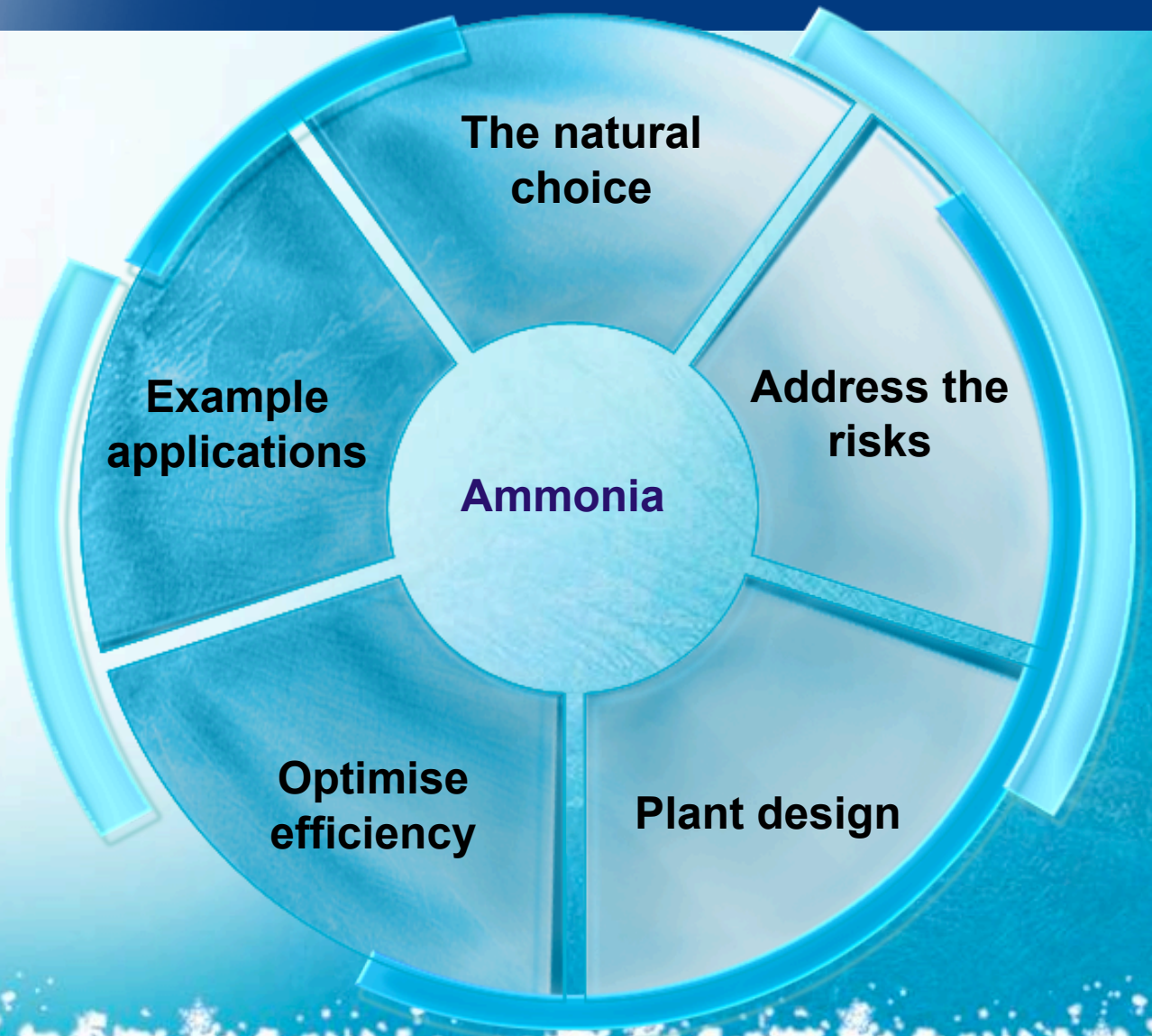
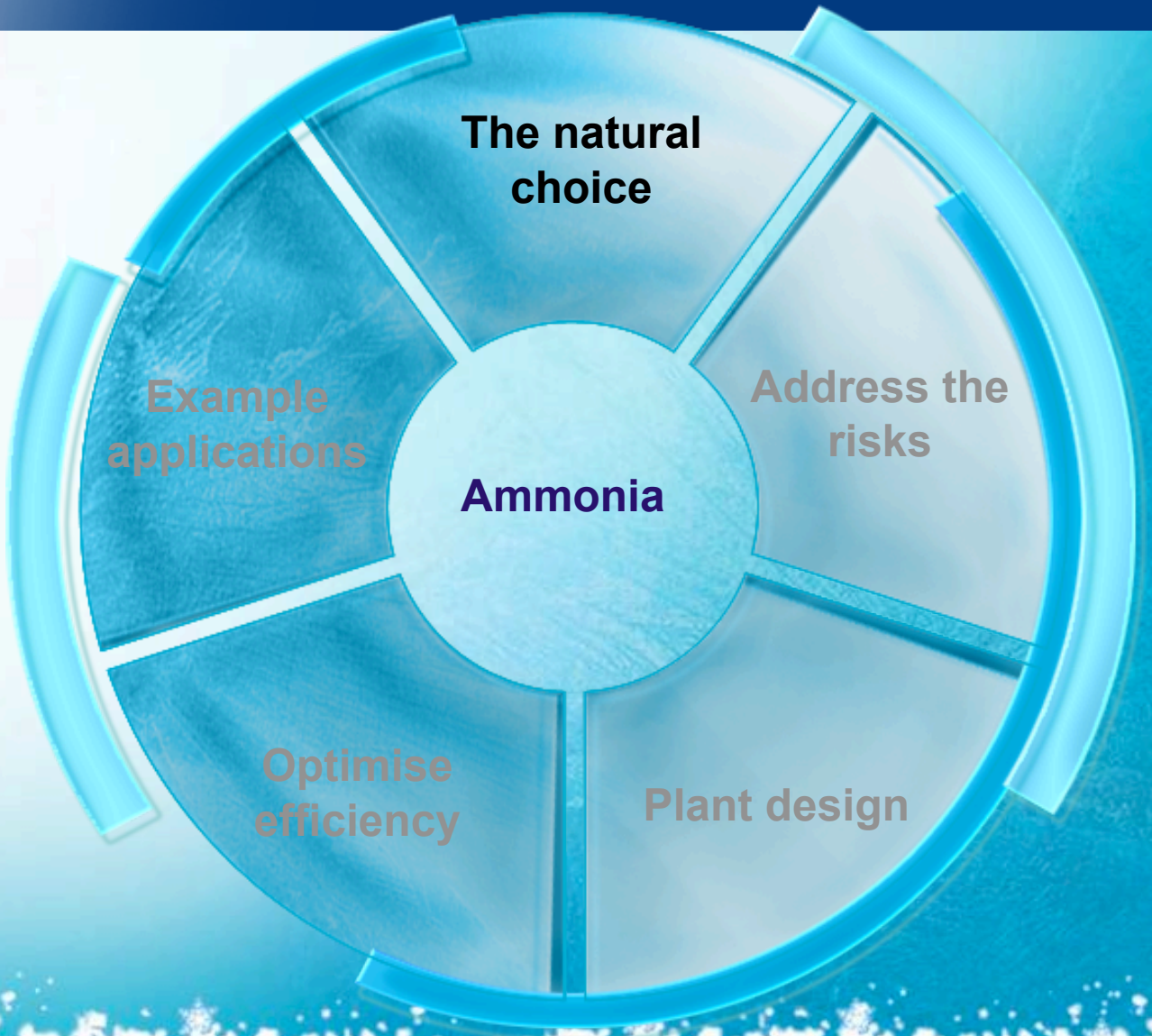
Exploring Successful Uses of Ammonia

Dr. Robert Lamb
Sales Director, Star Refrigeration

