of material risks and opportunities.
Impact of Japanese market size	The Sekisui House Group generates most of its sales in the Japanese market (about 85% of sales from February 1, 2020 to January 31, 2021). The Japanese housing market is expected to contract gradually due to the shrinking population, declining birthrate and aging population. While this trend is by no means insignificant, it has not been considered in this analysis, as the focus is climate change-related impacts.

\* The Sekisui House Group consists of Sekisui House and 281 consolidated subsidiaries (as of January 31, 2021).

Diagram 2: 1.5°C and 4°C Scenarios and Approaches



Note: Prepared by Sekisui House with reference to the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report.

## Section 2

## Scenario Analysis: Risks and Opportunities

Table 3: Climate-related Risks and Opportunities and Potential Financial Impact (Large: ¥20 billion or more; Medium: ¥10 billion or more; Small: Less than ¥10 billion)

Risks	Climate-related Risks	Potential Financial Impact
Policy and regulations	Increase in cost of greenhouse gas emissions	Group-wide initiatives to decarbonize by reducing CO <sub>2</sub> emissions from business activities are about halfway complete, so the impact of a carbon tax of about ¥10,000/t-CO <sub>2</sub> would be large. We plan to mitigate this impact and have already launched various initiatives throughout the value chain to do so. Large
	Increase in stringency of emission reporting requirements	We have already structured a system that can respond to an increase in the stringency of emission reporting requirements (additional costs due to changes in reporting rules). Small
	Mandates and regulations for existing products and services	While standards for energy-saving might become more stringent, we have already implemented measures to exceed current standards including for ZEH specifications. Therefore, no new measures are required in the short term. Small
	Exposure to litigation	Extremely low risk because CO <sub>2</sub> emissions from all of our businesses are not particularly high. Small
Technology	Replacement of existing products and services with low-emission alternatives	We have already addressed this issue in core businesses and will expand initiatives to all businesses. However, there are no development risks and major systemic changes are unnecessary. Small
	Failure to invest in new technologies	Not currently investing significantly in new technologies related to decarbonization. Small
	Cost of transitioning to low-carbon emission technologies	Already incorporated in our products (The production line for our earthenware exterior wall panels needs to be electrified in the future). Small
Market	Changes in customer behavior	We are in the process of transitioning to decarbonized products such as ZEH. We have completed the process for detached houses, and are now extending initiatives to other products such as rental housing and condominiums. Small
	Uncertainty of market signals	The transition to energy-saving, comfortable and resilient ZEH is highly achievable. Small
	Rise in raw material costs	Possible increases in wood procurement costs due to global warming, and in steel costs due to the use of electric furnaces. However, because these costs are currently difficult to quantify, they were not included in the calculations for this report. Not calculated
Reputation	Changes in consumer preferences	Customers are very satisfied with the Sekisui House Group's main product, ZEH. Small
	Criticism of the industrial sector	The housing industry is steadily promoting decarbonization and is unlikely to be criticized. Small
	Growing stakeholder concerns and negative stakeholder feedback	Stakeholders understand the Sekisui House Group's promotion of decarbonization. Small

Risks	Climate-related Risks	Potential Financial Impact
Physical Risks	Acute	Increase in severity of extreme weather events such as cyclones and floods We have already addressed the risk of delivery delays due to construction site damage caused by disasters such as floods by structuring a system to minimize damage with the support of business locations in unaffected areas. Damage has been limited to date. Small
	Chronic	Changes in precipitation patterns and extreme changes in weather patterns
Increase in average temperature		The Group is exposed to the risk of delivery delays due to reduced work efficiency caused by rising temperatures at construction sites and the hazards of heat stroke. However, we are implementing countermeasures such as ensuring sufficient time in construction schedules. Small
Rise in sea levels		The Sekisui House Group's five factories in Japan are over 10 meters above sea level, and the factories in Australia and China are inland, so the Group's production plants are not materially subject to direct damage. However, suppliers may be affected. Not calculated

