

Refrigeration @ Delhaize



Delhaize Group's 2020 GHG Ambition



Reduce our CO² emissions by -20%
On 2008 Baseline

Delhaize Group's 2020 GHG Ambition

- By reducing our cooling needs
 - doors on cabinets
 - and LED lighting in cabinets
- By monthly follow-up of the leakages
- By implementing new technologies.

Where are we today, in number of CO² stores?

- Own Belgian exploitations :
3 CO² transcritical system
44 CO² cascade system
- Affiliates Belgian:
21 CO² transcritical system
22 CO² cascade system
- Romania;
93 stores with R290 cabinets
- Greece:
5 CO² cascade system
- US
2 pilots CO² transcritical system



First Trial two years later?



MT-system

- Capacity : 157 kW
(-10° C / 78,1 bar @ 35° C)
- 4x MT-compressors

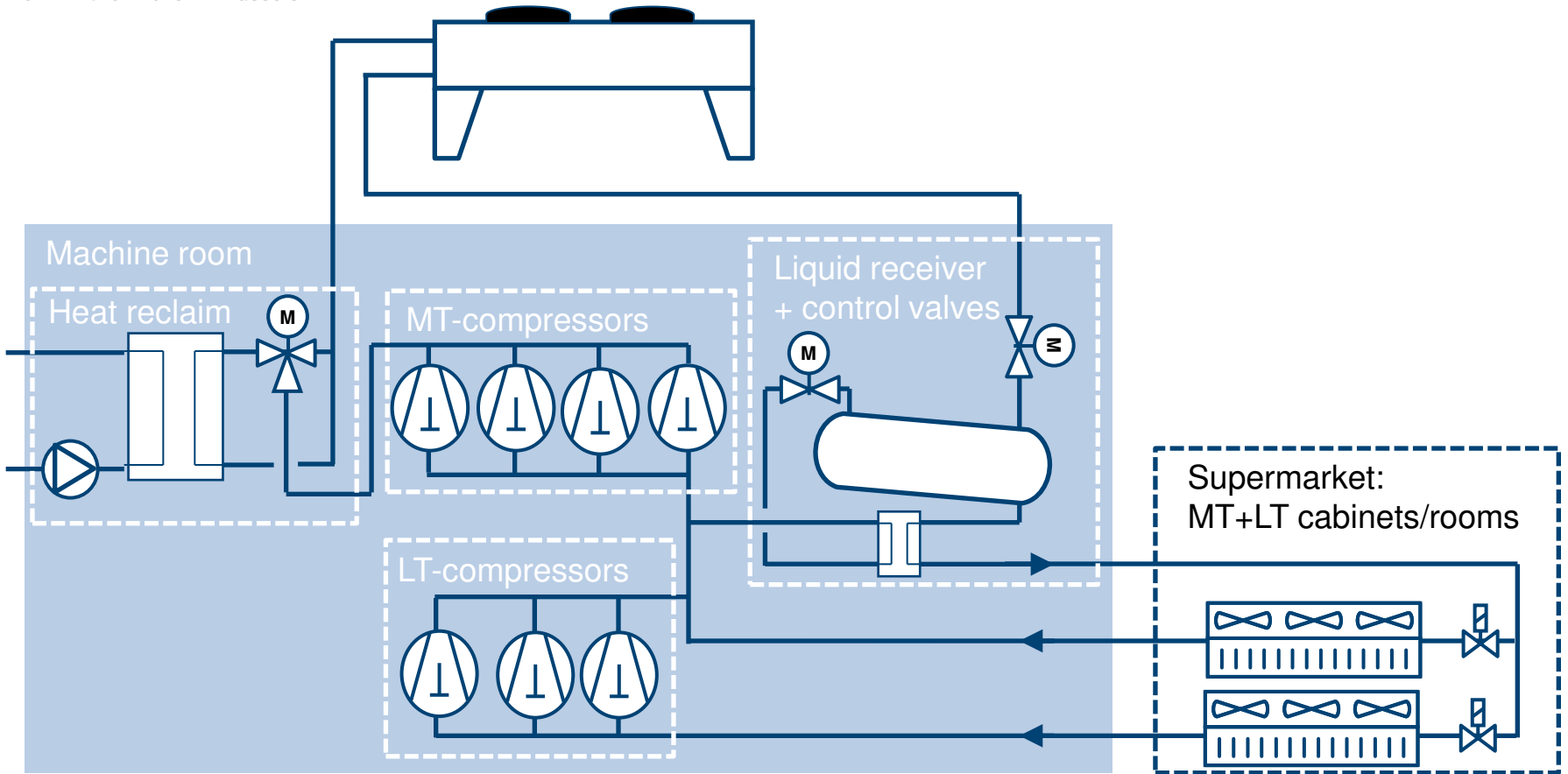
LT-system

- Capacity : 33 kW
(-35° C / -10° C)
- 4x LT-compressors

CO₂ Transcritical Installation: S.P.L. March 2013

Standard choice for a new store

CO₂ transcritical



Second generation of transcritical CO₂ installation



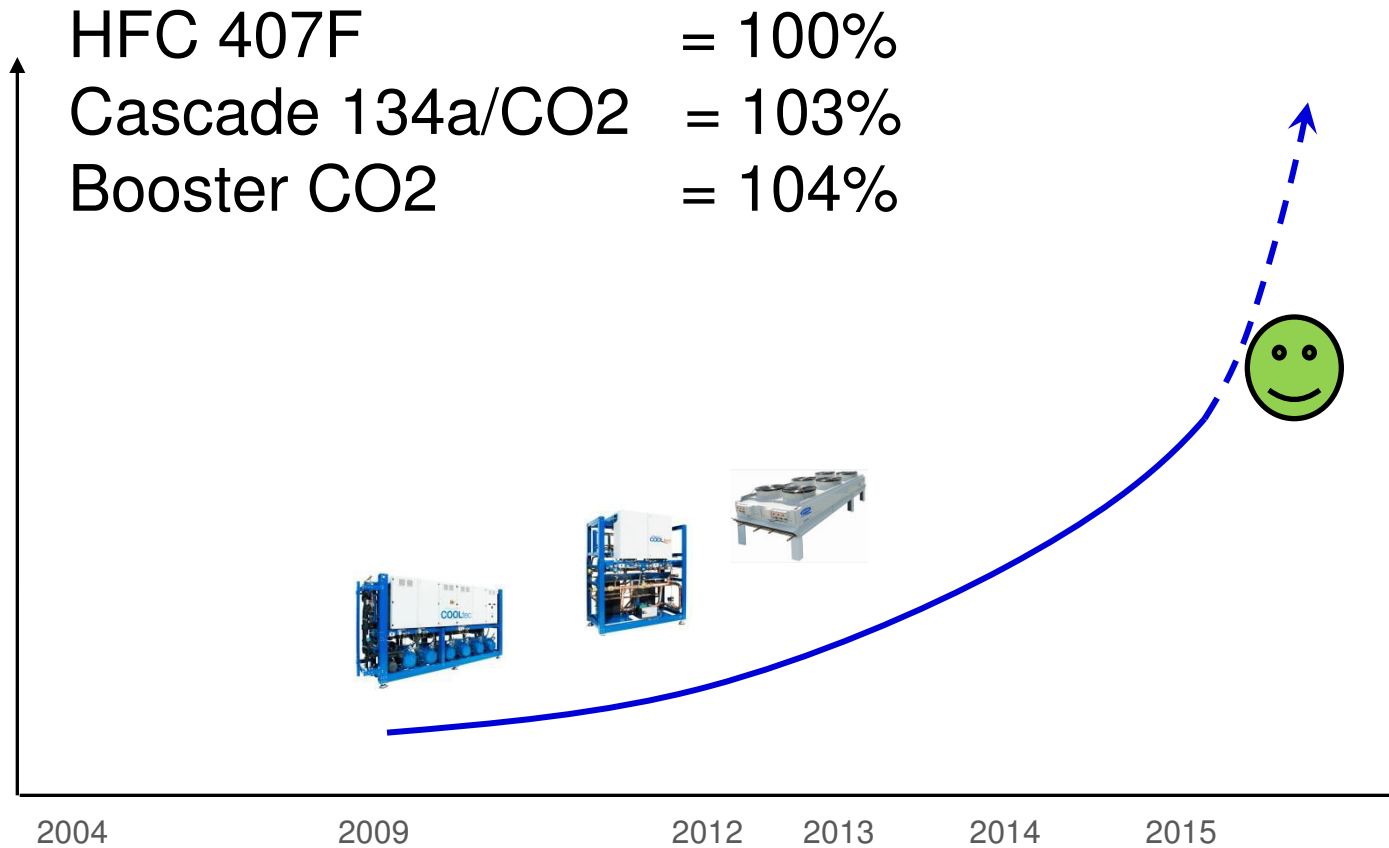
- *MT-system*
- *Capacity : 132 kW*
(-8° C / 84 bar @ 34° C)
- *4x MT-compressors*