STAR REFRIGERATION STAR TECHNICAL SOLUTIONS STARFROST STAR LEARNING SOLUTIONS PENEC M&E CONTRACTOR


The natural choice
Address the risks
Plant design
Optimise efficiency
Example applications
Ammonia


The natural choice
Address the risks
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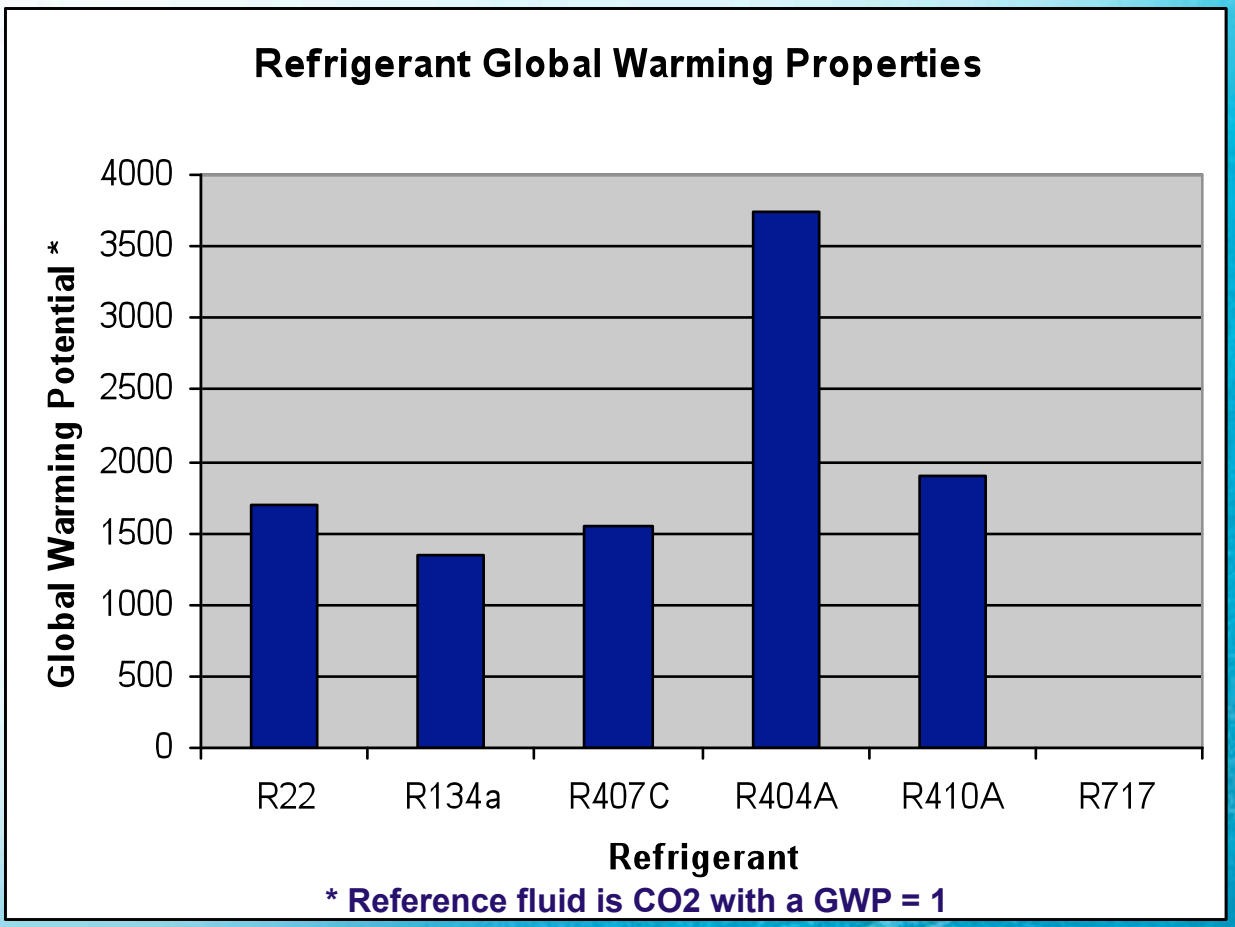