Opportunities	Climate-related Opportunities	Potential Financial Impact	
Opportunities	Resource efficiency	Relocation to highly efficient buildings Expanding orders for ZEB (not quantified at this time) Not calculated	
	Energy sources	Use of lower-emission energy sources	We plan to achieve RE100 without purchasing Non-Fossil Certificates or incurring other additional costs. We will do this by employing our Sekisui House Owner Denki system through which we purchase electricity from renewable energy generated by post-FIT homeowners for use in Group operations. Small
		Use of supportive policy incentives	Use of ZEH subsidies and others (not calculated at this time) Not calculated
	Products and services	Development and/or expansion of low-emission products and services	Whether society decarbonizes or global warming progresses, we expect demand for ZEH to increase because of ZEH's advantages in either scenario. As the leader in ZEH for both detached houses and multi-dwelling complexes, we therefore expect ZEH sales to increase substantially. Large
The Sekisui House Group is Japan's leader in ZEH rental housing order volume. We expect to increase income from real estate management fees due to higher rents from the increased number of multi-unit ZEH rental buildings that we lease entirely. Small			

Source: Prepared by Sekisui House with reference to Final Report: Recommendations of the Task Force on Climate-related Financial Disclosures (June 2017)

## Section 2

## Scenario Analysis: Risks and Opportunities — 1.5°C Scenario —

## 1.5°C Scenario: Risks and Opportunities

## (1) Opportunities for the Sekisui House Group

The following Sekisui House Group business segments involved in product decarbonization (ZEH and ZEB) are likely to have particularly significant earnings opportunities. These segments will not need major strategic changes in a decarbonizing society and are likely to be core Sekisui House Group businesses. We will continue to pay close attention to changes in market needs, changes in the direction of discussions by the international community, and the emergence of the impacts of global warming, adjusting the strategies of the Sekisui House Group and implementing measures as needed.

## 1. Built-to-Order Business

## ▶ Custom Detached Houses (Japan)

The Sekisui House Group launched Green First Zero in 2013. This product meets ZEH standards, which the Japanese government is promoting vigorously as part of its energy conservation policy for housing. The Sekisui House Group has received orders for a cumulative total of 60,843 ZEH detached houses for a ZEH ratio of 91% as of FY2020, greatly exceeding the market ratio of 13.9%.<sup>1</sup>

The unit price of our detached houses has increased about 30% since 2008, prior to the full-scale sale of eco-friendly homes. Changing performance requirements for ZEH (installation of additional storage batteries and an increase in energy-saving performance standards) should raise unit prices further.

The Sekisui House Group is also promoting ZEH for the Sekisui House noie brand targeting first-time buyers. ZEH houses accounted for 18% of noie brand orders in FY2020. However, because photovoltaic power generation systems are a primary factor increasing the cost of ZEH housing, we minimize the cost to home buyers by employing a TPO<sup>2</sup> approach with this brand, installing third party-owned systems.

In this way, the Group will supply detached houses that meet growing ZEH needs in all price ranges.

1. Source: Net Zero Energy House Support Project Survey Presentation 2020 materials. Sponsor: Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry. Executive Organization: Sustainable Open Innovation Initiative
2. Third-party ownership. A business model in which a third-party company leases a photovoltaic power generation system to the homeowner, who can use the power it generates without incurring the initial cost of purchasing the photovoltaic panels



The Sekisui House Group's Green First Zero ZEH detached house

## Section 2

## Scenario Analysis: Risks and Opportunities — 1.5°C Scenario —

## ► Rental Housing (Japan)

Approximately 30% of CO<sub>2</sub> emissions from the overall housing sector in Japan come from multi-dwelling complexes. Because the Sekisui House Group aims to decarbonize housing, it is moving forward with the conversion of such complexes to ZEH as a crucial issue.

