



# R744 refrigerant Ready for today's market

*The true numbers*

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The demonstration of the benefit of the transcritical CO<sub>2</sub> refrigeration system are now well accepted by several supermarket chains.

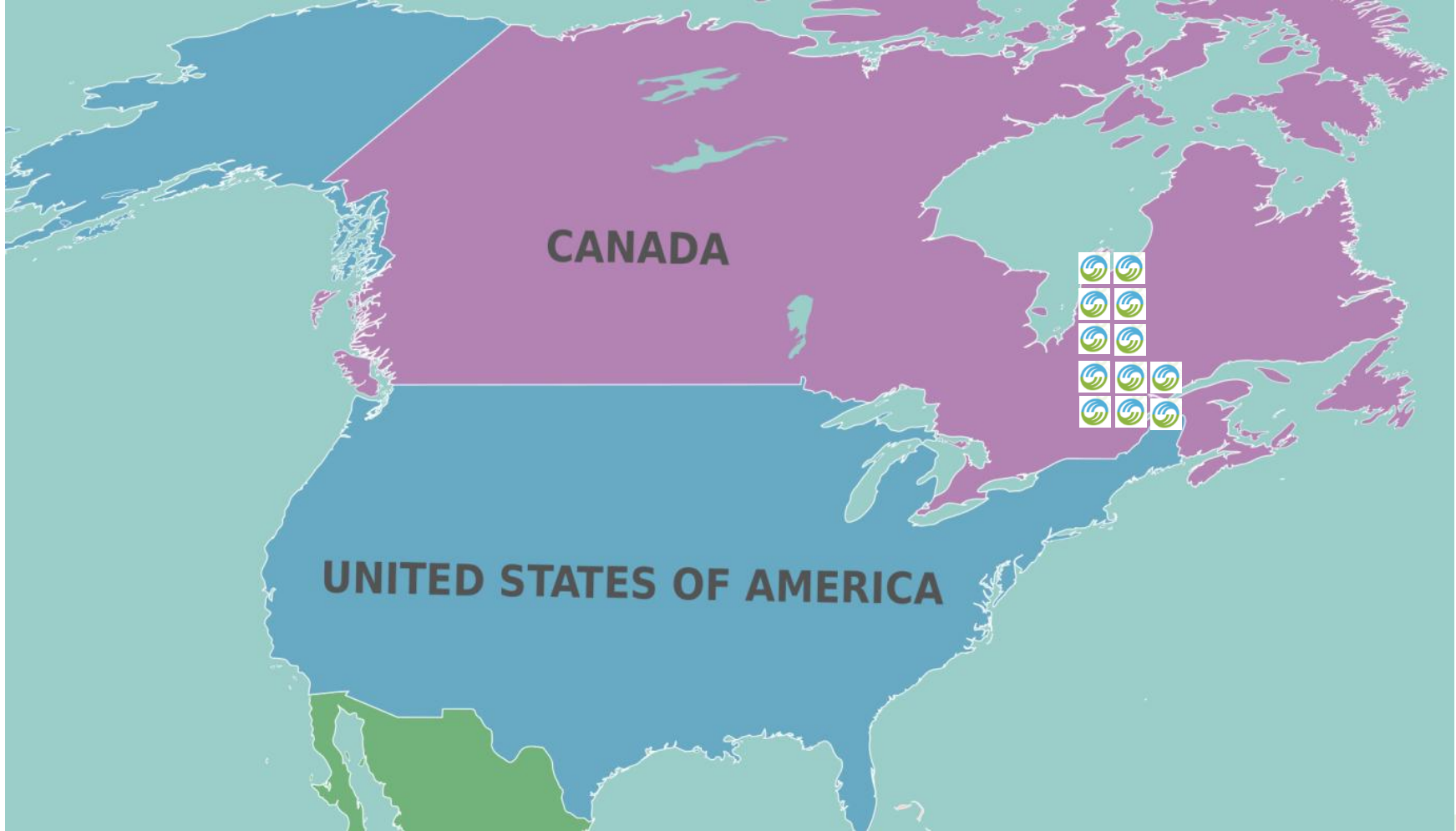
Several other market follow actually in this way.  
Distribution center, Ice rink arena, MAC, Air conditioning, etc.