Environmental Impact
The natural choice

Refrigerant Global Warming Properties



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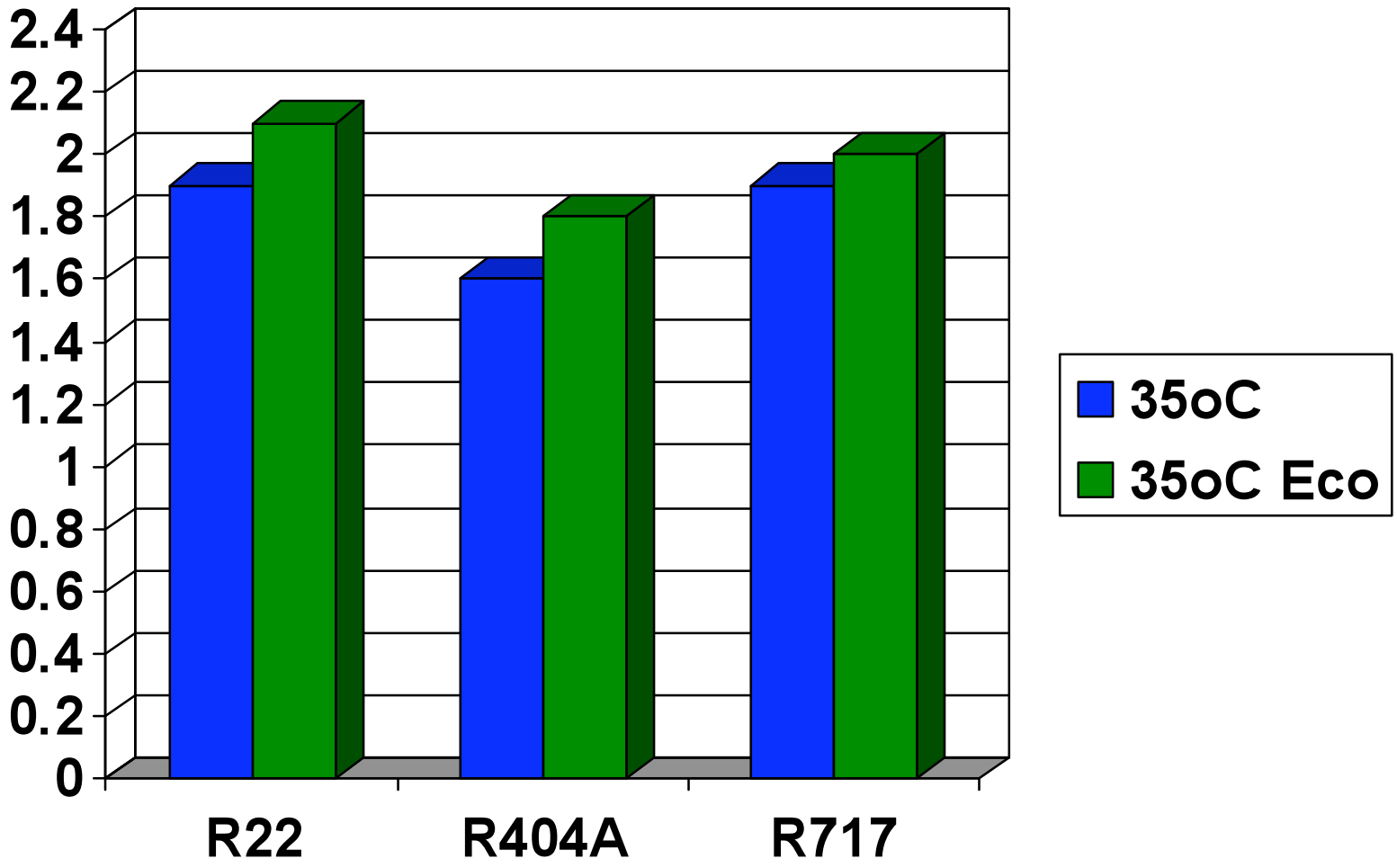