The Sekisui House Group constructed a Sha Maison rental housing project in Kanazawa City, Ishikawa Prefecture in January 2018. It was Japan's first rental housing complex where all units conformed to ZEH standards. We now construct Sha Maison ZEH brand rental housing throughout Japan. Orders totaled 2,976 units in FY2020, exceeding our annual target of 2,500 units in the final year of the Fifth Mid-Term Management Plan, and the cumulative total of orders received reached 3,500 ZEH units. Our Sha Maison ZEH brand is number one in Japan in terms of the number of ZEH rental housing complexes constructed, accounting for about 40% of the total.<sup>3</sup>

ZEH adds about ¥600,000 in construction costs to the price of each unit of rental housing, but the decarbonization of society will give ZEH housing ethical appeal among younger people, the core tenant demographic. Many owners have therefore selected ZEH rental housing because ethical consumption supports stable property management.

Today, consumers in Japan are typically unable to find ZEH rental housing to satisfy their demand because it is very scarce. The Sekisui House Group therefore wants to drive the creation of a market by quickly supplying a large volume of units, thus capturing first-mover profits in addition to addressing latent consumer demand.



Japan's first rental housing complex where all units are ZEH (Kanazawa City, Ishikawa Prefecture)

3. Source: Net Zero Energy House Support Project Survey Presentation 2020 materials. Sponsor: Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry. Executive Organization: Sustainable Open Innovation Initiative

Table 4: Advantages of Our ZEH Rental Housing

Advantages for Owners	Advantages for Tenants
<ul style="list-style-type: none"> <li>• ZEH housing can help prevent global warming.</li> <li>• It is high-value-added rental housing that commands higher rents, thus helping to improve rental housing management efficiency.</li> <li>• It will hold its asset value over the long-term as highly competitive rental housing even if ZEH rental housing becomes commonplace as society decarbonizes.</li> </ul>	<ul style="list-style-type: none"> <li>• Tenants can contribute to the prevention of global warming just by living in ZEH housing.</li> <li>• Its high-performance thermal insulation makes life more comfortable and healthier by reducing the risk of heat stroke in summer and heat shock resulting from temperature differences between rooms in winter.</li> <li>• It is expected to contribute to a significant reduction in utility costs through the use of photovoltaic power generated by the rental unit and income from selling electricity.</li> <li>• The photovoltaic power generation system has an emergency electrical outlet to provide electricity on sunny days even during a power outage.</li> </ul>

## 2. Supplied Housing Business

## ► Remodeling (Japan)

The Sekisui House Group promotes *Idocoro Dan-netsu* location-based heating to enhance the thermal insulation in key portions of homes built decades ago that have low thermal insulation performance, creating a comfortable indoor environment equivalent to that of newly constructed homes. We also upgrade such homes by installing the latest energy-saving equipment and photovoltaic power generation systems. Remodeling is a challenge in Japan because tax law reduces building value to zero over approximately 20 years. However, in promoting energy-saving remodeling, we use SumStock, a mechanism for properly evaluating the asset value of buildings, shared among major prefabricated housing manufacturers.

Japan has more than 50 million units of housing stock. The household sector accounts for 15.5%\* of Japan's total CO<sub>2</sub> emissions. Therefore, in order to decarbonize this sector, measures to save energy in existing housing stock are even more important than for new housing construction. That is why we believe that remodeling to save energy will be central to future decarbonization policies. With sales of ¥141,090 million in FY2020, accounting for about 5.8% of net sales, this segment offers outstanding opportunities for business expansion.

\* Source: National Institute for Environmental Studies, "Japan's National Greenhouse Gas Emissions in Fiscal Year 2019" (Energy-related CO<sub>2</sub> emissions from each sector after allocation of power and heat)

## Section 2

## Scenario Analysis: Risks and Opportunities — 1.5°C Scenario —

## ► Real Estate Management Fees (Japan)

The Sekisui House Group's real estate management fees business leases entire rental buildings from their owners for a fixed monthly payment and subleases the rental units to tenants. Future increases in tenant rents will therefore help increase segment earnings. The Sekisui House Group's Sha Maison ZEH rental housing features energy saving, disaster resilience and essential high quality. By increasingly meeting the needs of society as it decarbonizes, the Sha Maison brand will provide stable property management for owners and contribute to our supplied housing business.

