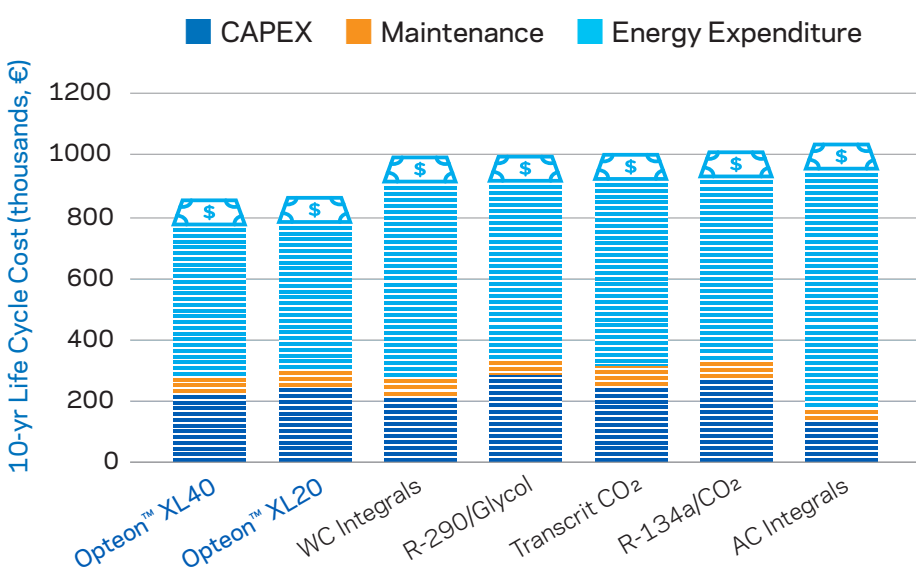


Moving to low GWP refrigeration does not have to be more expensive

As retailers begin evaluating new refrigeration options to remain compliant with the European F-Gas Regulation, there are questions about the increased cost that comes with replacing existing hydrofluorocarbon (HFC) systems with more sustainable, long-term solutions.

When making the switch, it's important to think beyond initial expenses and consider the **total life cycle cost (LCC)** to determine the most cost-effective low global warming potential (GWP) alternative.



Data from standard-sized supermarket in Leicester, UK (~2000 m² sales area with design loads of 160 kW medium temperature/30 kW low temperature). Data for Sevilla, Spain also available in the white paper.

Total Cost

Both CAPEX and OPEX must be evaluated to fully understand long-term refrigeration cost.



Capital Expenditure (CAPEX)

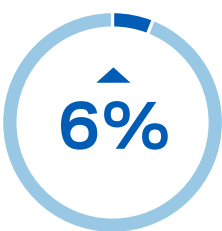
initial cost of purchasing and installation



Operational Expenditure (OPEX)

ongoing maintenance and energy cost

With the lowest climate change emissions at the lowest LCC, **Opteon™ XL hydrofluoroolefin (HFO) refrigerants** from Chemours provide an ideal long-term solution for meeting regulatory requirements without sacrificing performance. While they are similar to current HFC/HFO systems, they clearly outperform alternative systems.

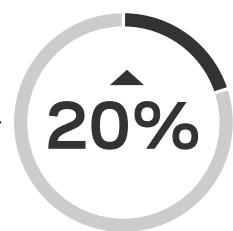


Opteon™ XL HFO refrigerants

are the right choice for most sized retailers, with an average LCC increase of only 5-6% over incumbent technology.



Store sizes: 300-2,000 m²



Alternatives like carbon dioxide (CO₂) and hydrocarbons (R-290)

can result in an average cost increase of over 20%!

Opteon™ XL refrigerants compared to current HFC refrigerants:

Equal cooling performance
Superior energy efficiency
Lower global warming potential
Similar ease of installation and maintenance
More sustainable and compliant with regulations

Opteon™ XL refrigerants compared to other low GWP alternatives:

Lower total emissions
Lower life cycle cost
Lower flammability than hydrocarbons
Lower operating pressure than CO ₂
Superior energy efficiency



See the proof. Read about the independent comparison study for small- and standard-sized supermarkets conducted by Wave Refrigeration in our new white paper, [The Path to Reducing Climate Change Emissions from Commercial Refrigeration Applications](#).