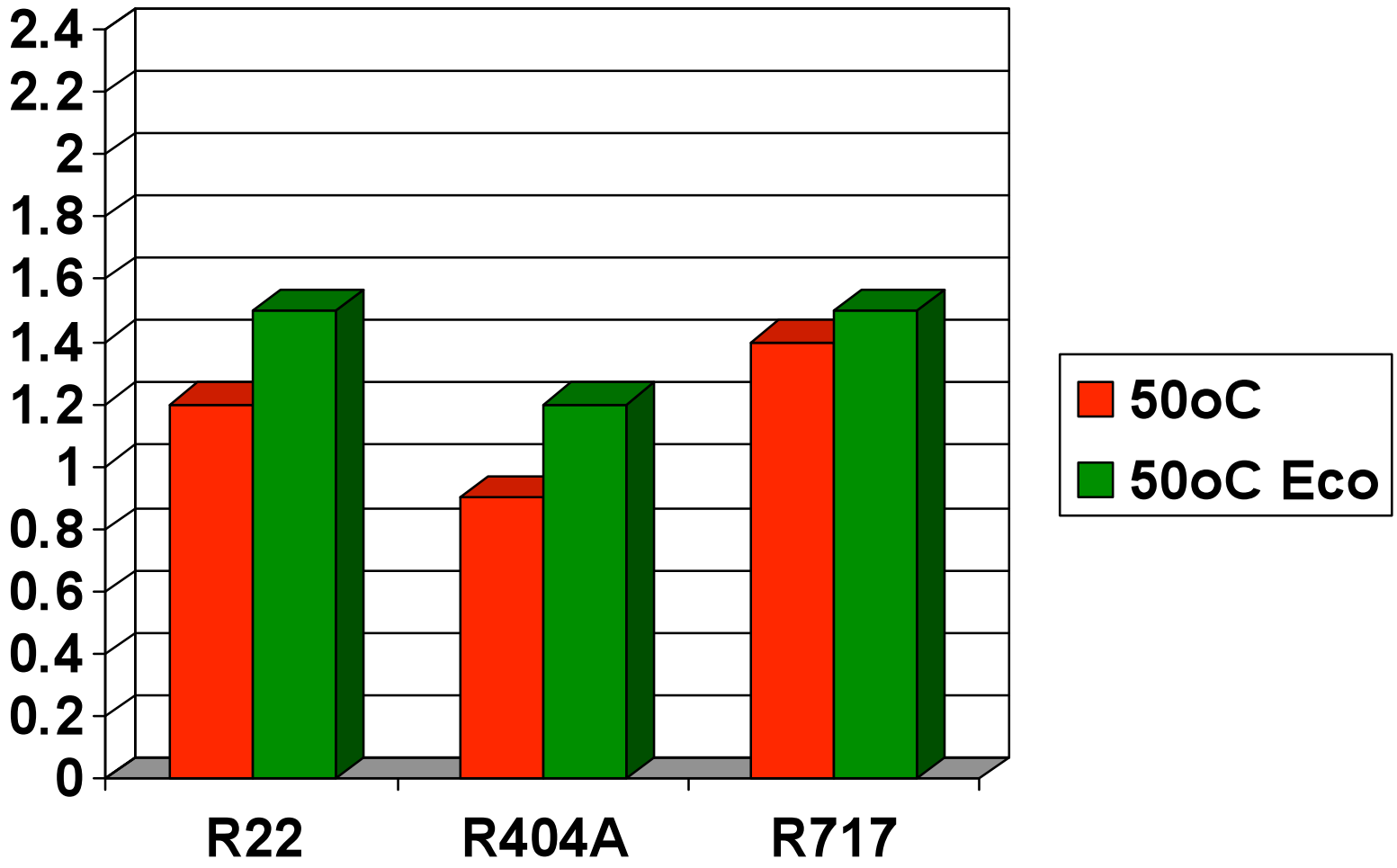
Coefficient of Performance 35°C



Coefficient of Performance 50°C



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