Regarding potential financial impact, we forecast an increase in earnings due to increases in tenant rents for ZEH rental housing. To date, monthly rent increases have averaged about ¥5,000 per unit. However, since we began the business, Sha Maison ZEH rental housing has been almost fully occupied with highly satisfied tenants. As mentioned earlier, Sha Maison ZEH orders exceeded our target for the Fifth Mid-Term Management Plan, so we forecast that rental income will increase.

## 3. Development Business

Our condominiums business is also promoting ZEH. In February 2019, we completed the first condominium building in Japan where all units are ZEH. It is in Nagoya City, Aichi Prefecture. In FY2020, we completed two additional ZEH condominium buildings, and all units have been sold. Several more such buildings, including a high-rise, are under construction. ZEH condominiums are not currently receiving as much attention as ZEH detached houses. However, the government intends to promote ZEH condominiums, including high-rise buildings, through a subsidy system. We expect demand for ZEH condominiums to increase because they offer owners the same advantages in comfort, economy and disaster resilience as ZEH detached houses.



Japan's first condominium building where all units are ZEH  
(Nagoya City, Aichi Prefecture)

## 4. Overseas Business (United States, Australia, United Kingdom)

The Sekisui House Group's overseas business continues to grow each year, and currently operates in five countries: the United States, Australia, the United Kingdom, China and Singapore. In the United States and Australia, where we are involved in the homebuilding business, we are not yet selling ZEH models. However, the countries and regions that we serve are moving toward decarbonized housing, as evidenced by California's mandating of higher standards for thermal insulation and the installation of photovoltaic panels for new houses. Given this trend, we foresee potential for ZEH, which is a specialty of the Sekisui House Group.

We are therefore leveraging the Sekisui House Group's strength in eco-friendly housing technology while launching initiatives to grow further in international markets. This includes the development of ZEH aligned with local conditions and introduction of pre-engineered housing technology suitable for local markets. We have already built several ZEH model buildings in Australia and the United States, and are currently enhancing our sales expertise. We have also started studying the feasibility of ZEH sales in the United Kingdom.

Climate change will significantly impact our overseas business. We will fully leverage our design and sales expertise as Japan's leader in ZEH housing while considering consumer and societal needs in each country and region that we serve.

## Section 2

## Scenario Analysis: Risks and Opportunities — 1.5°C Scenario —

## 5. Addressing RE100

In the 1.5°C scenario, we project that there will be a strong push for the use of renewable energy to provide electricity for our business operations. Sekisui House joined the RE100 Initiative in 2017 and demonstrated its commitment by creating Sekisui House Owner Denki, a unique Sekisui House Group business model.

Electric power companies in Japan have been purchasing surplus electricity from homeowners with photovoltaic power generation systems at a fixed price for a set period under the feed-in tariff (FIT system). Sekisui House Group purchases surplus electricity from homeowners whose FIT periods have ended (post-FIT homeowners) and uses it for the Group's business operations. This innovative business model will enable us to achieve RE100 at no additional cost to the Group. Initially, we assumed that we would buy surplus electricity from 20% to 30% of Sekisui House post-FIT homeowners, achieving RE100 by 2040. Currently, however, about 50% of Sekisui House homeowners are participating, so we expect to achieve RE100 by 2030, about 10 years ahead of schedule.

Sekisui House Owner Denki eliminates expenses to achieve RE100 that we would incur without it, such as the purchase of Non-Fossil Certificates or other renewable energy certificates. We plan to continue purchasing post-FIT electricity after achieving RE100, and we are studying new business opportunities that would utilize the electricity generated from renewable energy that we purchase to create net zero energy towns, high-rise condominiums or other types of housing.

▶ See page 65 for details on the RE100 initiative.

## (2) Sekisui House Group Risk

## ▶ Risk of Significantly Higher Carbon Emission Costs

The biggest risk for the Sekisui House Group in the 1.5°C scenario is a significant increase in energy costs due to the introduction of a carbon tax. This would impact the entire Sekisui House Group value chain. In response, the Sekisui House Group has set SBT targets and is implementing various initiatives to reduce CO<sub>2</sub> emissions.

