



ATMO  
sphere

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natural refrigerants

19 & 20 April, 2016 – Barcelona

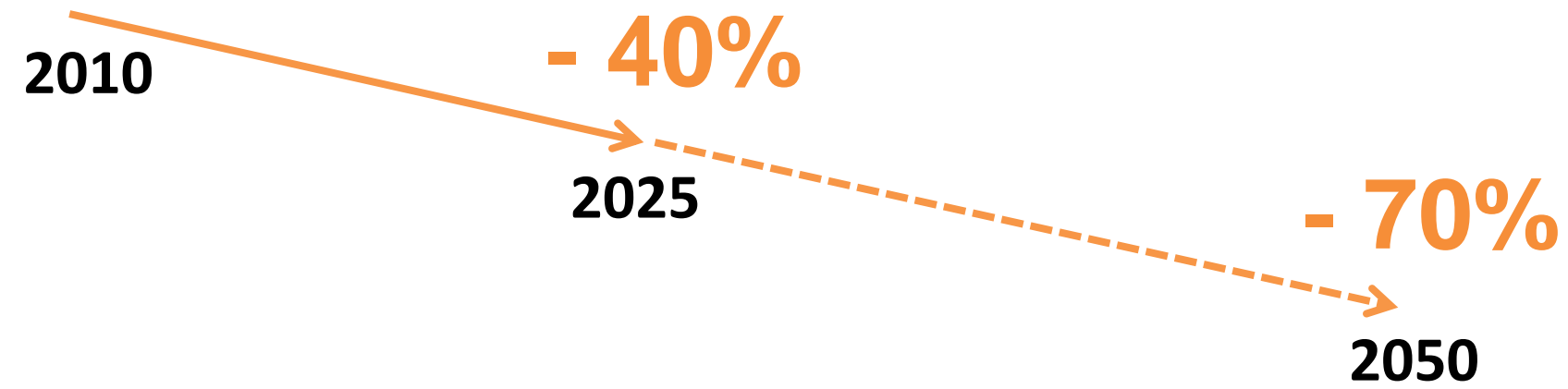


## Carrefour Group CO<sub>2</sub> Refrigeration Trend

Paolo Martini

Manager Refrigeration & HVAC International Support

**Carrefour Group CO<sub>2</sub> emission targets:**



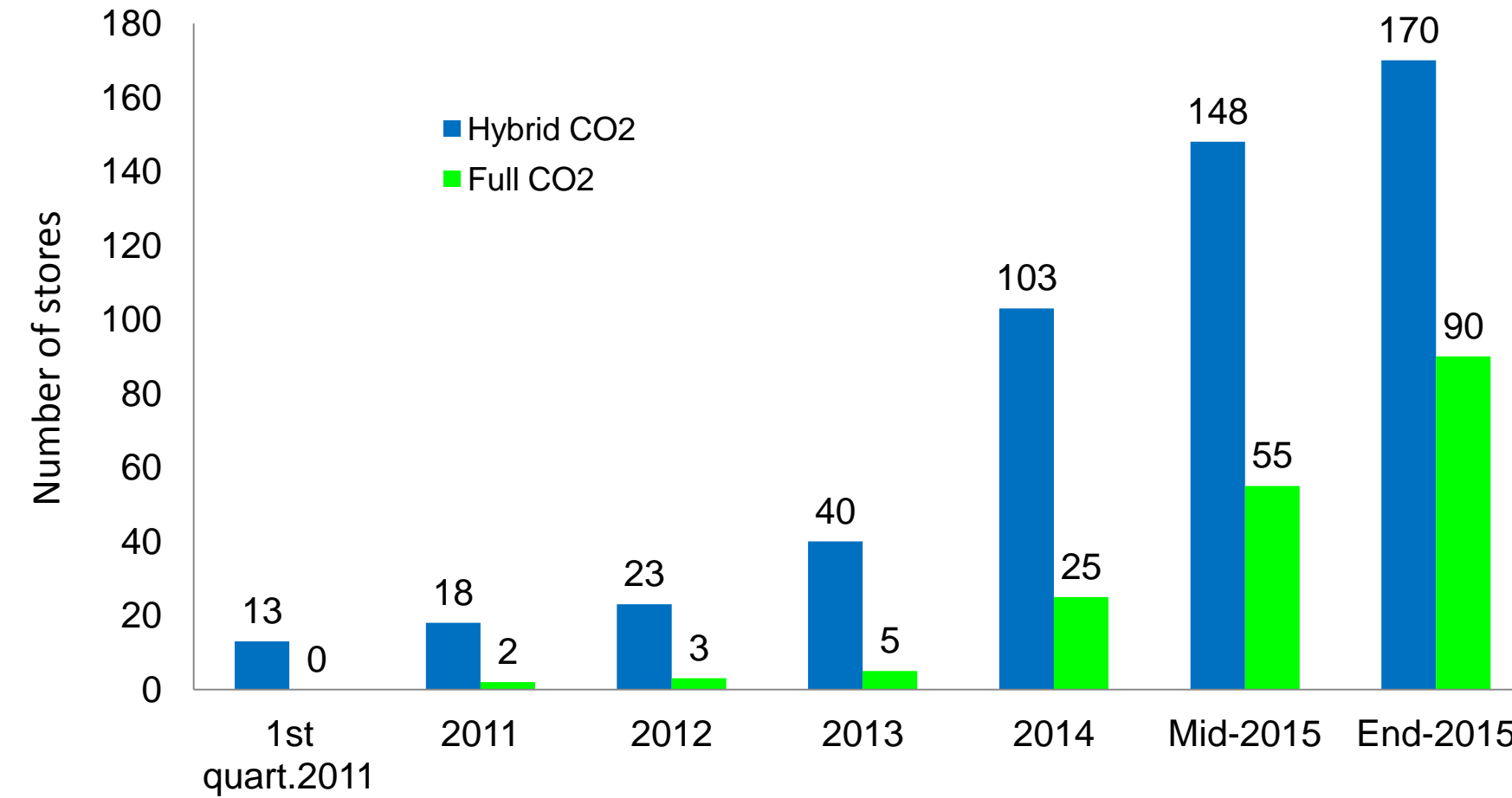
Reductions of:

- Energy consumptions
- Refrigerants direct emissions
- Transport emissions

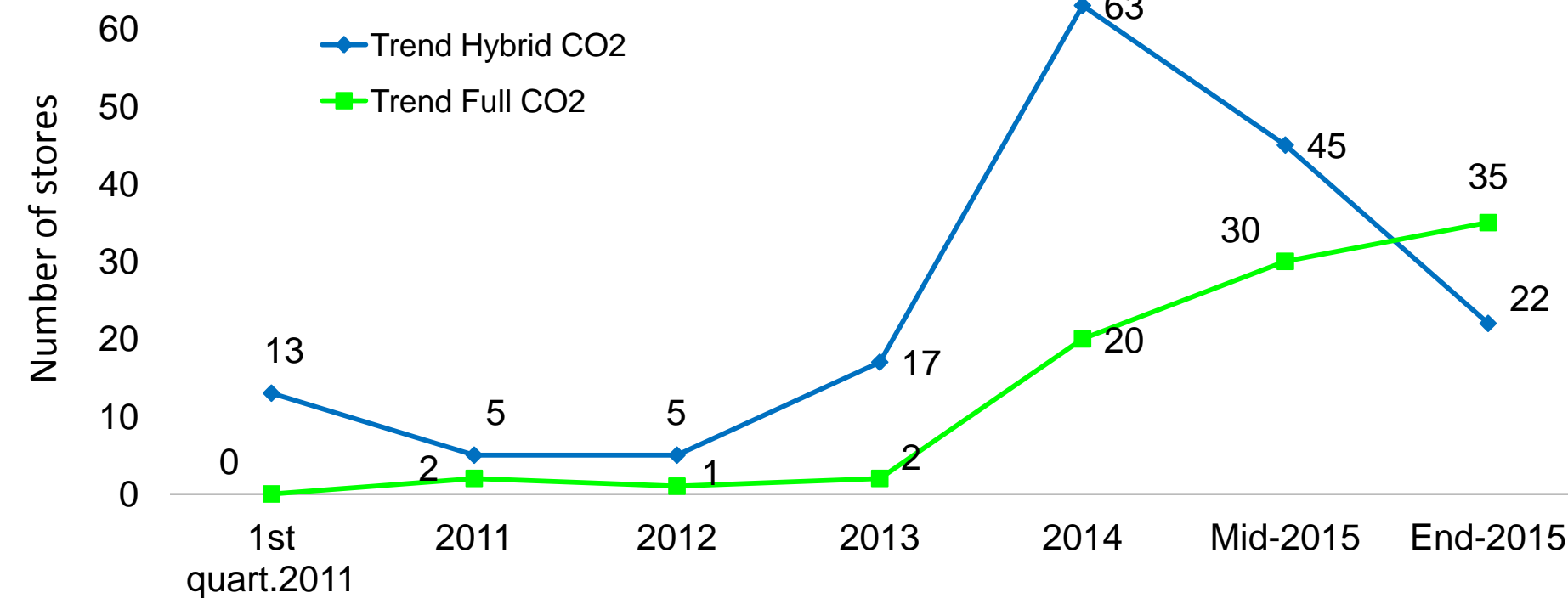


- ✓ HFC phase out
- ✓ CO<sub>2</sub> as refrigerant for commercial refrigeration

