

HEALTHY, SAFE, SUSTAINABLE COLD CHAIN

MOVES THAT MATTER: FOOD

As the world continues to navigate dramatic changes, getting fresh foods to the people who need them has never been more important – or more challenging. At Carrier, we know that preserving, protecting and extending the world's food supply starts with moving the entire cold chain forward. And we help customers do it with confidence by providing industry-leading services, solutions and expertise to advance our truck and trailer products, increase connectivity and sustainability in shipboard container refrigeration, deliver high-efficiency commercial refrigeration solutions and more.

KEY CHALLENGES

Several major factors are currently impacting food supply and sustainability, and will continue to have an impact well into the future. Carrier is focused on these issues as we work toward a connected cold chain that feeds more people, reduces food loss and decreases the impact of food production on the environment.



Effects of COVID-19

The difficulties of the COVID-19 pandemic shed a light on inadequate food security, resiliency and availability around the world. Weak links were revealed in the cold chain, leading to critical product shortages, price increases and higher rates of hunger. In fact, we're beginning to see issues in developed countries that were traditionally reserved for emerging markets.

- **Food prices have risen for 12 consecutive months**, to the highest level since 2011¹
- In May, we saw the **biggest month-on-month price gain for food** since October 2010
- **270 million people are on the brink of starvation**, twice the level of just two years ago²



Global Trends

Aside from the pandemic, the world is facing a number of additional factors that will impact the future of food. These trends point to the need for more sustainable cold storage and transport refrigeration, along with better logistics coordination to improve efficiency and reduce waste.

- **The global population will increase by 25% over the next 30 years**³
- By 2050, **66% of the world's population will live in cities**, farther from where food is produced⁴
- Today one-third of all the food produced worldwide is wasted, while nearly **1 billion people go hungry every day**⁵



Greenhouse Gas Emissions

There is also a clear cause-and-effect relationship between global levels of food waste and levels of greenhouse gas (GHG) emissions. When food isn't consumed, all the resources that go into the production and transport of that food are wasted. A more efficient and sustainable cold chain can help reduce losses, in turn reducing our impact on the environment.

- **4.4 billion metric tons of CO₂** are produced per year from food waste⁶
- If food waste were a country, it would be the **third largest emitter of GHG emissions**⁷
- An improved global cold chain **could reduce current CO₂ emissions by almost 50%**⁸

A MORE ROBUST AND CONNECTED COLD CHAIN

Carrier is engaging in a number of efforts to overcome these obstacles and increase global food security. That includes several projects that benefit emerging markets in India, China and Africa – using our products and expertise to reduce food loss, maximize efficiency and optimize their respective cold chains.

We're also pursuing greater connectivity across the entire global cold chain. Today's customers want more real-time information, data analytics and prognostics, so they can make faster, intelligent decisions that help improve efficiency and sustainability. We're meeting that demand by improving connectivity and performance across our individual product lines in a number of ways.



Truck & Trailer

The U.S. economy depends on trucks to deliver 10 billion tons of virtually every commodity consumed – 74% of all the freight transported in 2020. By offering advanced truck and trailer refrigerated solutions like X4™, Vector™ and Supra® units to the North American market, and extending our network of service providers, Carrier can make a huge impact.



BENEFITS OF THE NEW SUPRA®



LIGHTER

Up to 150 lbs.



SIMPLER

3 fewer belts



EFFICIENT

50% more BTU/gal



QUIETER

3 decibels



MAINTENANCE

2,000 hours



FLEXIBLE

3 engine speeds



FUEL

Up to 37% less



REFRIGERANT

Up to 37% less



GHG

4 tons CO₂ less



ALIGNED NETWORK OF
SERVICE PROVIDERS

270,000+

unit installed base
being serviced

2,000+

employees in
35+ countries

40+

customer service and field
service engineers deployed

Container Refrigeration

For more than 50 years, Carrier Transicold has been the industry leader in marine container refrigeration. Today, we're continuing that leadership – increasing efficiency with our PrimeLINE® and NaturaLINE® units, extending product shelf life with our EverFRESH® controlled atmosphere system, and providing end-to-end cold chain visibility and management with our all-new Lynx™ Fleet platform.



CARRIER PRIMELINE UNIT

- Industry bestseller for over 13 years
- Lower operating cost and total cost of ownership with high efficiency
- Fast return temperature pull-down of -35 C to +30 C
- Best-in-class airflow

CARRIER NATURALINE UNIT

- World's first natural refrigerant (CO₂) based solution
- Greater deep-frozen capability of -40 C to +30 C
- High efficiency
- Tight temperature control

EVERFRESH CONTROLLED ATMOSPHERE

- Fully active controlled atmosphere (CA) system to protect wider range of cargoes
- Uses N₂ injection to achieve/maintain CO₂ and O₂ levels
- CO₂ injection option for enhanced cargo protection
- Less sensitive to box leakage

LYNX FLEET

- Carrier-exclusive Reefer Health Index with prognostics and diagnostics
- Mixed Fleet Support offers a unified view of all assets
- Notifications and alarms managed by exception

Commercial Refrigeration

Transporting food is only one part of the cold chain – there's just as much opportunity for innovation once the cargo reaches its destination. Carrier offers our customers a number of high-efficiency solutions for in-store commercial refrigeration.