- *LT-system*
- *Capacity : 28 kW*
(-33° C / -8° C)
- *3x LT-compressors*

running since 10/2014

Good news:

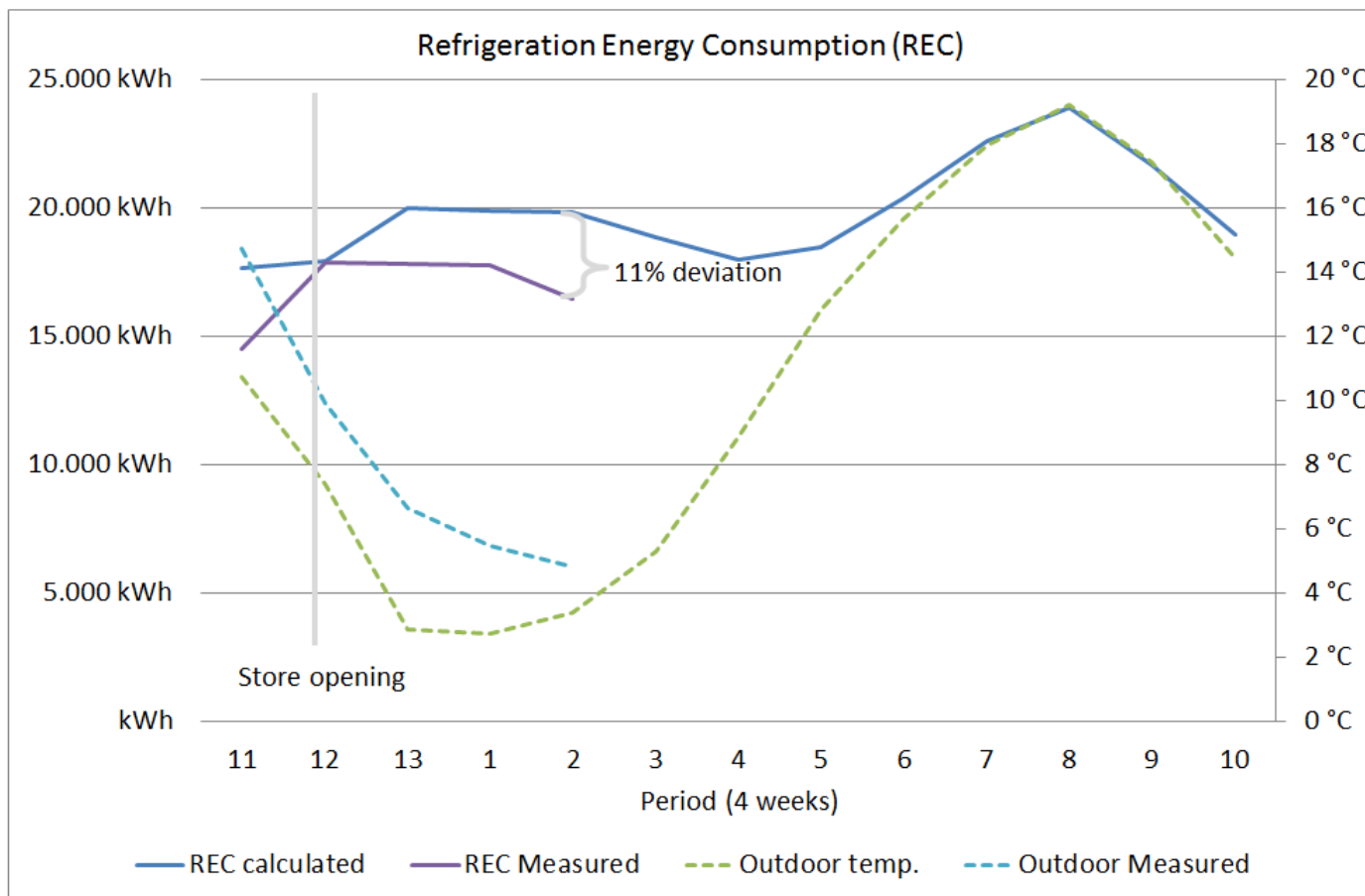
Belgian Installation price gap is getting smaller



