

REFRIGERANT REGULATIONS ARE CHANGING — BUT DON'T LET FEAR DRIVE YOUR DECISIONS

OXFORD ENERGY SOLUTIONS INC.



WHAT EVERY INDEPENDENT GROCER NEEDS TO KNOW ABOUT CANADA'S UPDATED REFRIGERANT RULES

The refrigeration industry in Canada is evolving — and not just for the big chains. With what feels like a constant shuffle of rules around which refrigerants are allowed, and which are being phased out, many store owners are left navigating the regulation stew with stress and confusion. As of January 1, 2025, new federal regulations from NRCAN will influence the design and construction of new refrigeration systems across the country. While much of the focus is on the Global Warming Potential (GWP) of refrigerants, the smartest approach is to step back, look at the full picture before making any costly decisions.

Let's start with the most important message: your existing refrigeration systems are not being phased out. You can continue using current refrigerants. The phase-down affects only the production and import of HFCs, and there are currently no forced deadlines for the replacement of more common refrigerants. The real change applies to new equipment purchases, including condensing units, racks and centralized systems.

UNDERSTANDING GWP — AND WHY IT'S NOT THE WHOLE STORY

The GWP rating system is the government's tool to limit the environmental impact of refrigerants. Lower numbers are seen as better. But GWP is a narrow metric. It doesn't account for the resources and processes required to manufacture these refrigerants — things like water use, natural gas/oil consumption, and energy intensity. This means that while some

refrigerants may fall well below the new regulatory threshold and boast very low GWP values, the full environmental impact is not reflected in that number.

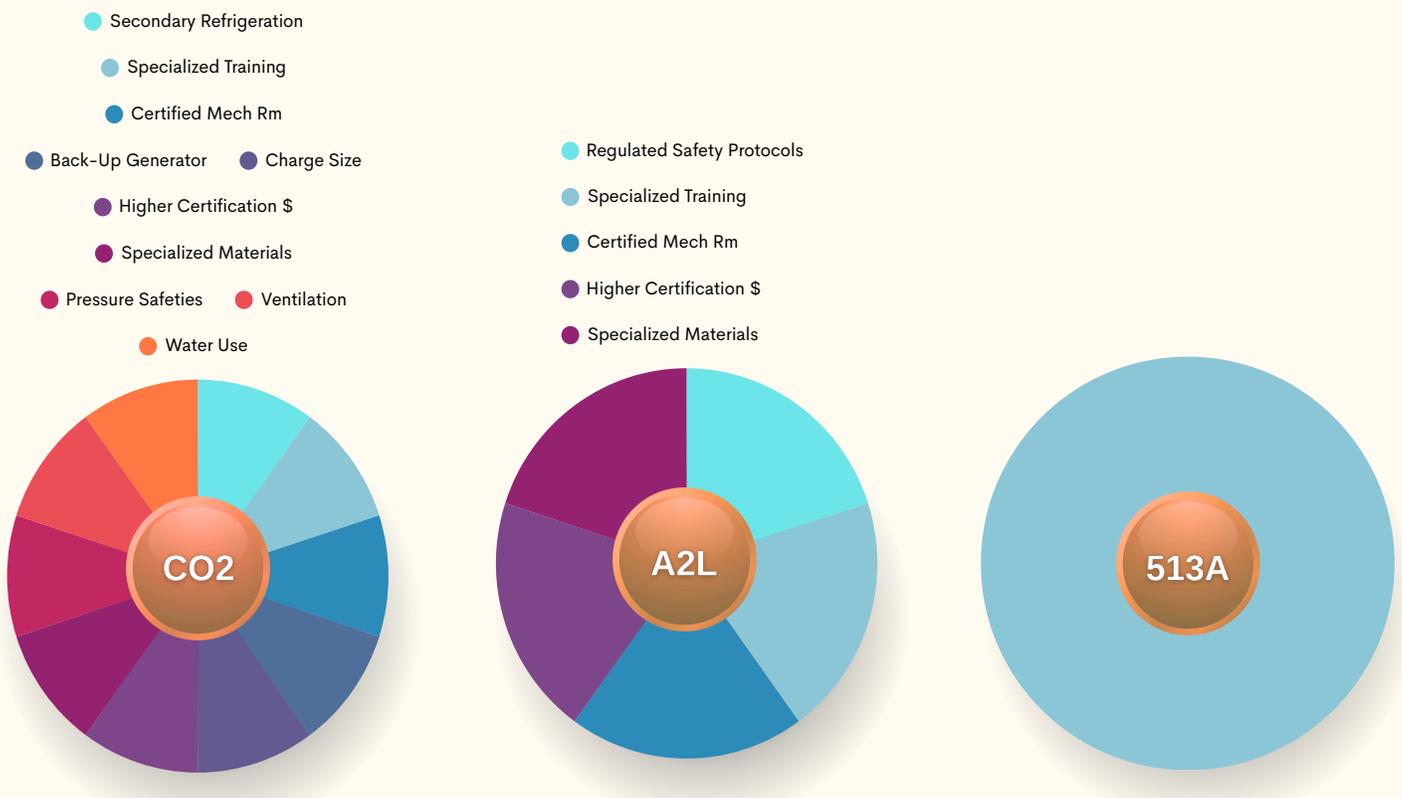
For example, CO₂ is often praised as a zero-GWP refrigerant. But in reality, the CO₂ used in refrigeration systems is a byproduct of ammonia production, requiring large amounts of natural gas and water. **The environmental cost isn't zero — it's just hidden.**

