

2019

# Business innovation in sustainable thermal systems

Building Model, Engineering and Energy

**ASDA**  
Save money. Live better.

## Supermarket managing thermal and energy management system

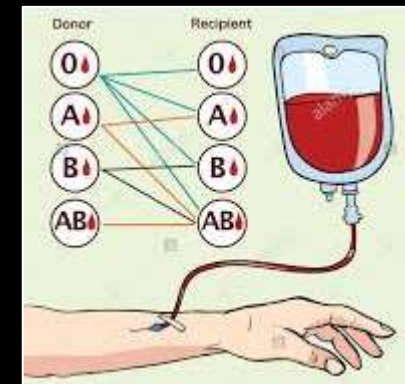
### F-GAS 2022 Full organ replacement



### It's complicated

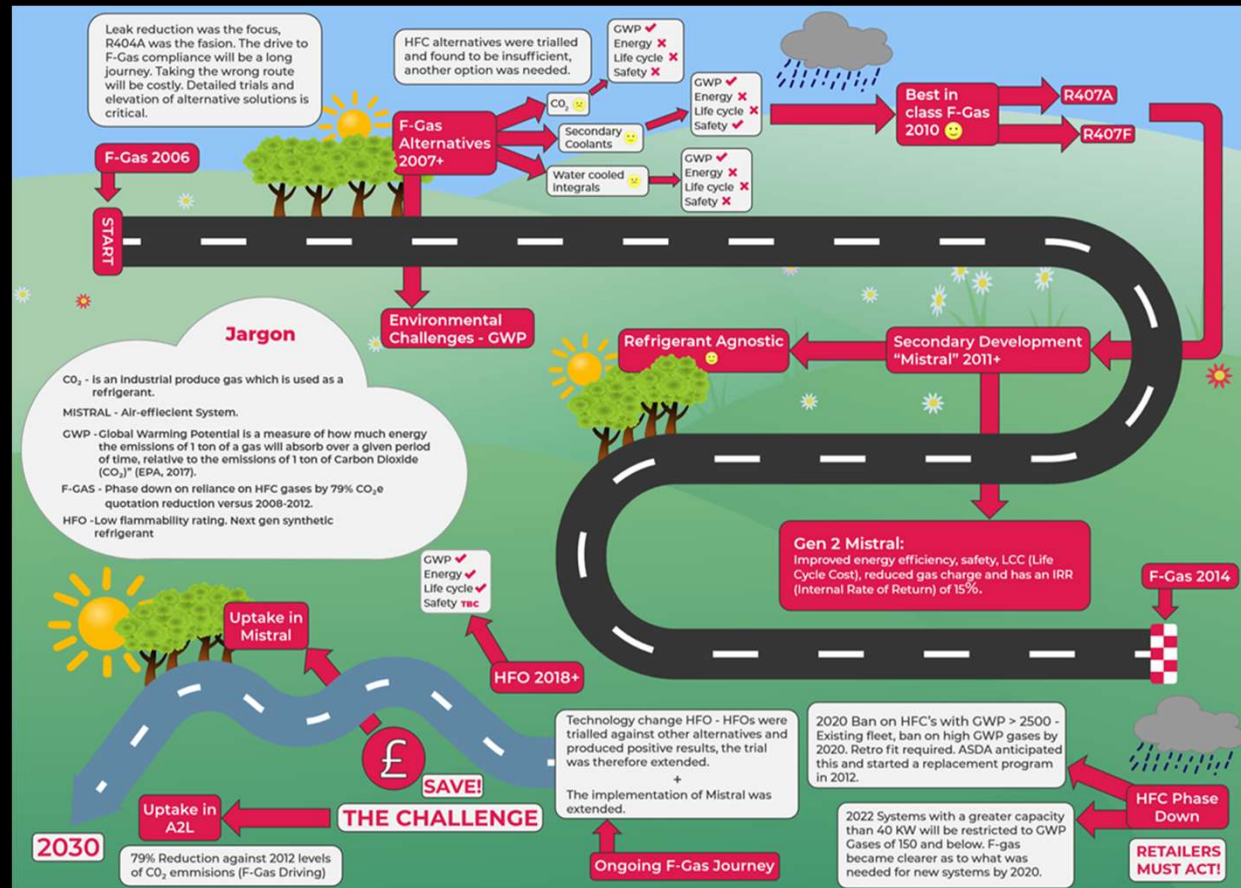


### F-GAS 2020 Blood transfusion



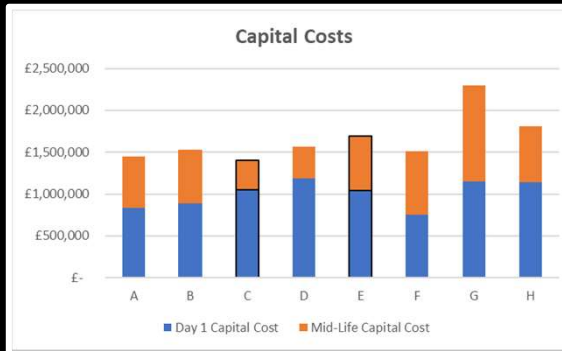
It's like trying to play a game of Whack a Moll whilst carrying out on mass blood transfusions knowing major organ replacement is needed.