Most of the CO<sub>2</sub> emissions in the Sekisui House Group value chain are Scope 3 (Category 11: Housing), accounting for about 52% of the total. This is because the energy is consumed during occupancy of the housing we have constructed, so the Sekisui House Group is not directly subject to an associated carbon tax liability. However, as the Sekisui House Group's housing is essentially energy-saving, CO<sub>2</sub> emissions per housing unit are low, so the carbon tax burden on owners is small.

The next largest source of CO<sub>2</sub> emissions is the manufacture of materials we procure, accounting for about 38% of the total. This is the amount emitted by building material manufacturers, and the Sekisui House Group faces challenges in directly reducing these emissions. In FY2020, we began requesting our suppliers to take specific measures to address climate change. We plan to promote decarbonization in this category in collaboration with our many suppliers who are on board with the concept.

The remaining 10% or so is CO<sub>2</sub> emissions from business activities such as design, development and manufacturing. In this category, we are working to reduce emissions by converting to LED lighting in offices and employing electricity generated from renewable energy sources based on RE100. We are installing energy-saving equipment in our factories on an as-needed basis, and are replacing our fleet of sales vehicles with highly efficient models. In the short term, we can transition to hybrid gasoline vehicles at low incremental cost. In the long term, we project no major financial liability from transitioning to electric vehicles and using renewable electricity. We will continue to reduce total CO<sub>2</sub> emissions to minimize the impact of the carbon tax.

## ▶ Other Risks

Greenhouse gas emission regulations will tighten as society decarbonizes, making structural steel materials more expensive or perhaps even difficult to obtain. Should steel materials become difficult to procure, we will collaborate with the steel industry, focusing on initiatives such as the Commitment to a Low-carbon Society while proactively working to reduce the amount of steel materials we use by increasing their strength. In addition, given the 2.5 million units of housing stock that the Sekisui House Group has constructed since its establishment, it could conceivably collect structural materials when dismantling such stock and process those materials for reuse.

## Section 2

## Scenario Analysis: Risks and Opportunities — 4°C Scenario —

## 4°C Scenario: Risks and Opportunities

**In the 4°C scenario, we foresee a situation in which the physical risks of abnormal weather are unavoidable despite the transition to a decarbonized society. Based on an analysis of the risks related to increasing severity of natural disasters and continuing temperature rises, we projected risks such as flood damage at some factories, damage at construction sites, and the hazards of heat stroke. However, we have implemented measures to cover most possibilities and can realistically deal with other issues that arise, and therefore found no major risks. On the positive side, the resilience of ZEH housing against natural disasters and rising temperatures should prove to be a strength that creates business opportunities in the 4°C scenario.**

### (1) Sekisui House Group Risk

#### ► Risk of Increasing Severity of Natural Disasters

We have identified business continuity risks from increasing severity of natural disasters such as large typhoons and floods. These risks include damage to branches and construction sites, and disruption of the supply chain.

The Sekisui House Group does business everywhere in Japan except Okinawa Prefecture. We have already structured a business continuity system that can address a disaster in a given area with the support of unaffected areas. Our factories are geographically dispersed, and the risk of concurrent flood damage is low. Therefore, our factory network can supply many materials even if one factory is damaged and cannot operate. In addition, we are mitigating the risk of damage to factories of material manufacturers outside the Sekisui House Group by purchasing from multiple manufacturers and producing materials at multiple locations as a general rule. The Risk Management Committee is responsible for managing and implementing business continuity planning (BCP).

We calculated potential damage to Sekisui House's five factories in Japan using river flood hazard maps and inland flood models to estimate possible inundation depth. Our calculations showed that excluding the Hyogo Factory, four factories are exposed to the risk of flood damage, and of these four, the Kanto Factory is exposed to the greatest risk of damage. In 2020, a more detailed analysis of the Kanto Factory based on the IPCC-RCP8.5 scenario estimated the potential damage to this facility at ¥25.6 billion and confirmed that this amount is covered by existing insurance. In addition, our five factories in Japan are located over 10 meters above sea level, so they are not currently exposed to the risk of inundation due to a rise in sea levels. Overseas factories in Australia are inland, so they are also not exposed to the risk of inundation due to a rise in sea levels.