We also see a rise in the use of A2L refrigerants – mildly flammable blends. These refrigerants are showing up more in self-contained equipment. And while they meet new GWP targets, the safety and infrastructure demands of A2L systems are not trivial. Their adoption is being led more by refrigerant manufacturers than by

equipment engineers, which can lead to mismatches in safety, performance, and cost.

So here’s the key takeaway: Don’t evaluate a refrigerant by its GWP alone. Evaluate the entire system it requires – infrastructure, energy use, safety, and longevity.

THEY ALL MAKE YOUR PRODUCT COLD... BUT AT WHAT COST?



When evaluating refrigerants, it’s critical to look beyond the chemical itself and consider the ripple effects of that choice. How universal is it? Is it flammable? Will it add regulatory hurdles and infrastructure costs, or will it make your operation simpler, safer, and more energy-efficient? A refrigeration system is far more than the fluid running through it.

Choosing a refrigerant isn’t just about compliance – it’s about what else comes with it. CO₂ systems, for example, require:

- High-pressure components (500–2,000 psi)
- Certified mechanical rooms
- Additional condensing systems for warm days
- Secondary refrigerants and infrastructure

All of this adds up to more cost, complexity, and maintenance — often without delivering the efficiency gains you were promised. A2Ls are still very new to the market in North America. Right now, their use is mostly limited to self-

contained units with small refrigerant charges. Full-scale A2L systems still raise limitations and safety concerns, and we don't yet have enough long-term data to recommend large scale investments.

THERE ARE BETTER OPTIONS — RIGHT NOW

There are next-generation HFO refrigerants available that strike the right balance. They have:

- Low GWP (well below the regulated limits)
- Non-flammable and non-toxic properties
- Compatibility with efficient, low-pressure system design
- Fewer moving parts, which means lower maintenance
- Minimal “glide” (no refrigerant separation issues)

These refrigerants support safe, well-engineered systems that work seamlessly with today's technology and can easily adapt to tomorrow's advancements. They deliver strong performance without the steep infrastructure costs of CO₂ or the safety challenges of A2Ls. With proven results and excellent operating properties, they achieve efficiency without compromise — making them a smart, future-ready choice for grocers.

EFFICIENCY THAT TRANSLATES INTO PROFIT

Let's talk numbers. At a store like Sayers Foods, refrigeration energy use on a warm day is just 20 kilowatts — including all walk-ins, freezers, compressors, fans, and condensers. That's just \$3.20/hour at peak. At night? Less than \$1/hour. That's cheaper than running the lights.