# ASDA's Refrigeration Strategic Journey



# Life Cycle cost impact of alternative tech

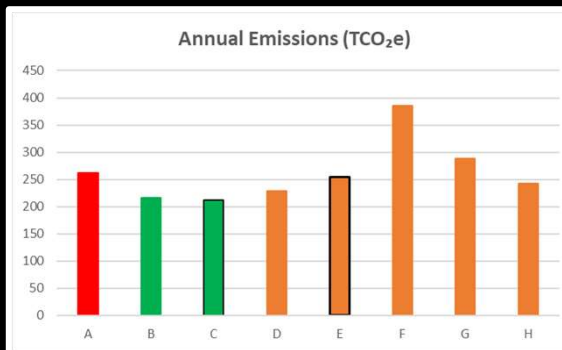
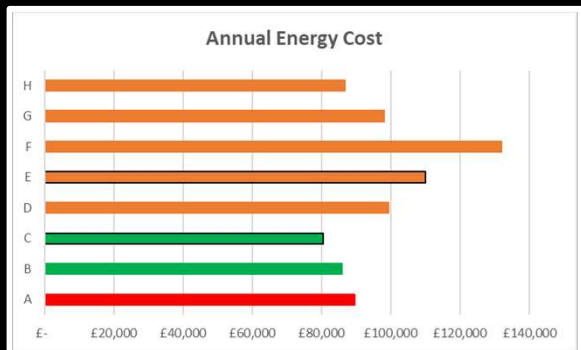
Based on 20 years - Model store



Glossary

- A Non-compliant tech post 2022
- B HFO – Mildly flammable (Model Option)
- C Mistral / HFO (Model)
- D Mistral / CO<sub>2</sub> option
- E CO<sub>2</sub> (Industry Driven Option)
- F Plug-in fridge tech option (air-cooled)
- G Plug-in fridge tech option (water-cooled)
- H Secondary Glycol

Annual Energy & Emissions – per store



Why?



[https://ec.europa.eu/clima/policies/f-gas/legislation\\_en](https://ec.europa.eu/clima/policies/f-gas/legislation_en)