Sekisui House has already made basic design changes in the housing it supplies to address the projected increase in maximum rainfall and maximum wind speed, so there is no related financial liability. The increasing frequency of abnormal weather events in turn increases the need for highly resilient, disaster-mitigating housing. The Sekisui House Group led the industry in developing and launching energy-saving, disaster-mitigating housing in 2004, and our core Green First Zero brand continues to incorporate these features.

Before purchasing land for resale, we use hazard maps to conduct an analysis of possible risks. When constructing buildings such as condominiums, we also refer to hazard maps during planning to minimize the risk of damage.

However, the impact of climate change is growing year by year, and the scale and frequency of natural disasters may increase. Therefore, the Sekisui House Group considers climate change a major risk and will continue to study how to deal with it.

#### ► Risk of Chronic Abnormal Weather (Rise in Temperature and Sea Levels)

A continuing rise in global temperature increases the risk of heat stroke at construction sites. Higher temperatures lower the efficiency of workers at construction sites, and occupational accidents such as heat stroke and financial penalties due to construction delays are projected.

We therefore thoroughly implement basic measures to prevent heat stroke. We educate construction workers about this condition and recommend they take sufficient breaks, rehydrate appropriately, and wear hats for shade and work clothes that have built-in fans. In addition, we determine construction schedules with sufficient break time, regardless of the season. We protect the safety of construction workers by considering various measures, including monitoring physical condition using vital sign sensors and installation of air conditioners at construction sites.

## Section 2

## Scenario Analysis: Risks and Opportunities — 4°C Scenario —

## ► Risk of Significant Increase in the Stringency of Laws, Regulations and Policies

In the 4°C scenario, the impact of laws, regulations and policies would be limited at first, because their stringency would not have increased significantly. However, we project that subsequently, public opinion will shift to decarbonization, and the stringency of laws, regulations and policies will greatly exceed that of the 1.5°C scenario as global warming progresses and people witness enormous damage. However, in Japan the Sekisui House Group already has an outstanding record as the leader in the construction of ZEH housing that features excellent energy-saving and resilience to disasters. If the impact of climate change becomes more pronounced and the stringency of regulations increases, we will be the first in the housing industry to respond.

Similarly, the unit cost of the carbon tax in the 4°C scenario may be even higher than that assumed in the 1.5°C scenario. We would work to address this issue by quickly reducing total CO<sub>2</sub> emissions through various initiatives to achieve RE100 and SBT certification targets.

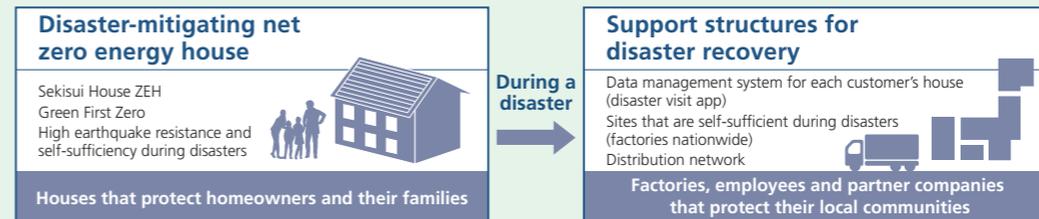
## (2) Opportunities for the Sekisui House Group

## ► Overall Housing Business

In the 4°C scenario, we expect housing damage to increase due to the consequences of global warming, including floods caused by large typhoons and heavy rain. To deal with this, the Sekisui House Group has already enhanced the disaster resilience of its housing products, and believes that opportunities will increase for them to be selected to replace damaged buildings. In fact, many customers have selected our housing products to replace buildings damaged in earthquakes, because they have excellent earthquake resistance. They have not collapsed or otherwise suffered major damage from earthquakes.

