

HFC-free Equipment in a Retail Environment



Tom Pedersen, IKEA &
Else Krueck, McDonald's Europe



In numbers

- First store in Sweden (1958)
- 26 Countries worldwide (2008)
- 250 Stores worldwide
- 150 Stores in Europe
- Ca. 20 new store openings per year
- Average Kitchen equipment replacement: 5 years
- Average HVAC replacement: 15 years



McDonald's Europe Facts & Figures

- First location in Europe in The Netherlands (1971)
- 40 Countries in Europe (2008)
- Over 6,400 restaurants in Europe
- Ca. 60% owned and operated by franchisees

- Ca. 200 new openings
- Average Kitchen equipment : 5 years
- Average HVAC replacement: 10 years



“The IKEA business shall have an overall positive impact on people & the environment”



Social & Environmental Priorities

Materials & Manufacturing
Transport
Buildings & Infrastructure
Energy & Emission



Sustainability Vision

„From doing less harm...

...to doing more good,,



McDonald's



Waste Management & Recycling

Used oil Biodiesel



Packaging from 100% Renewable Resources



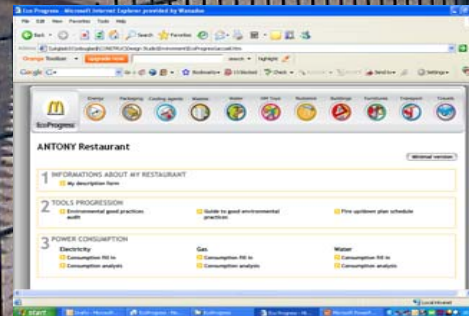
Reducing Environmental Footprint Energy Management