## Innovation in cooling

Removed data

Mistral ducted display



Worlds first - HFO  
design standard

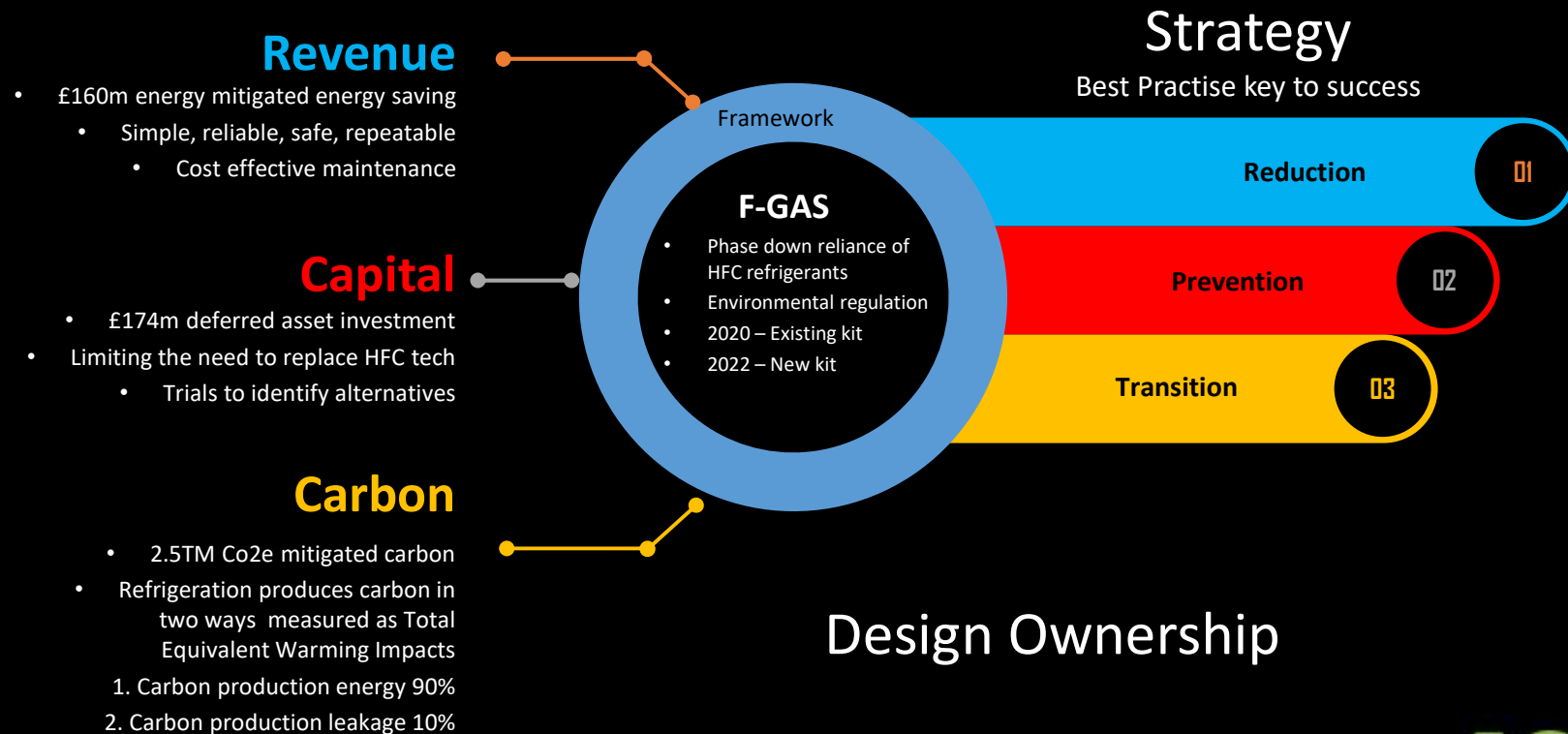


TCO benefit versus  
CO2 estate wide  
£600M  
Circa 20% lower  
emissions

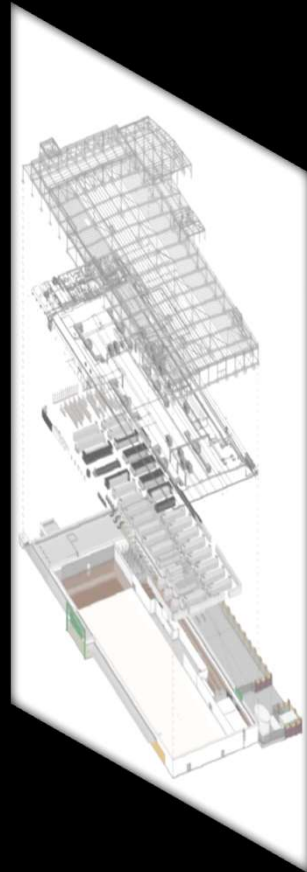
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## F-Gas focus