In 2004, the Sekisui House Group became the first Japanese housing manufacturer to sell energy-saving, disaster-mitigating housing\* that can provide electricity, water, and food for one week, meaning that people can remain at home in the event of a disaster. This product has evolved further into Green First Zero+R (Resilience), which is a disaster-mitigating net zero energy house with enhanced resilience from the Sekisui House Group's disaster support system. For these reasons, and because of our design and sales expertise and the low probability that our factories and other

## Features of Green First Zero+R



infrastructure will require additional capital investment, we will have a competitive advantage if highly resilient ZEH becomes mandatory.

Another concern in the housing we sell is the risk of heat stroke. However, many of our detached houses are ZEH, enabling owners to mitigate such risk by using air conditioners without worrying about electricity bills or CO<sub>2</sub> emissions because the electricity comes from a photovoltaic power generation system. This also applies to ZEH rental housing. Occupants of rental housing generally do not have access to photovoltaic power generation systems, but those living in ZEH rental housing have access to the same stress-free cooling as owners of ZEH detached houses, thus reducing their risk of heat stroke.

ZEH allows people to live with peace of mind even in the event of increasingly severe natural disasters due to climate change and persistently high-temperature climates. We therefore expect market needs for ZEH to increase for both detached houses and rental housing. As an early proponent of ZEH housing that has already built its brand, the Sekisui House Group should be able to increasingly leverage its market advantages.

The resulting increase in sales should be equivalent to the opportunity in the 1.5°C scenario.

\* Our energy saving, disaster-mitigating housing won the 2005 Grand Prize for Energy Conservation (currently sponsored by the Energy Conservation Center, Japan)

### Section 3

## Future Issues for the Sekisui House Group

**As indicated in the foregoing, the Sekisui House Group has already implemented countermeasures to address projected risks from climate change and therefore will not incur a significant financial burden related to such risks going forward. We will steadily implement initiatives to help realize a decarbonized society by 2050.**

### Identification of Major Risk Factors That Have a Large Financial Impact

Our studies identified risk factors that we should monitor as data for use in planning strategies. The main ones are as follows.

- Increase in stringency of energy efficiency laws and regulations for decarbonization and increasing market needs for decarbonized housing
- Introduction of a carbon tax by national governments
- Standardization of ZEH outside Japan
- Impact of increasing severity of natural disasters and rising temperatures on business continuity

The Sekisui House Group will continue to monitor the major risk factors that have a large financial impact as identified in this analysis to ascertain whether we can continue steady, ongoing promotion of decarbonization. We will also ensure that our governance system makes us accountable for doing so.

Climate change involves many uncertainties, so we need to gather a broad range of intelligence from outside the Group. The Sekisui House Group demonstrates leadership in the international community through Sekisui House's participation in the Conference of the Parties to the United Nations Framework Convention on Climate Change, and is the only private company in Japan to have membership in the Global Alliance for Buildings and Construction (GABC). Through such associations, we will continue to focus on stakeholder engagement.

### Issues to Be Addressed in the Future

Formulating a CO<sub>2</sub> emission reduction plan the entire Sekisui House Group value chain is an issue we must address in the future. Over the medium-to-long-term, we must reduce CO<sub>2</sub> emissions at construction sites by working with construction companies to reduce gasoline consumption of the vehicles of their workers while waiting for heavy machinery manufacturers to develop electric heavy machinery. In addition, building material manufacturers must implement initiatives to reduce CO<sub>2</sub> emissions associated with the manufacturing and transportation of the materials we procure from them. However, each house uses products from a large number of building material manufacturers, and each building uses different types of products. Moreover, many companies, including small and medium-sized enterprises, are involved in making a single building material. Conversely, building material manufacturers also supply their products to multiple housing companies. Therefore, to reduce CO<sub>2</sub> emissions from building materials, the entire building materials industry must be decarbonized.

We will continue to incorporate the latest information on risks, further quantify risks and improve accuracy, with the goal of scenario analysis that will be more useful in formulating strategies and financial plans. Our mission as a Group is to contribute to the transition to a sustainable society. We will continue to collaborate with external initiatives such as SBT and RE100 in steadily promoting our decarbonization efforts.

#### TCFD Recommendations

Please refer to the following for our disclosure items according to the TCFD recommendations.