Progress of CO<sub>2</sub> installations since 2011



Trend



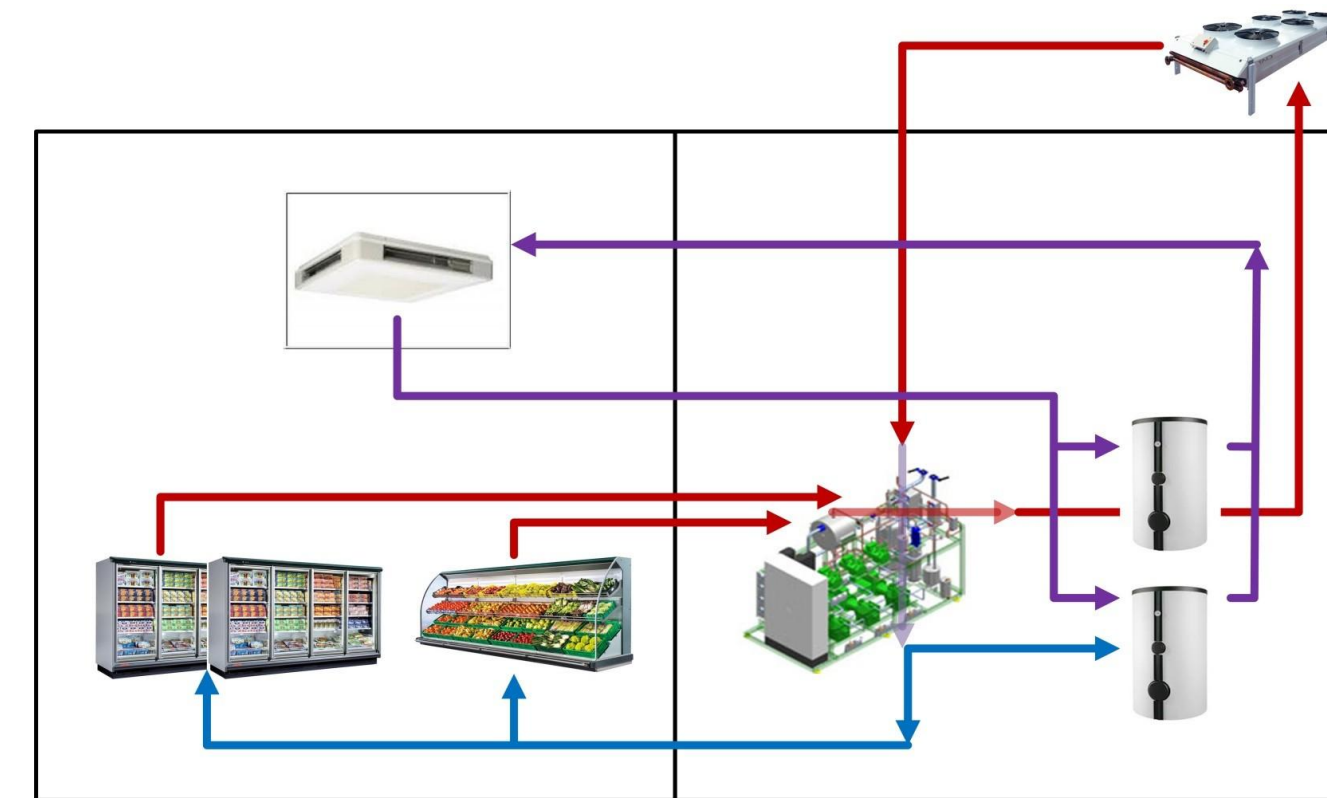
✓ **260 stores equipped with CO<sub>2</sub> technologies at the end of 2015 in seven countries (Europe & Brazil)**