OUR COMMERCIAL REFRIGERATION FOOTPRINT

22,000+ sites maintained

9,000+ connected stores

1.5 MW CO₂ refrigeration capacity

700+ top-trained technicians

80% of the cabinets we produce utilize CO₂ technology

30-45% energy consumption reduction for the fan with BREEZtec™ technology

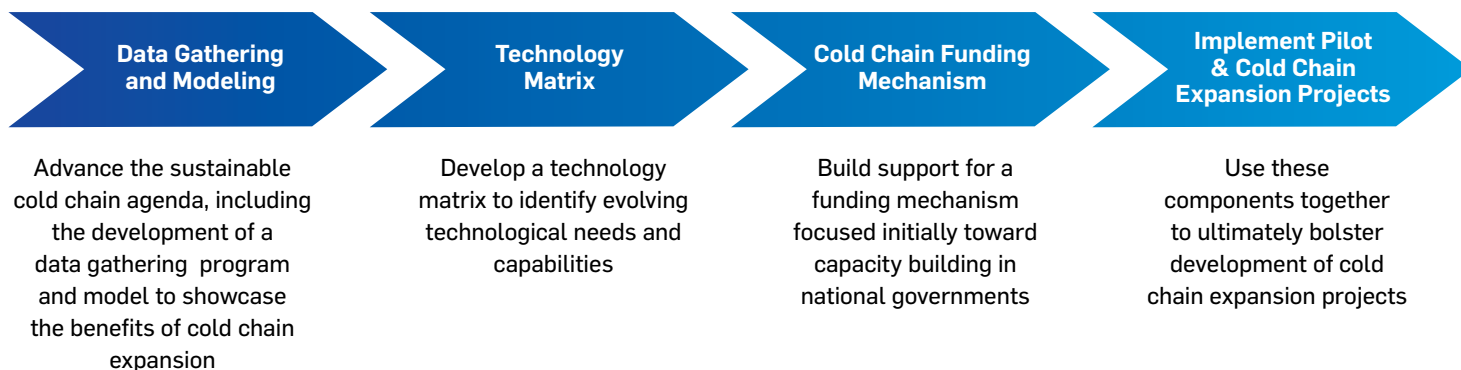
10% energy consumption reduction at typical store conditions with inverter technology

5% energy consumption reduction with on-demand defrost systems in the future



TURNING SUSTAINABILITY INTO POLICY

Carrier's commitment goes so much further than our own products. We're a founding member of the Global Food Cold Chain Council (GFCCC), an industry coalition dedicated to promoting expansion of a sustainable cold chain to reduce food loss, food waste and related greenhouse gas emissions. Together with other member organizations, we work to advance awareness – and most importantly, action – when it comes to securing a healthy, connected cold chain.



DELIVERING CONFIDENCE EVERY STEP OF THE WAY

By offering our expertise and innovation across so many products and initiatives, Carrier is able to make a genuine impact on the global cold chain every day – and, in turn, impact the global supply of food. From extending the shelf life of perishables, to better connecting operators to their fleets and cargoes, to collaborating with governments on their own sustainability projects, we're not only increasing confidence and food security – we're creating a better future for everyone.





CONNECT WITH AN EXPERT

Visit us at corporate.carrier.com/healthycoldchain to learn more from Carrier leaders and industry experts about creating an efficient, sustainable cold chain – one that preserves, protects and extends the world's food supply now and into the future.

For more information, contact Refrigeration.Communications@carrier.com.

¹ <https://www.un.org/development/desa/en/news/population/world-population-prospects-2017.html>

² Currently there are 135 million people in Crisis or worse; 183 million more are Stressed and in risk of slipping into Crisis. "Global Report on Food Crises, 2020: Joint Analysis For Better Decisions," Food Security Information Network, 2020, Web June 1, 2020, https://www.fsinplatform.org/sites/default/files/resources/files/GRFC_2020_ONLINE_200420.pdf, 2

³ <https://www.un.org/development/desa/en/news/population/world-population-prospects-2017.html>

⁴ <https://www.un.org/development/desa/publications/2018-revision-of-world-urbanization-prospects.html>

⁵ <http://www.fao.org/3/mb060e/mb060e.pdf>

⁶ "Food Wastage Footprint & Climate Change," Food and Agriculture Organization of the United Nations, 2015, Web June 4, 2020, http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/FWF_and_climate_change.pdf

⁷ <https://www.unep.org/regions/north-america/regional-initiatives/promoting-sustainable-lifestyles>

⁸ <https://iifiir.org/en/fridoc/142029>