

June 23, 2022

Sumitomo Realty & Development Co., Ltd.  
Daikin Industries, Ltd.

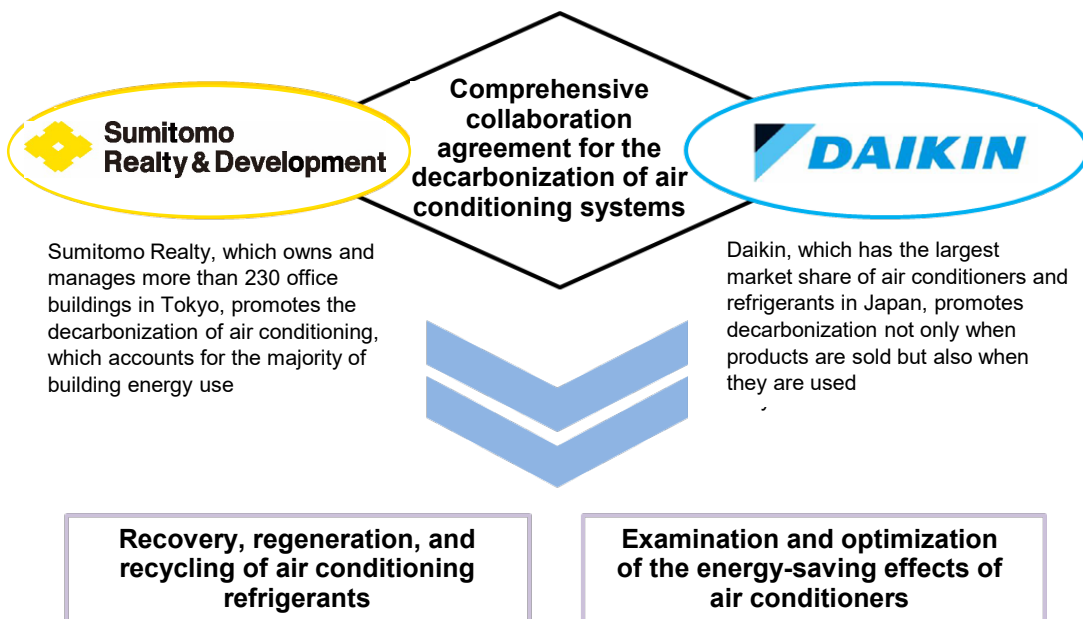
## Comprehensive collaboration agreement signed for the decarbonization of air conditioning systems

### Phase 1: Regeneration and reuse of recovered refrigerants

Reducing refrigerant production to help lower CO<sub>2</sub> emissions, secure a stable supply of refrigerants, and establish a recycling system

Sumitomo Realty & Development Co., Ltd. (hereinafter “Sumitomo Realty”) and Daikin Industries, Ltd. (hereinafter “Daikin”) on June 23 (Thursday) concluded a comprehensive collaboration agreement in the area of air conditioning systems for office buildings, etc. with the aim of contributing to the realization of a decarbonized and sound material-cycle society. The two companies will jointly promote initiatives to examine and optimize the energy-saving effects of air conditioning systems and to recycle and reuse air conditioning refrigerants.\*1

Under the comprehensive collaboration agreement, we will first work with the Daikin group and other business partners to regenerate and reuse all refrigerants\*2 recovered from air conditioners in office buildings that we manage and turn them into recycled products. In this way, we will reduce CO<sub>2</sub> emissions from refrigerant production and help build a resource-recycling system that contributes to a stable supply of refrigerants. Furthermore, we will consider various other collaborative projects to further contribute to the 2050 decarbonization initiative.



\*1: Air conditioning refrigerant: A heat-mediating gas that flows between the indoor unit and the outdoor unit of air conditioners.

\*2: Regeneration and reuse of all refrigerants: We plan to regenerate all R410A and successor refrigerants.

# 1. Objective of the comprehensive collaboration agreement for the decarbonization of air conditioning systems

Nearly half of the energy consumed in office buildings is used for air conditioning systems. In promoting decarbonization jointly with tenant companies, one of the key challenges is to improve the efficiency of air conditioning systems and its efficient operation. Regarding greenhouse gases emitted from air conditioners, the amount is the greatest when air conditioners are in operation. Refrigerants have the second-greatest impact on the emission amount. Therefore, it is important to appropriately manage the use and disposal of air conditioners in reducing greenhouse-gas emissions. The two companies will contribute to the realization of a decarbonized and sound material-cycle society by working together in various areas, including the introduction of high-efficiency air conditioners for office buildings, the appropriate use of air conditioners throughout their life cycle, and the management and regeneration of refrigerants.

## 2. Phase 1 project: Regeneration and reuse of all recovered refrigerants

Sumitomo Realty will cooperate with its business partners to regenerate and recycle all refrigerants, in principle, recovered from air conditioners in the office buildings that it manages. The Daikin group will fully support in this initiative.

CO<sub>2</sub> is generated during the production of refrigerants (gases that are pumped in when air conditioners are installed or replaced) because of energy consumption. Until now, it has been a common practice to destroy refrigerants once they were recovered. However, we will regenerate them for reuse to help reduce production and lower CO<sub>2</sub> emissions.