The same was true for a retrofit project at Federated Co-op in Alberta. There, Oxford Energy Solutions' platform reduced electrical demand by 62% — earning the store a \$92,000 rebate from the provincial government. These significant infrastructure savings

can offer owners new options: for example, larger bakery equipment, more ovens, or even future refrigeration expansion — all without upgrading the store's electrical service.

These results weren't achieved with magic. They came from smarter architecture: low-pressure platforms designed around high-efficiency refrigerants with excellent compression ratios. Unlike CO₂, which often sacrifices efficiency to meet GWP metrics, these systems improve both environmental impact and bottom-line performance.

WHERE THE INDUSTRY IS GOING – AND HOW TO STAY AHEAD

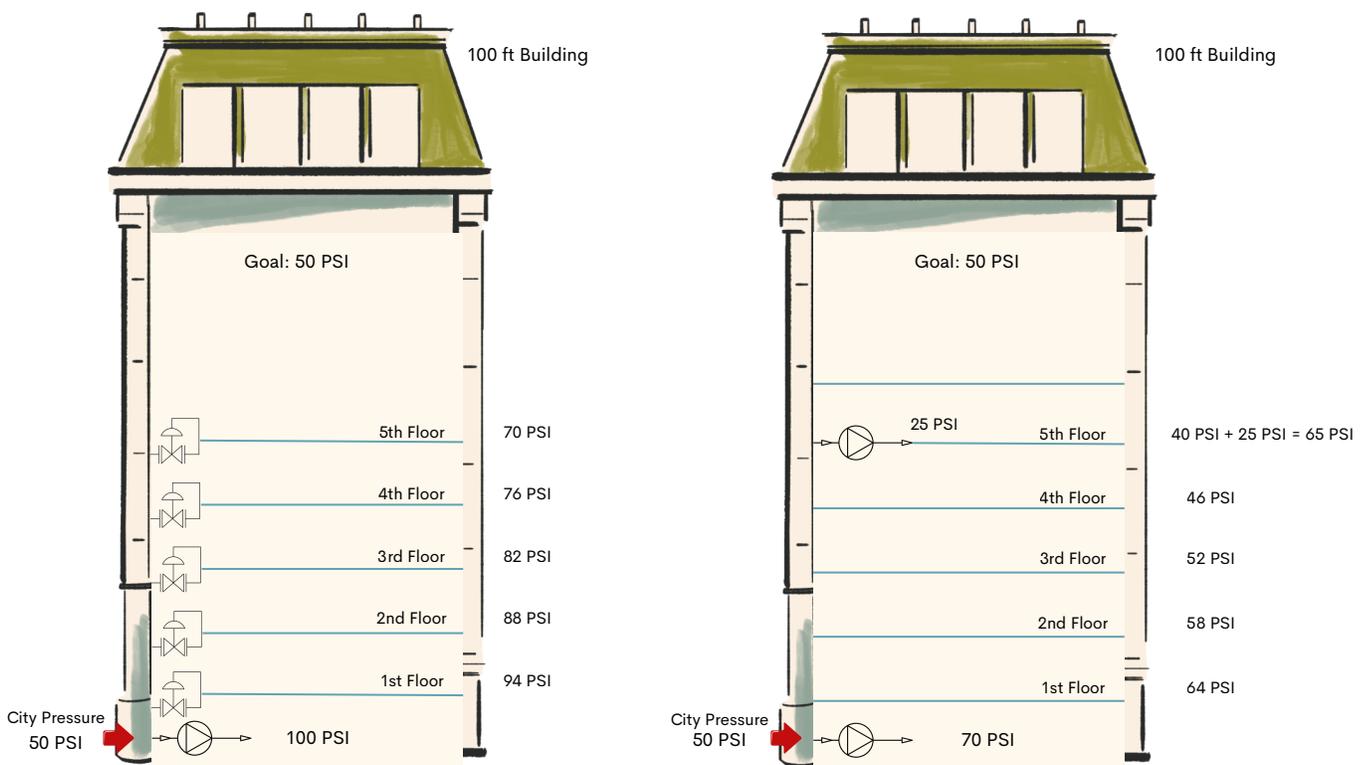
Other industries have already found smarter ways to move energy around. For example, modern compressed air and heating systems now boost pressure only where it's needed, instead of cranking it up everywhere and then wasting energy bringing it back down. Refrigeration can work the same way.