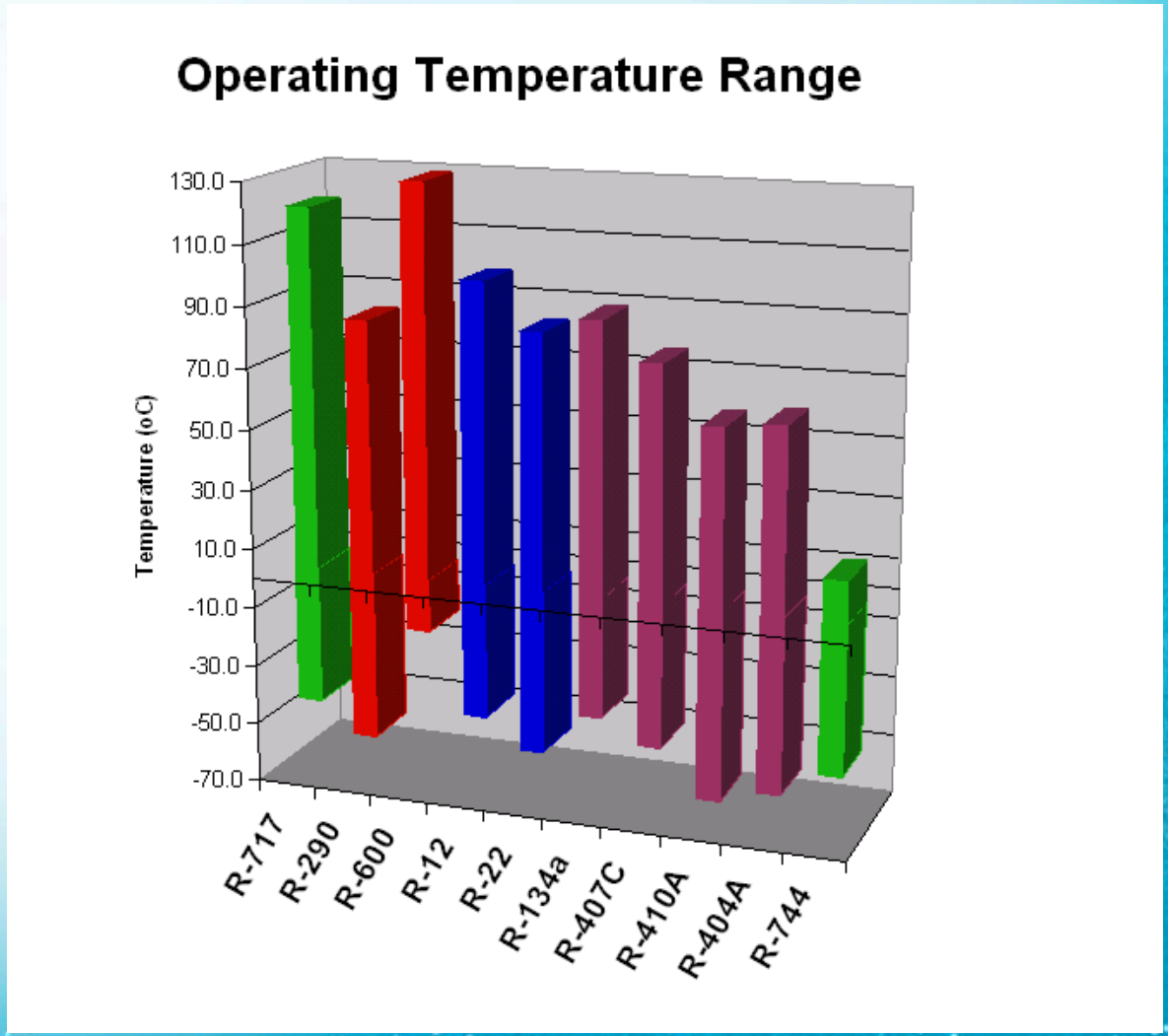
Refrigerant Range Of Application



Application of Ammonia



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