### 10 years of savings - get it right and save



# Internet of Things – Building Performance – Systems Thinking



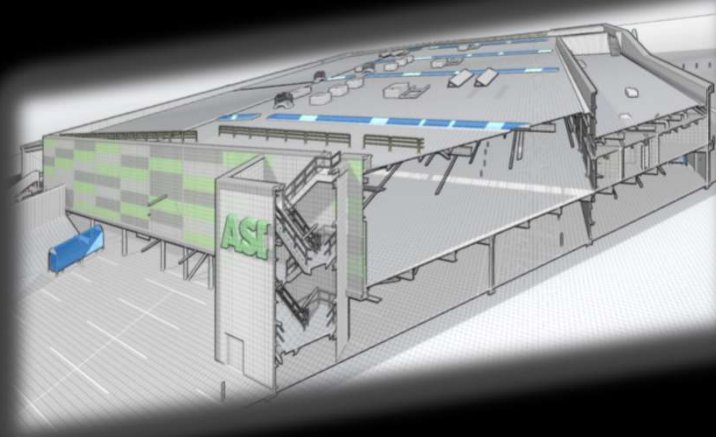
## Data Environment Performance

Energy  
Heating  
Cooling  
Lux levels

## Asset data (80%) Repair/Replace

Roofs  
Floors  
Bakery  
Refrigeration  
HVAC  
Lighting

UniModel  
*BIM - Building Information Modelling*  
Specification, Scoping, New & Existing space  
Safe, Legal & trading



AIMS 2  
**ASDA Integrated Management System gen 2**  
*Remote Building control/monitoring systems.*  
Input and output data  
Safe, Legal & trading

Mercury  
*Asset data base LCC – End of Life*  
Informed decisions  
Safe, Legal & trading

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## Overlaying Asda's assets to DSM value streams

Store frequency  
response

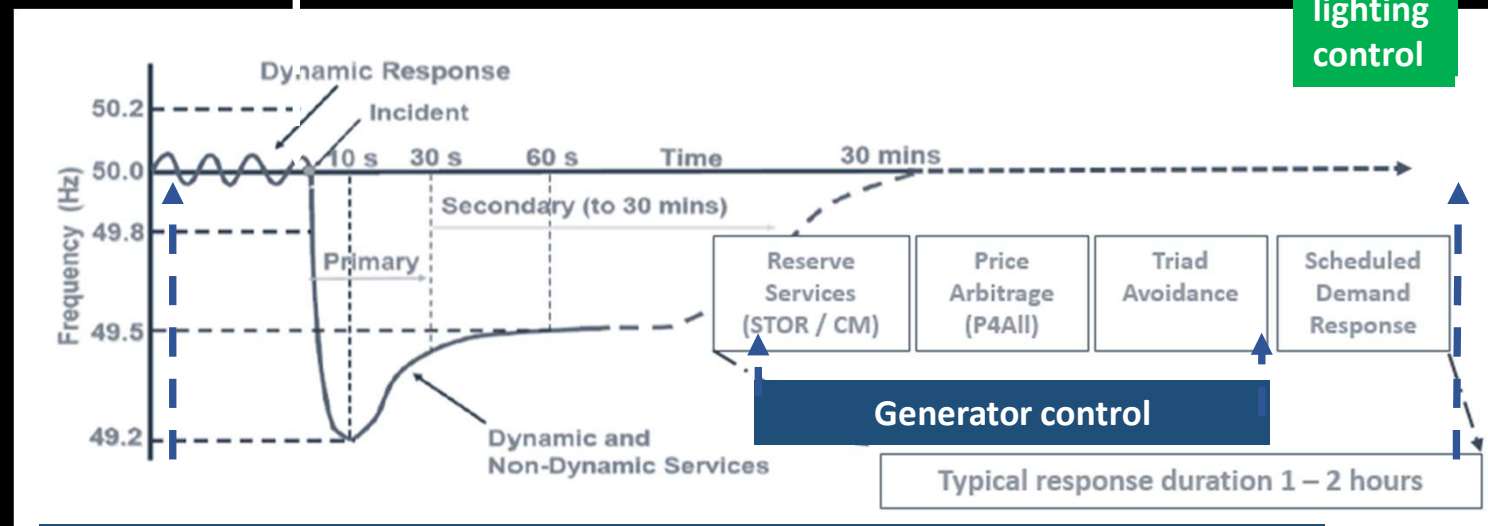
Depot frequency response

Transitional fridge control

Fridge defrost / trim control

HVAC load  
shedding

Central  
lighting  
control



Battery storage

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