Number of installations CO² installed in the market: info from installers

We don't buy just a price

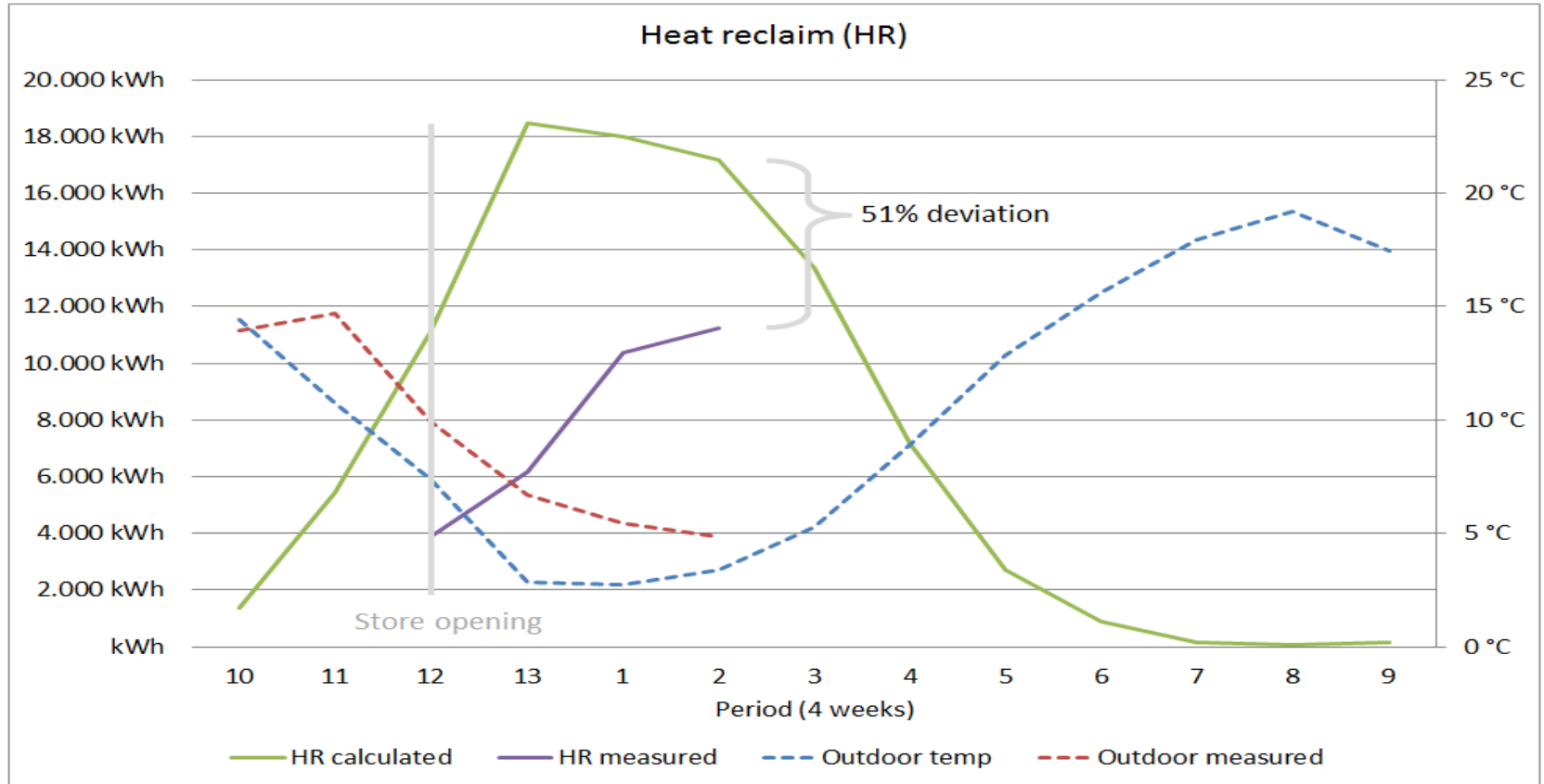
16-17 March 2015 in Brussels



We focus on TCO and we monitor the installations .

We don't buy just a price

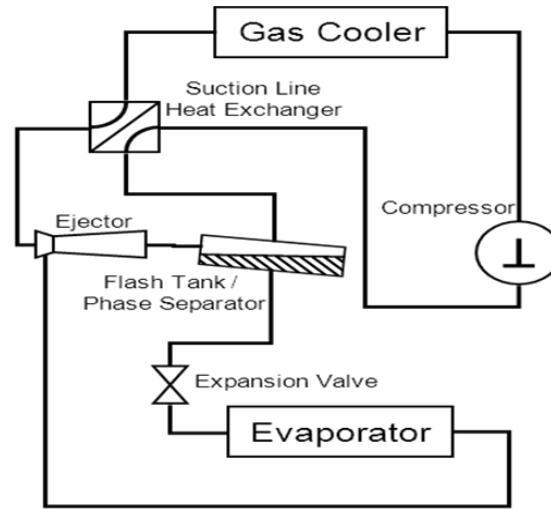
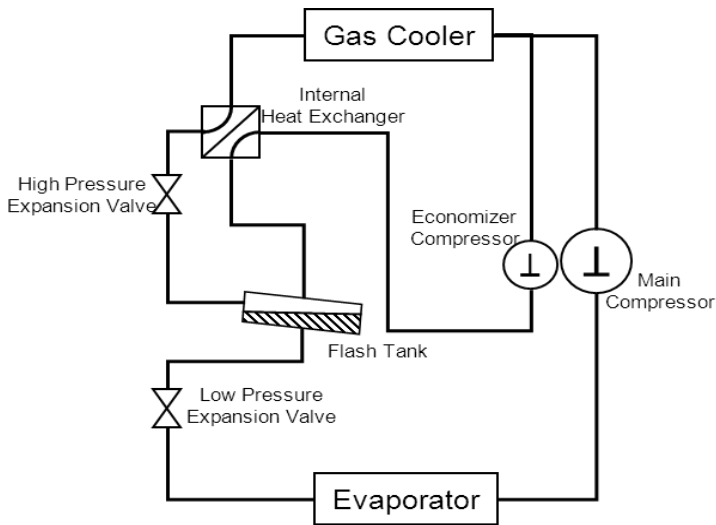
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Its very important to find the right balance between heat recovery and the electrical consumption

What are the next steps?

Ejector



Economizer/parallel compressor

Lab testing and development

Belgium: 5 CO₂ transcritical installations planed per year

Greece: 10 more Cascade CO₂/R134A in 2015

20 new installations cascade CO₂ per year

1 Pilot store CO₂ full transcritical in the coming 3 years

Barriers

2013

Few skilled companies / technicians

Lack of Training & know how

Legislation

Technology & Safety

Psychology

Cost of initial investment

No subsidies or tax credits

2015

enough skilled people

Specialist get Trained & know how

Technology & Safety

Subsidies or tax credits

Conclusion

Delhaize Group is committed to increasing the number of natural refrigerant systems where they are feasible and cost-effective



solutions for europe

natural refrigerants

16-17 March 2015 in Brussels

Thank you very much!