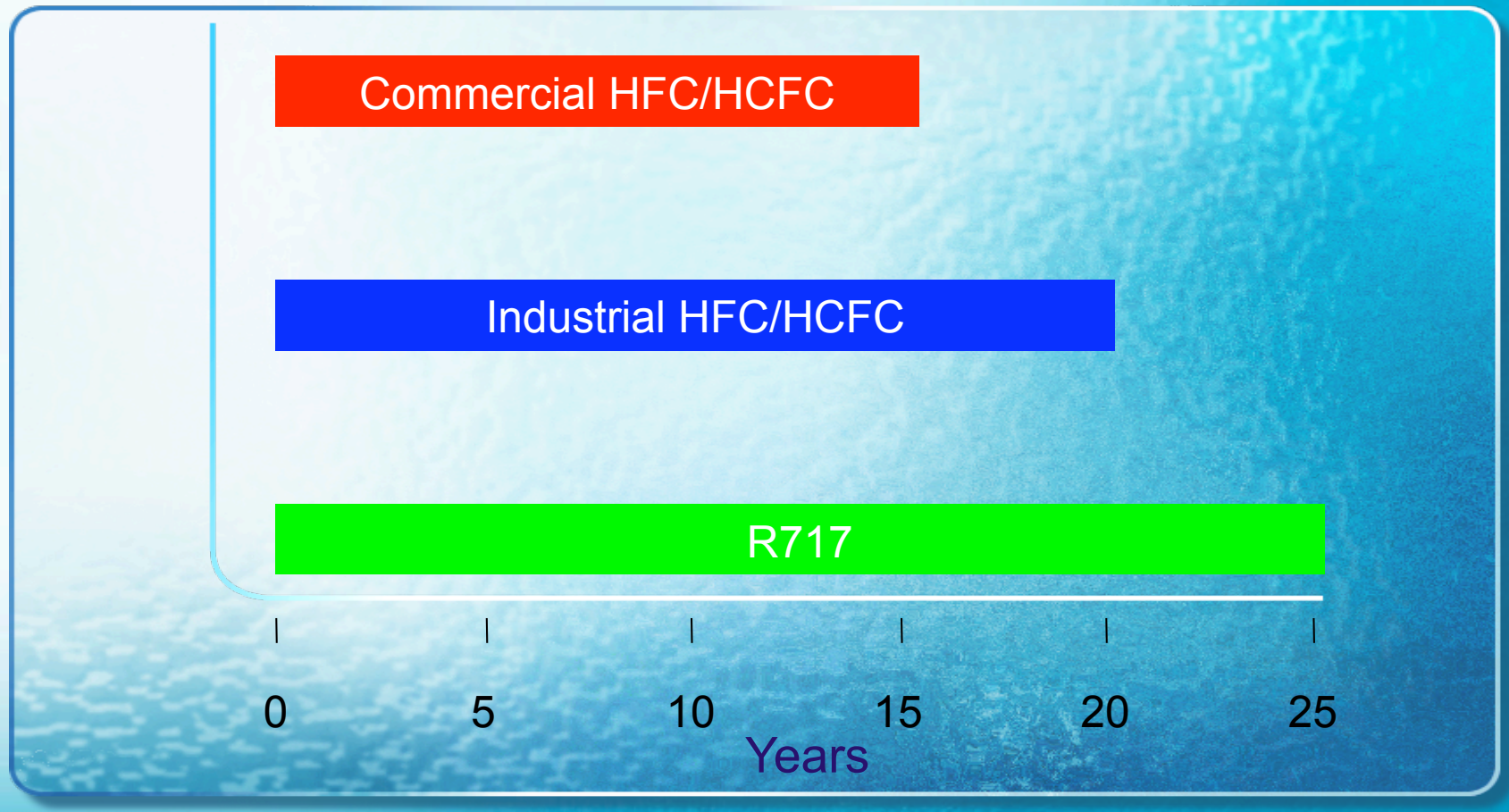
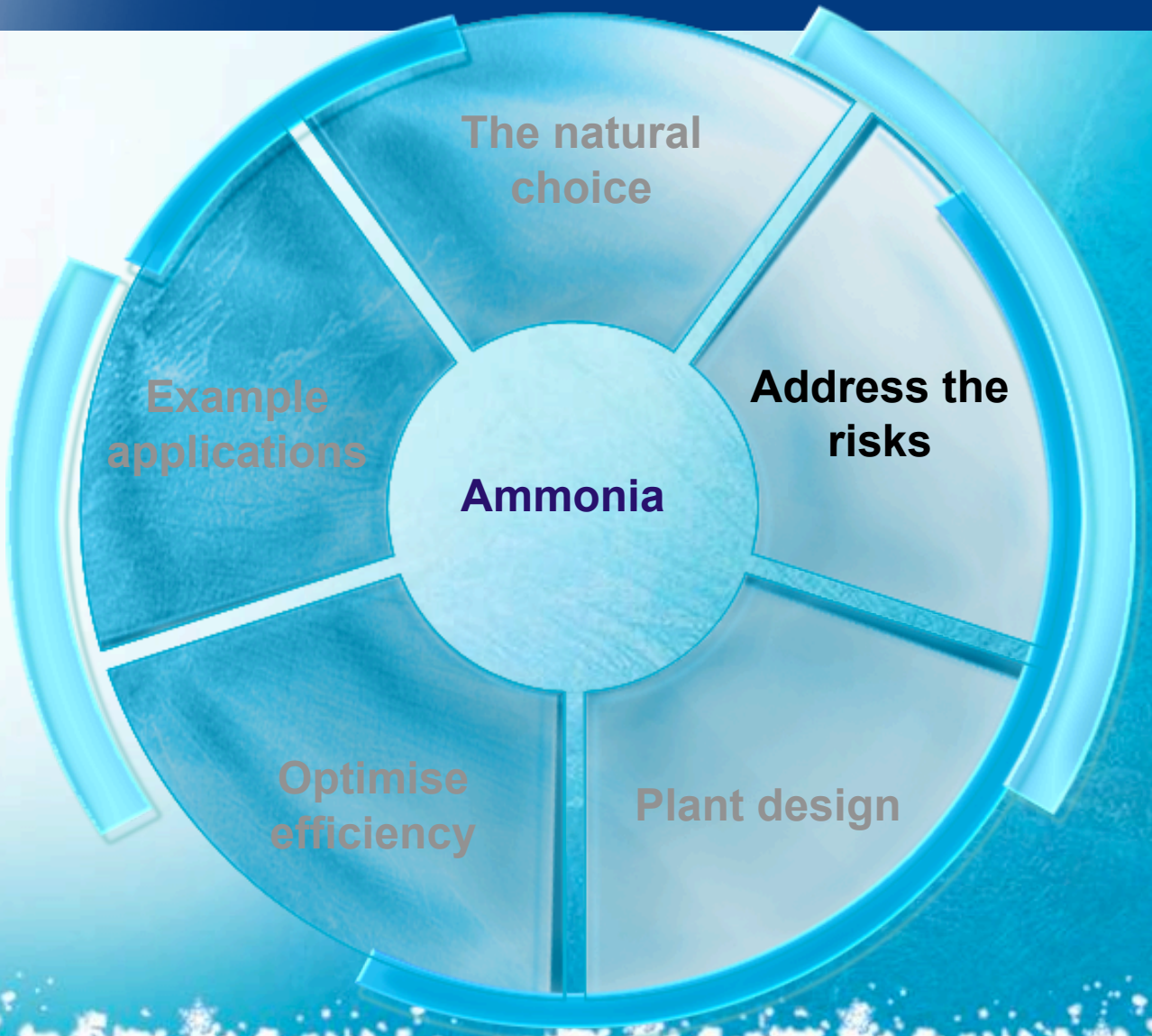
Longevity


Commercial HFC/HCFC
Industrial HFC/HCFC
R717
0
5
10
15
20
25
Years

Ammonia