This presentation will more particularly talks about a retrofit project. This project is an installation of a new CO<sub>2</sub> refrigeration system in a 3 Ice Rinks complex. Same location, same footprint and same numbers of rinks... here comes... **THE TRUE NUMBERS...**

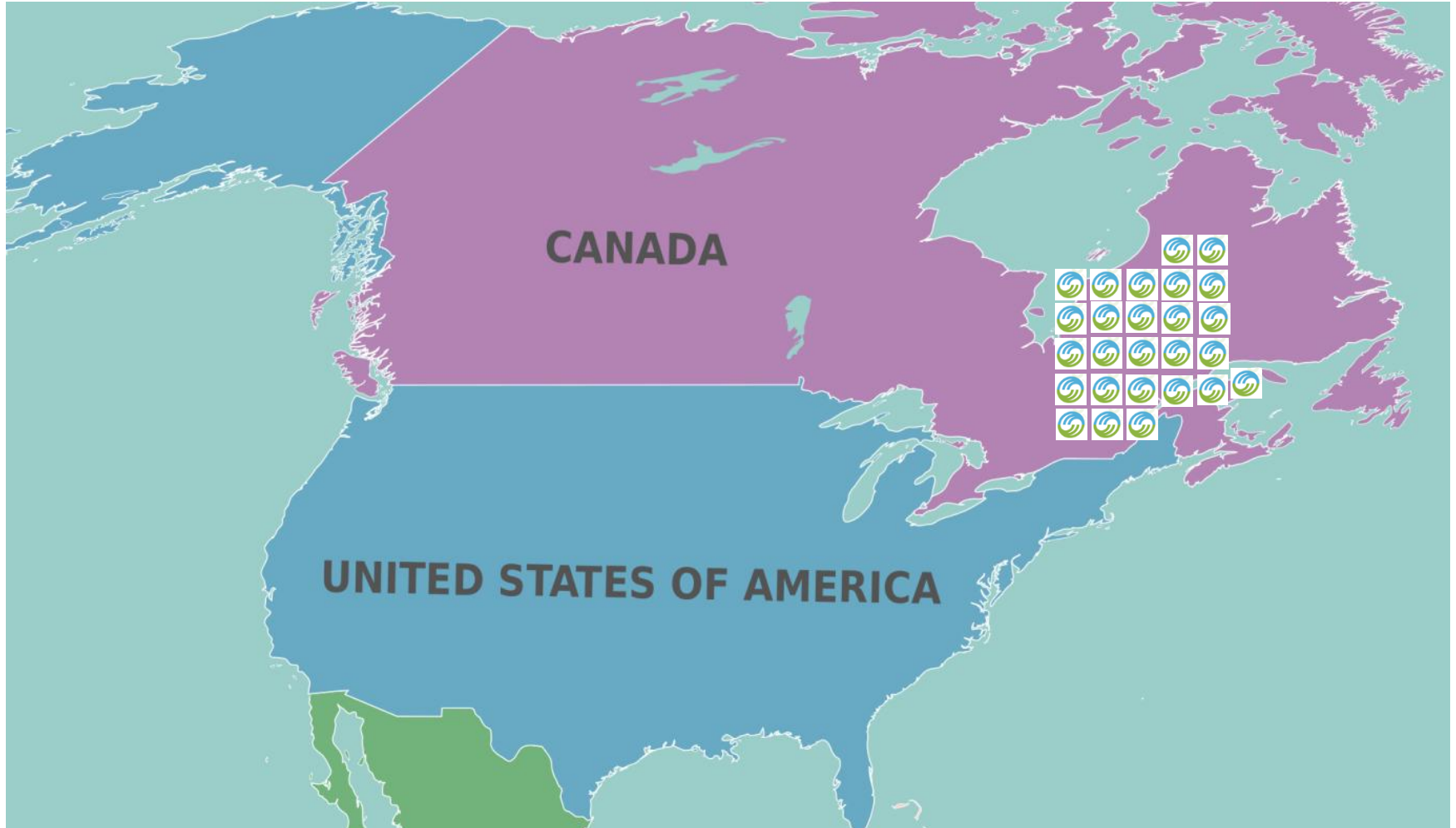
2009



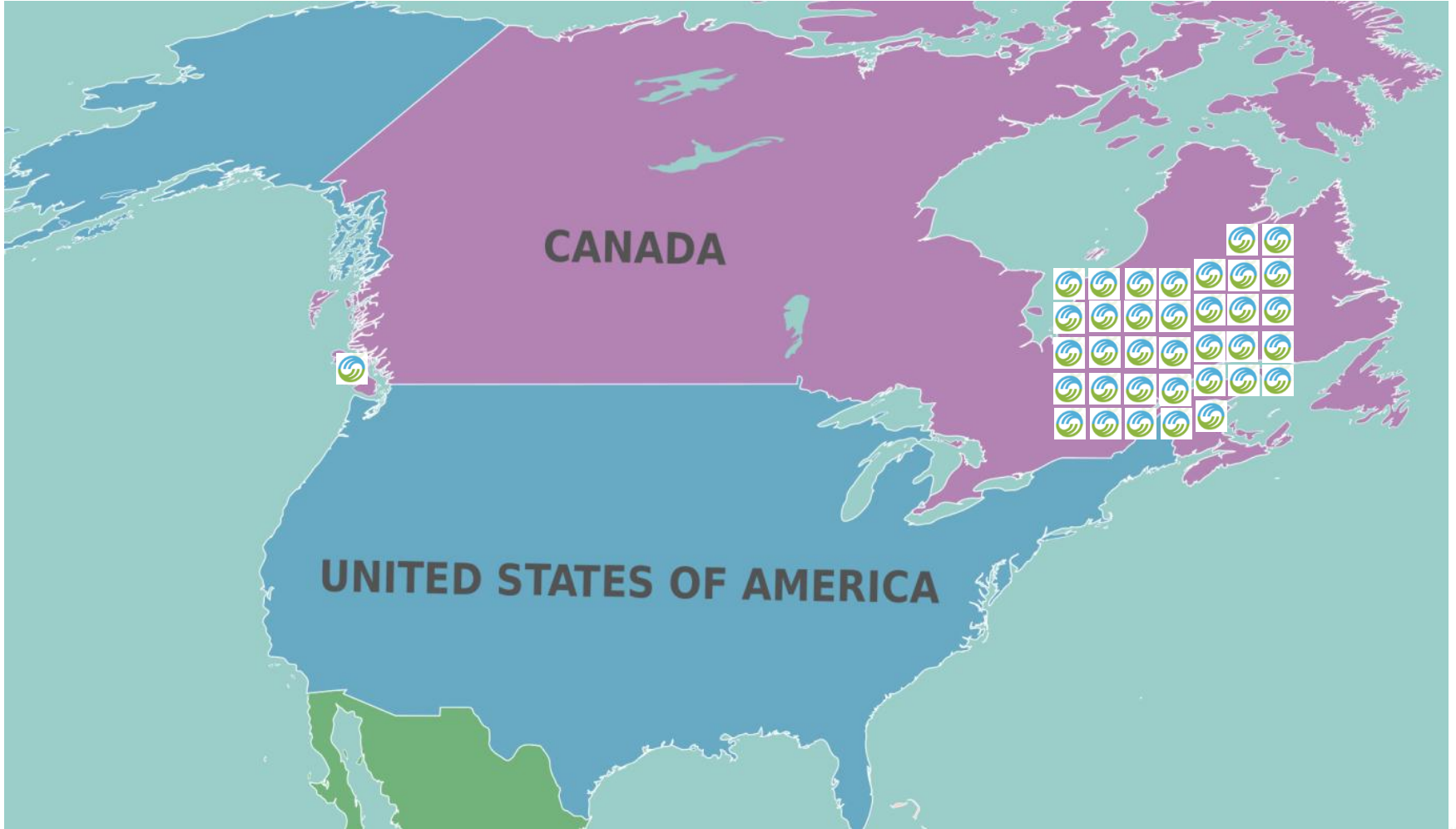
