For Immediate Release

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Carrier's Electric Heat Pump Systems Support Greenhouse Cultivation

Heat Pump Systems Enhance Farm Productivity and Decarbonization

TOKYO, April 22, 2026 – Carrier is pleased to announce that its electric heat pump (EHP) systems have been highly acclaimed for use in greenhouse cultivation in Miyazaki Prefecture, Kyushu, Japan. The systems have contributed to a significant reduction in heating oil consumption, helping farmers streamline operations while supporting progress toward decarbonization. Carrier Japan Corporation is a part of Carrier Global Corporation (NYSE: CARR), global leader in intelligent climate and energy solutions.

Greenhouse cultivation depends on precise environmental control to ensure stable crop yields, traditionally supported by oil boilers for heating and irrigation-based temperature and humidity management. Today, however, sharp increases in fuel, feed, materials, and labor costs are significantly straining farm operations. In response, a growing number of farmers are shifting toward EHP systems as a primary heat source, seeking to minimize boiler operation while achieving more economical and sustainable greenhouse management.

"Carrier Japan will continue to listen to the needs and challenges faced by our agriculture customers, including greenhouse cultivation, and remain committed to providing products and solutions that address these needs," said Mineo Maruyama, President of Carrier Japan. "Guided by Carrier's global purpose—Enhancing the lives we live and the world we share—we strive to support not only the growth and quality of crops, but also the safety and well-being of workers. Through these efforts, we aim to contribute to the advancement of sustainable agriculture and the stable supply of food."

Significant Reduction in Dependence on Oil Heating with Cold-Climate EHP

Against this backdrop, green pepper greenhouse operations in Miyazaki have upgraded their heating system to the Dantaro Series, Carrier Japan's cold-climate EHP and part of the "Elite Heat" series in the U.S., achieving robust and highly stable heating performance even during the winter season. For these installations, the control specifications of the Dantaro Series were optimized to align with local climatic characteristics—marked by significant daily temperature fluctuations—as well as the farm's specific cultivation conditions. As a result, the system can maintain robust heating capacity even under low outdoor temperature conditions. In addition, measures were implemented to address frost formation on outdoor units, a common challenge in heat pump heating, by shortening defrost operation time and reducing its frequency. This effectively minimizes temperature drops inside the greenhouse. Consequently, even with rising oil prices, some farms have succeeded in reducing oil-based heating to nearly zero by operating EHP systems as their primary heat source. This reduction in oil consumption not only lowers fuel costs but also alleviates the labor and expenses associated with fuel replenishment and equipment maintenance. Furthermore, it contributes to reduced CO_2 emissions, supporting decarbonization efforts across the agricultural sector.

Flexible Temperature and Humidity Control Tailored to Crops and Growing Conditions

EHP systems can be used for both heating and cooling, enabling precise temperature control through 24-hour scheduled operation via remote controllers. In recent years, extreme summer heat has caused declines in crop quality and growth and increased the risk of pests and diseases. As a result, summer temperature management has become more critical than ever to ensure a stable supply and consistent product quality. For example, a tomato grower has created a nighttime greenhouse environment cooler than

the outside air, suppressing plant respiration and improving sugar content. In pepper cultivation, maintaining nighttime temperatures at around 20C during the summer months is considered essential. With the introduction of EHP systems, precise temperature control has become possible, and in some cases, growers have been able to reduce the amount of irrigation previously used for temperature regulation. In addition, in strawberry cultivation—where branding and quality differentiation are increasingly important in Japan—EHP systems are being utilized to maintain stable quality, control sugar content, and improve productivity, while accommodating the diverse cultivation environments and standards of individual farms. Carrier Japan's agricultural solutions are designed to address the specific needs of each grower, delivering optimized air conditioning systems through a holistic approach that combines equipment performance with tailored control and operation design.

Reduced Initial Investment Through Subsidies and Lower Annual Operating Costs
When introducing EHP systems, farmers can reduce initial investment costs by utilizing subsidy programs provided by national and local governments. In addition to lowering upfront costs, the high energy efficiency of EHP systems contributes to reduced operating expenses. According to Carrier Japan research, a farm in Miyazaki that adopted EHP systems achieved annual cost savings of approximately JPY 500,000 to 700,000 (approximately USD $3,300 to $4,700) compared to conventional oil boilers. These results highlight the potential of EHP systems to improve both economic efficiency and long-term sustainability in greenhouse cultivation.

Addressing Summer Heat While Ensuring Crop Quality and Worker Safety
In addition to heating, EHP systems can be used for cooling, helping to maintain stable growing environments for crops while addressing the growing need to protect workers from heat stress in greenhouse operations. FLEXAIR, Carrier Japan's spot air conditioning system, features a highly compact design with powerful, long-reach airflow, enabling cool air to be delivered efficiently throughout the greenhouse. Unlike large indoor equipment that can interfere with photosynthesis, FLEXAIR supports both improved crop growing conditions and effective cooling for on-site personnel. By contributing not only to crop quality management but also to safer and more comfortable working environments, EHP systems help reduce labor burden, improve productivity, and lower energy costs—making them an increasingly essential component of modern agricultural operations.


About Carrier Japan
Carrier Japan provides sustainable solutions integrating energy efficient products for residential, light commercial and industrial customers. Carrier Japan is a part of Carrier Global Corporation (NYSE: CARR), global leader in intelligent climate and energy solutions, committed to creating innovations that bring comfort, safety and sustainability to life. For more information, visit Carrier HVAC Asia Pacific.

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