Happy Meal



100% Certified Sustainable Coffee

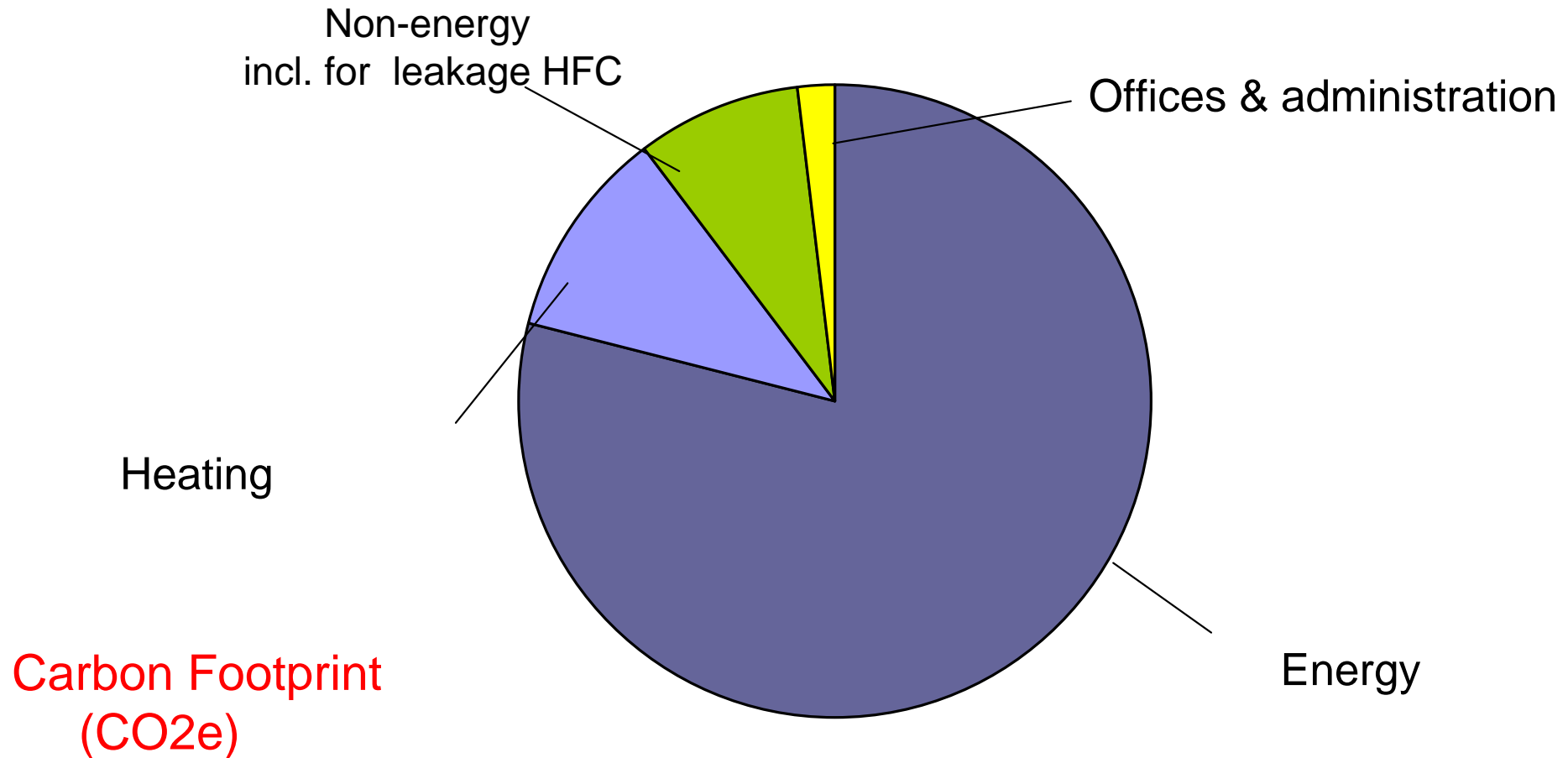


Green Building Guidelines
Energy Efficient Equipment

www.bestofgreenmcdonaldseurope.com

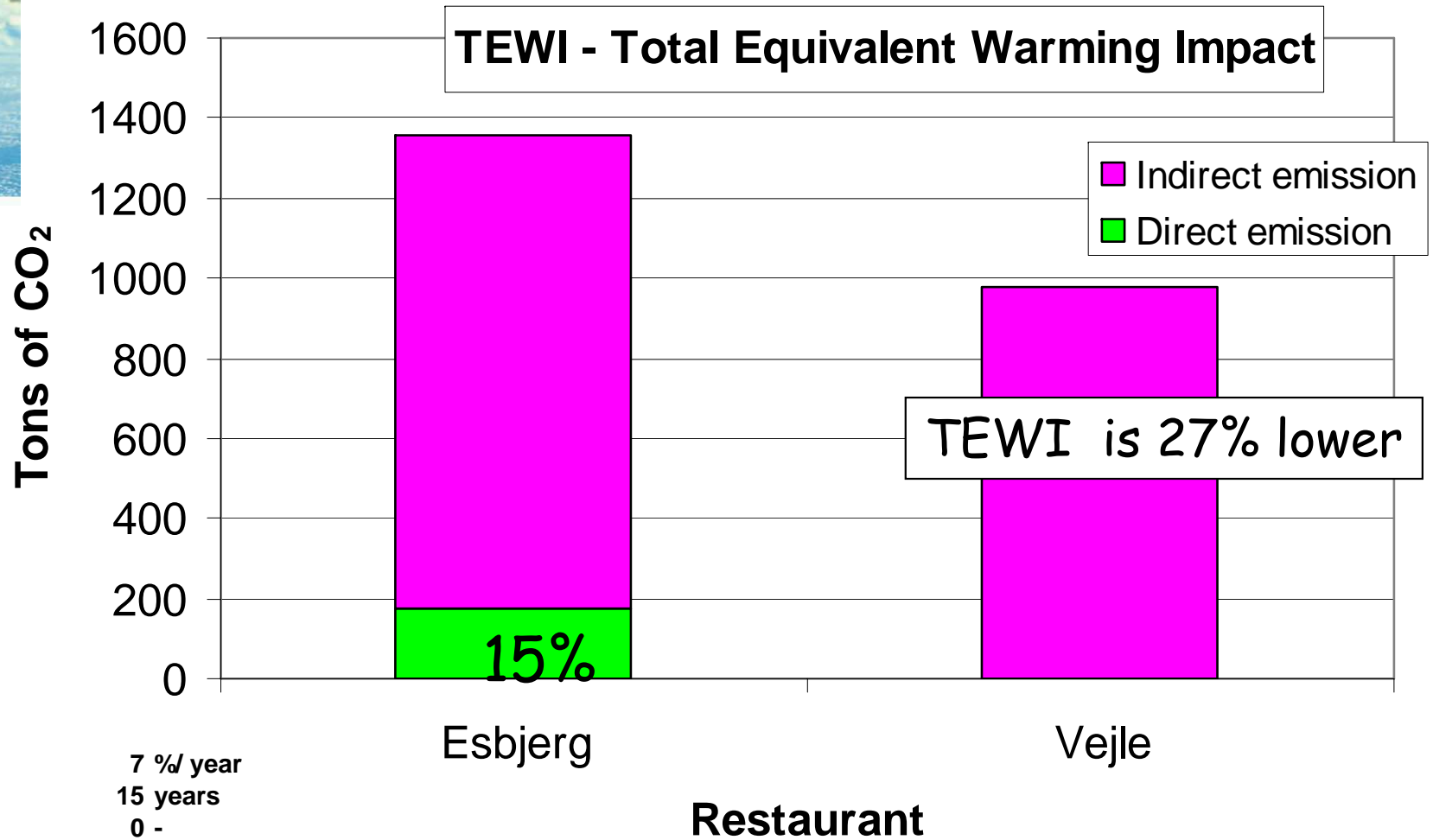
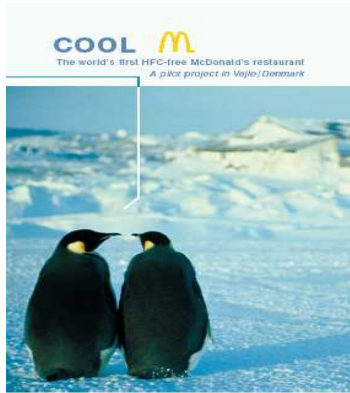