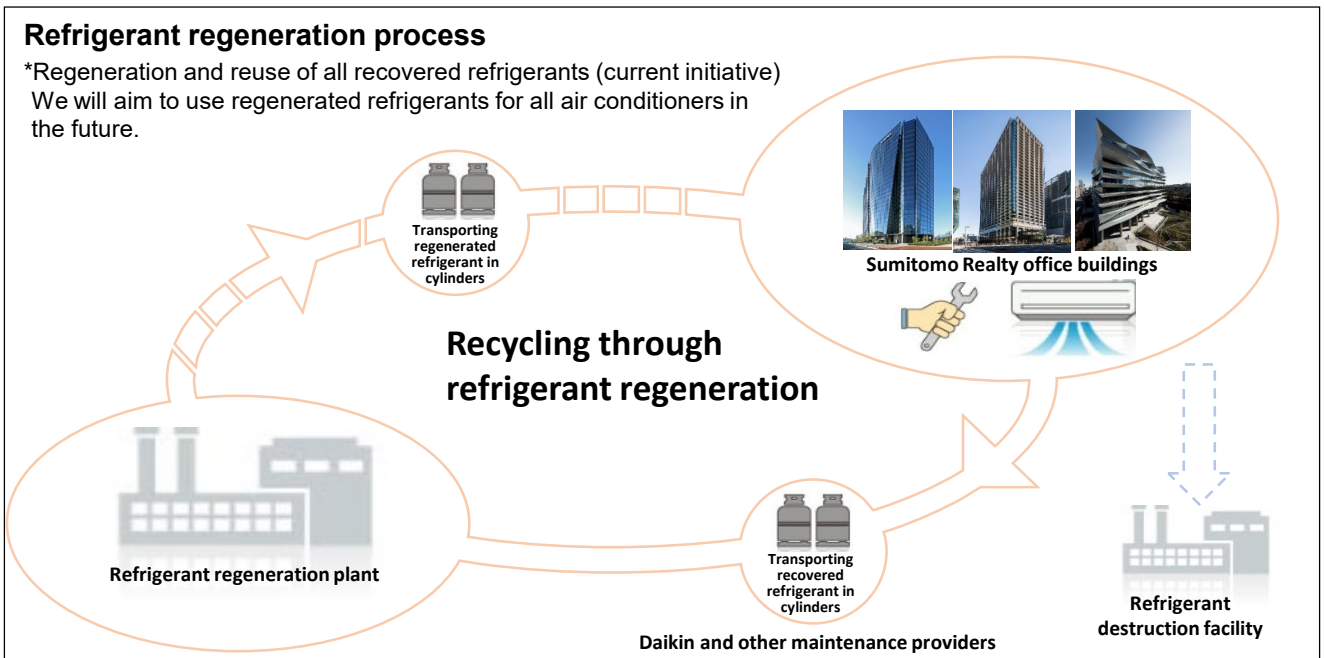
In addition, there are concerns that the supply of refrigerants may run short in the future. An increase in the amount of recovered refrigerants regenerated will not only contribute to a stable supply, but also facilitate a transition to a sound material-cycle society.

## 3. Future developments regarding the comprehensive collaboration agreement for the decarbonization of air-conditioning systems

We will consider various collaborative projects in the future, starting with the regeneration and reuse of all recovered refrigerants. Future initiatives may include the use of regenerated refrigerants for all air conditioners in Sumitomo Realty's office buildings, and efforts to examine and optimize the energy-saving effects of air-conditioning systems.

### **Refrigerant regeneration process**

\*Regeneration and reuse of all recovered refrigerants (current initiative)  
We will aim to use regenerated refrigerants for all air conditioners in the future.



## < Reference >

### **Progress of measures against global warming related to refrigerants**

The production and use of hydrofluorocarbon (HFC) air-conditioning refrigerants are being reduced in stages worldwide as part of an effort to curb global warming in accordance with the Montreal Protocol.\*<sup>3</sup> In Japan, stringent requirements have been implemented with respect to the management of refrigerants by facility administrators, leakage prevention, and recovery at the time of disposal, in line with the “Act on Rational Use and Appropriate Management of Fluorocarbons” (hereinafter Freon Emission Control Law).

### **Destruction and regeneration of refrigerants**

“Destruction” refers to the process of neutralizing chlorofluorocarbons and other substances that have global warming effects when leaked into the atmosphere. “Regeneration” refers to the process of removing impurities—oil and other substances that are mixed in during use—and adjusting the composition of the refrigerants to turn them into a reusable product.

By removing impurities, refrigerants recovered at the time of replacement or maintenance of air conditioners can be regenerated into refrigerants meeting the quality standards and reused. In many cases, however, refrigerants are simply destroyed after recovered from discarded commercial-use refrigerators, air conditioners, etc.\*<sup>4</sup>

### **Environmental initiatives at Sumitomo Realty and Daikin**

#### ◆Sumitomo Realty & Development Co., Ltd.

(Head office: Shinjuku-ku, Tokyo, President: Kojun Nishima)

Sumitomo Realty has been working to solve social issues through its business activities under its fundamental mission to “Create even better social assets for the next generation.”

\*Sustainability initiatives (Details):<https://www.sumitomo-rd.co.jp/english/sustainability/>

#### ◆Daikin Industries, Ltd.

(Headquarters: Osaka City, Osaka Prefecture; Representative Director, President and CEO: Masanori Togawa)

Daikin has made life on earth more comfortable by utilizing the various air-related technologies and expertise that have been cultivated over the years. Daikin will continue to provide new values to make people healthier and the living space more comfortable while conserving energy.

\*Sustainability initiatives (Details):<https://www.daikin.com/csr>

### **Contribution to SDGs**

The initiatives related to this release contribute to the following SDGs objectives:



\*3: The Montreal Protocol on Substances that Deplete the Ozone Layer was adopted in 1987 to protect human health and the environment by identifying substances that may destroy the ozone layer and by regulating their production, consumption, and trade.

In 2016, the protocol was amended (Kigali Amendment) to add HFCs, which do not directly destroy the ozone layer but have strong greenhouse effects, to the scope of regulation.

\*4: Report on the evaluation and review of the enforcement status of the revised Freon Emission Control Law of 2013 (Draft) (JP):

<https://www.env.go.jp/council/06earth/furon12/mat004.pdf>