2010



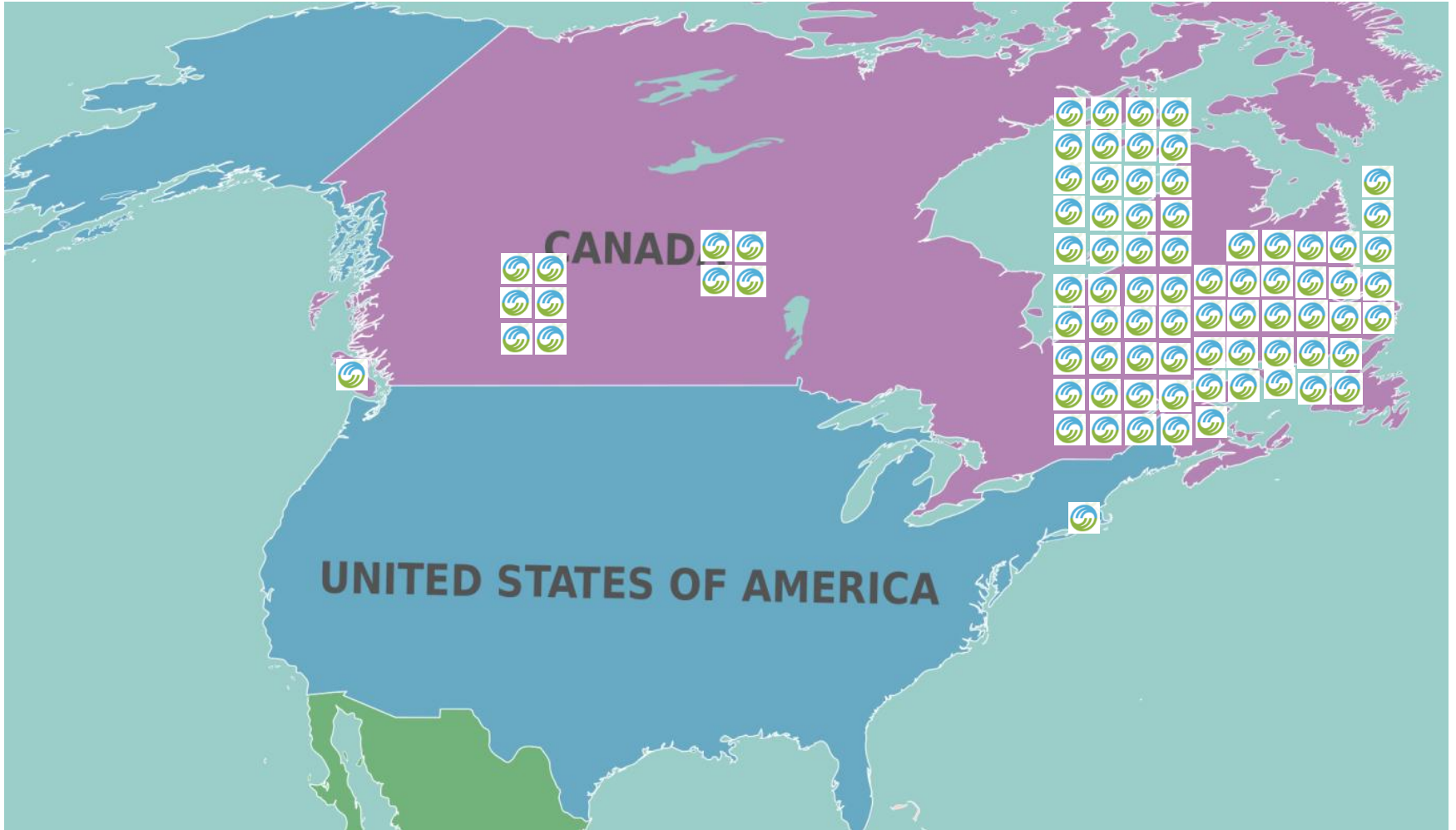
2011



2012



2013



## Questions to answer:

What kind of project can find benefit of using CO<sub>2</sub> as refrigerant?