Carbon Footprint of Stores or Restaurants



**HFC-Free + Energy Efficiency =
Win/Win for Environment**

McDonald's HFC – Free Pilot Restaurant in Vejle



Leakage rate 7 %/ year
Lifetime 15 years
Recovery rate 0 -
CO2 emmission per kWt 0,65 kg CO2/ k'

The Big Picture



McDonald's Europe



- HVAC
- Walk-in Freezer and Cooler
- Shake Sundae Machine
 - Post Mix Beverage System
 - Ice Cube Machine
- Meat Freezer
- Wall Freezer
- Juice Dispenser



Decision Screen:

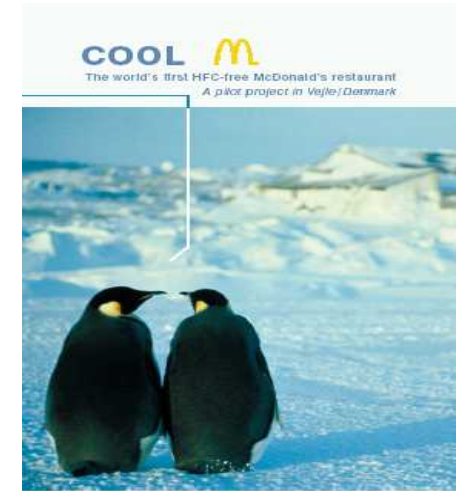
- No negative impact on **safety** and quality
- Safe equipment for staff and service companies
- No impact or positive impact on Operations or Maintenance & Repairs
- Acceptable impact of equipment costs and commercial availability of technology
- **Positive overall environment impact**
(HFC-free and equal or less energy usage)

The Opportunities

Refrigerant Equipment List

(ranked by HFC content)

Equipment piece	HFC Gas	Charge (kg)	GWP (kg CO2)	% of total
HVAC	R407c	17	104550	51%
Walk-in Freezer and Cooler	R134a	10	26650	30%
Shake Sundae Machine	R404A	2,8	18598	8%
Post Mix Beverage System	R404A	1,6	10601	5%
Ice Cube Machine	R404A	1,2	7872	4%
Meat Freezer	R404A	0,27	1771	1%
Wall Freezer	R404A	0,27	1771	1%
Juice Dispenser	R134a	0,155	413	0%
Salad Cooler	R134a	0,1	267	0%
		Total Charge (kg)	33,395	





2010 Challenge

Only HFC-free options for new or replacement equipment in European restaurants



Interim Status

Equipment	Alternative	Status
HVAC	CO2	
Shake Sundae Machine	CO2	
Walk In Freezer	HC	
Meat Freezer	HC	
Beverage System	CO2	
Orange Juice Dispenser	HC	
Ice Cube Machine	HC	
Salad Cooler	HC	



Nilan HVAC (CO₂)





Meat/Wall Freezers



2 Equipment per
restaurant
HFC: R404a
Total Charge :
0,5 kg



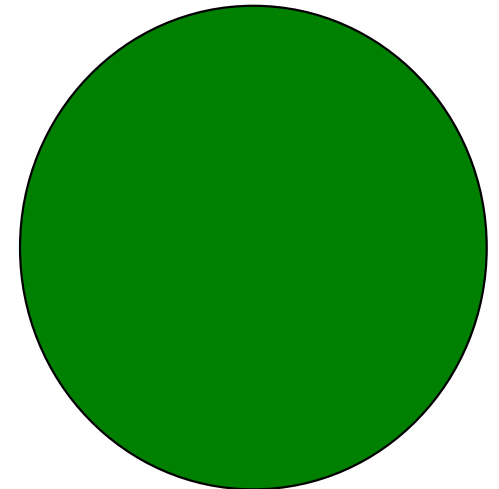


Case Study Meat Freezer Environmental Impact

MEAT FREEZER		Existing HFC R404A	New R290 (Propane)	New R744 (CO2)
Cooling Agent				
Annual GWP of CA loss	kg CO2e p.a.	53	-	0,01
Change over today	kg CO2e p.a.		- 53	- 52
Electricity Use				
Annual electr. cons.	kWh p.a. (360 days p.a.)	2.484	2.214	2.592
Annual GWP	kg CO2e p.a.	1.463	1.304	1.527
Change over today	kg CO2e p.a.		- 159	64
Total GWP per equipment item p.a.		1.516	1.304	1.527
Change over today	kg CO2e p.a.		-212	11
Change over today	% of today		-12%	1%

Meat Freezer – Decision Process

- Safety
 - Legislation ok
 - Maintenance / service suppliers
- Environmental Performance
 - HC option 12% less impact
- Costs
 - Incremental costs in acceptable range
- Availability
 - 2 European suppliers ready
 - 4 months from decision



Conclusion

- What we will do
 - Continue to recognise and pursue potential
 - Keep Commitment to explore potential & implement solutions
- What we need
 - Support of suppliers to develop and offer alternatives
 - Engagement from other companies for critical mass
- What we want
 - That the sustainable solution becomes the most viable business option

Thank you!