## Transcritical CO<sub>2</sub> pilot systems:

### Full integrated systems:

- Unique production point for commercial refrigeration and air-conditioning (heating and cooling)

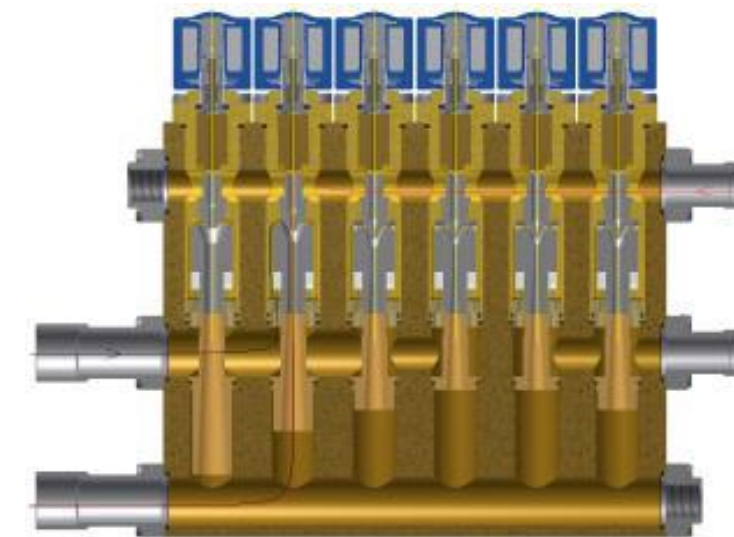
Pilots in: Italy, France & Belgium



### Ejectors systems:

- Expansion work recovery

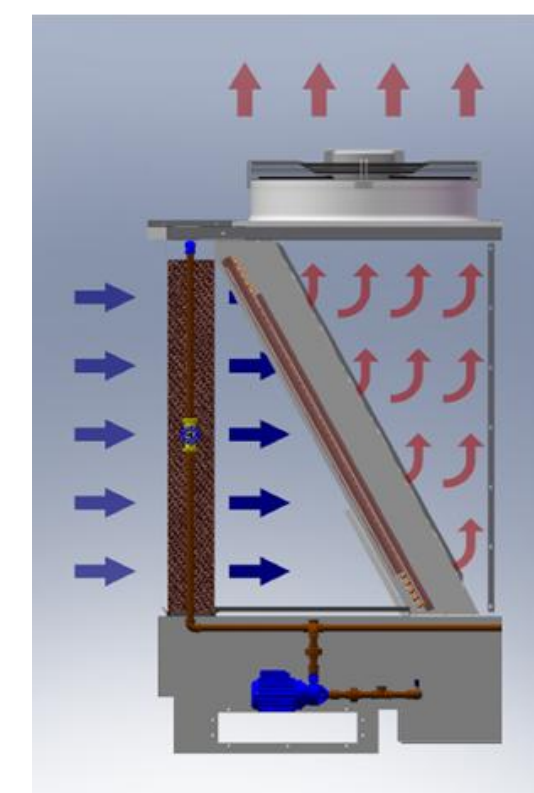
Pilots in: Spain, Belgium & Romania



### Adiabatic system:

- Ambient air water cooling

Pilot in: Brazil





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Thank you very much!