Legacy refrigeration systems build pressure in one central spot and send it through a maze of valves and parts – which not only adds cost but also wastes energy. Oxford's approach removes many of these extra parts and designs systems that deliver exactly the right amount of cooling to the right place, without the waste.

The next leap forward is digitalization – and it's where technology is taking us. Oxford's fully digital

platform continuously monitors, analyzes, and adjusts how refrigerants move through the system in real time. Considering the properties of each refrigerant and how it performs under varying loads and conditions, the platform can fine-tune pressures, temperatures, and flow rates to maximize efficiency. Advancements in technology now use digitalization to connect every part of the refrigeration system into one unified network, offering complete transparency into what each component is doing – ensuring the system runs at peak performance, all the time.

For independent grocers, that translates into significant energy savings, fewer maintenance calls, extended equipment life, and the flexibility to expand or adapt without overhauling your system.



System Efficiency – Water Pump Example:

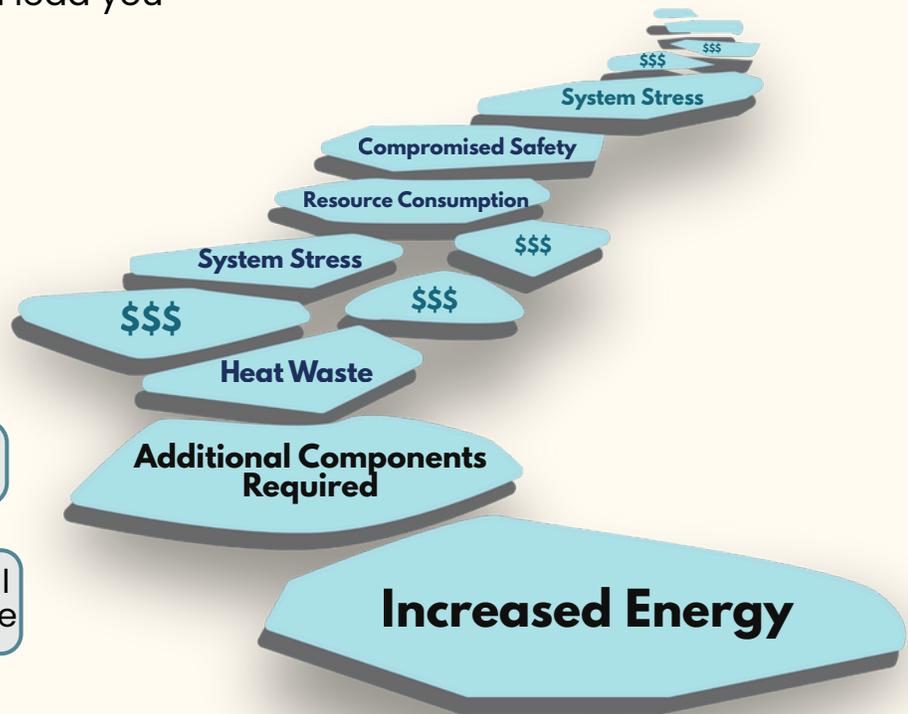
FINAL WORD: DON'T LET FEAR DRIVE YOUR REFRIGERATION DECISIONS

Reactive Decision Making can lead you down the wrong path...

Regulatory Misinterpretation
↓
Unnecessary Equipment Changes

Hidden Costs Multiply \$\$\$

Consider Capital + Operational Impacts over Equipment Lifetime



We're entering a time of change – but also a time of opportunity. The regulations aren't a threat; they're a chance to do better. You are not being forced to replace your equipment tomorrow. **You do have time to evaluate the best path forward.**

So let the conversation go beyond refrigerants. Look at the whole

system. Ask what kind of performance, efficiency, and reliability it brings. Ask what future technologies it can support. And most of all, don't let fear-based sales tactics rush your decisions.

The smartest investments are the ones that serve your store today – and still make sense ten years from now.