How easy it is to simply retrofit with CO<sub>2</sub> refrigeration systems?

Is it energy wise?

How much does it cost?



What kind of project can find benefit of using CO2 as refrigerant?

Distribution Center



What kind of project can find benefit of using CO2 as refrigerant?

Ice Rinks complex



What kind of project can find benefit of using CO2 as refrigerant?

Super Market



How easy it is to simply retrofit with CO<sub>2</sub> refrigeration system in an Ice Rink complex?

The answer is; Easy...If you have the right team.

**BEFORE;**



How easy it is to simply retrofit with CO2 refrigeration system in an Ice Rink complex?

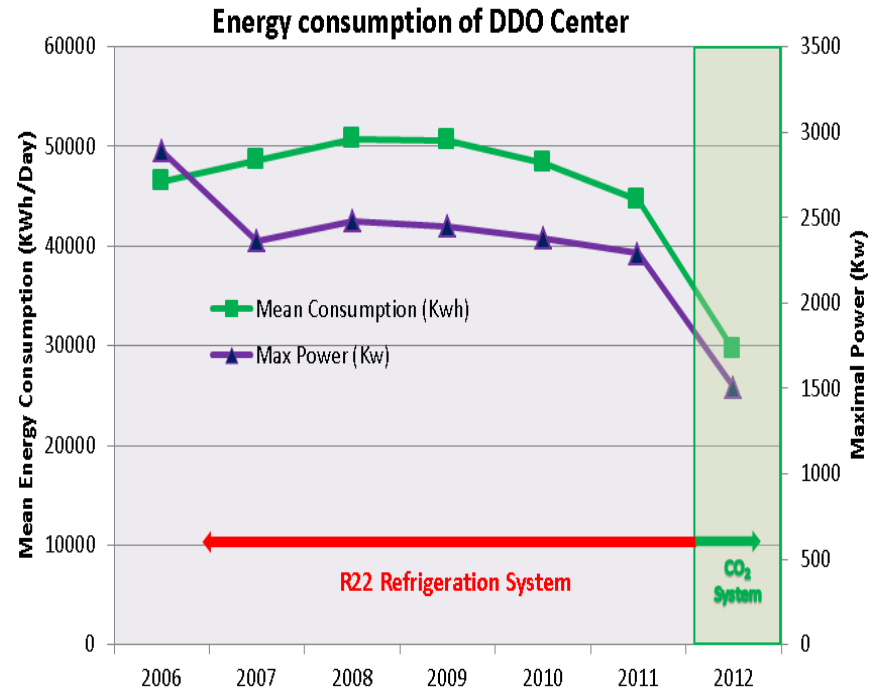
The answer is; Easy...If you have the right team.

**AFTER;**



## Is it energy wise? The answer is; Yes

	Quantity	Capacity (kW)
Compressors	18	724
Brime Pumps	3	11.25
Heating Pump	1	3.75
Heat exchanger	4	274
Heat recovery	8	880
Gas cooler	2	1160
Refrigerant CO2	5456 lb	



The city of Dollars des Ormeaux confirmed to us that they saved 3 500 000kwh and 700KW on there peak load since the start-up in last september...

## How much does it cost?

- There is no one size fits for all!
- Cost of ownership is not only the initial capital cost. (Energy, maintenance, replacement,...)
- Skilled engineers and labor are the keys for the success.
- The IceRink projects are actually at parity with HFC technologies when you include the heat reclaim capability in the initial cost. If you include all the advantages, this is a easy decision...



ATMO  
**sphere**  
the Business Case  

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**natural refrigerants**  

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Thank you!