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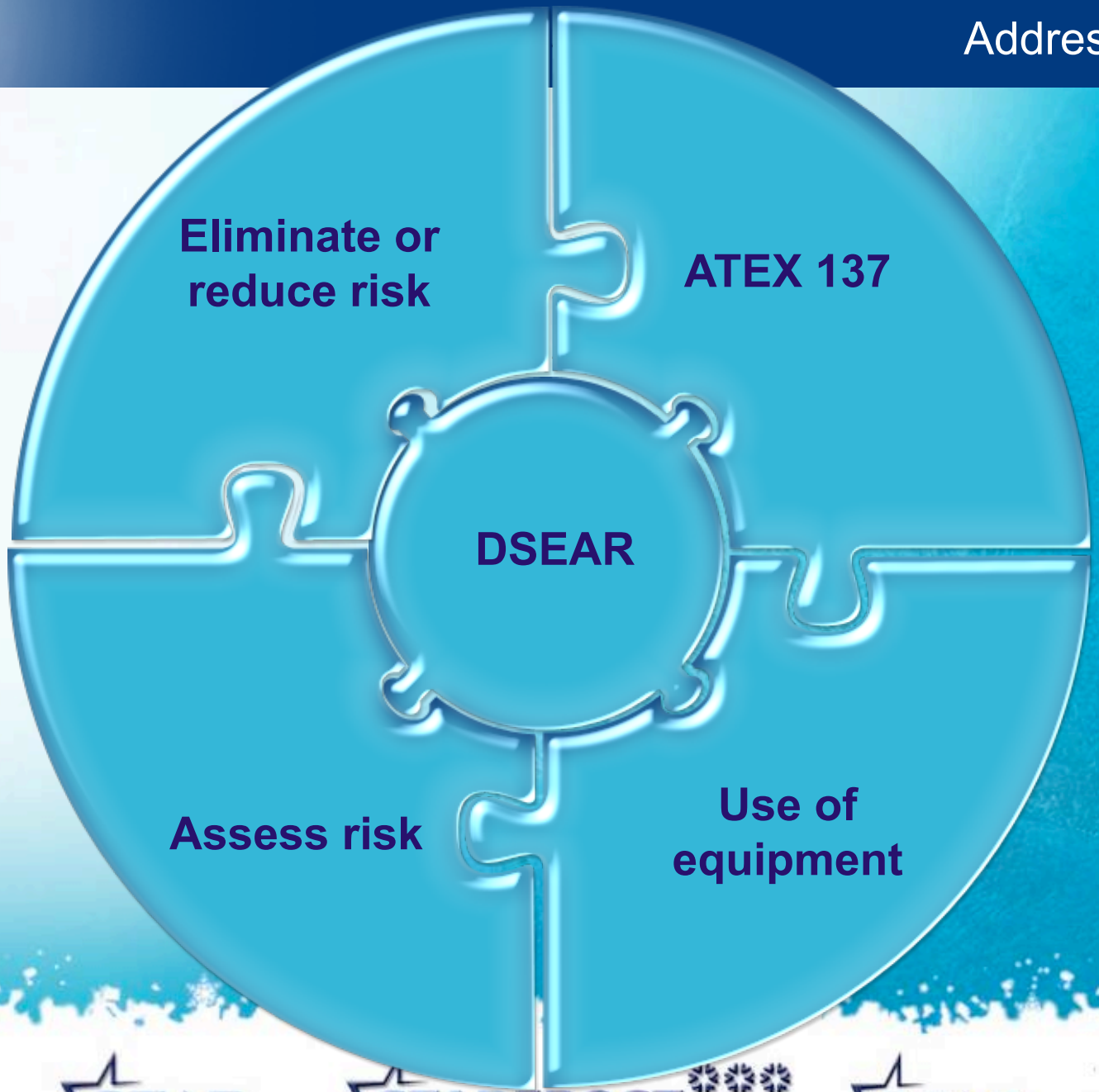
Address the Risk



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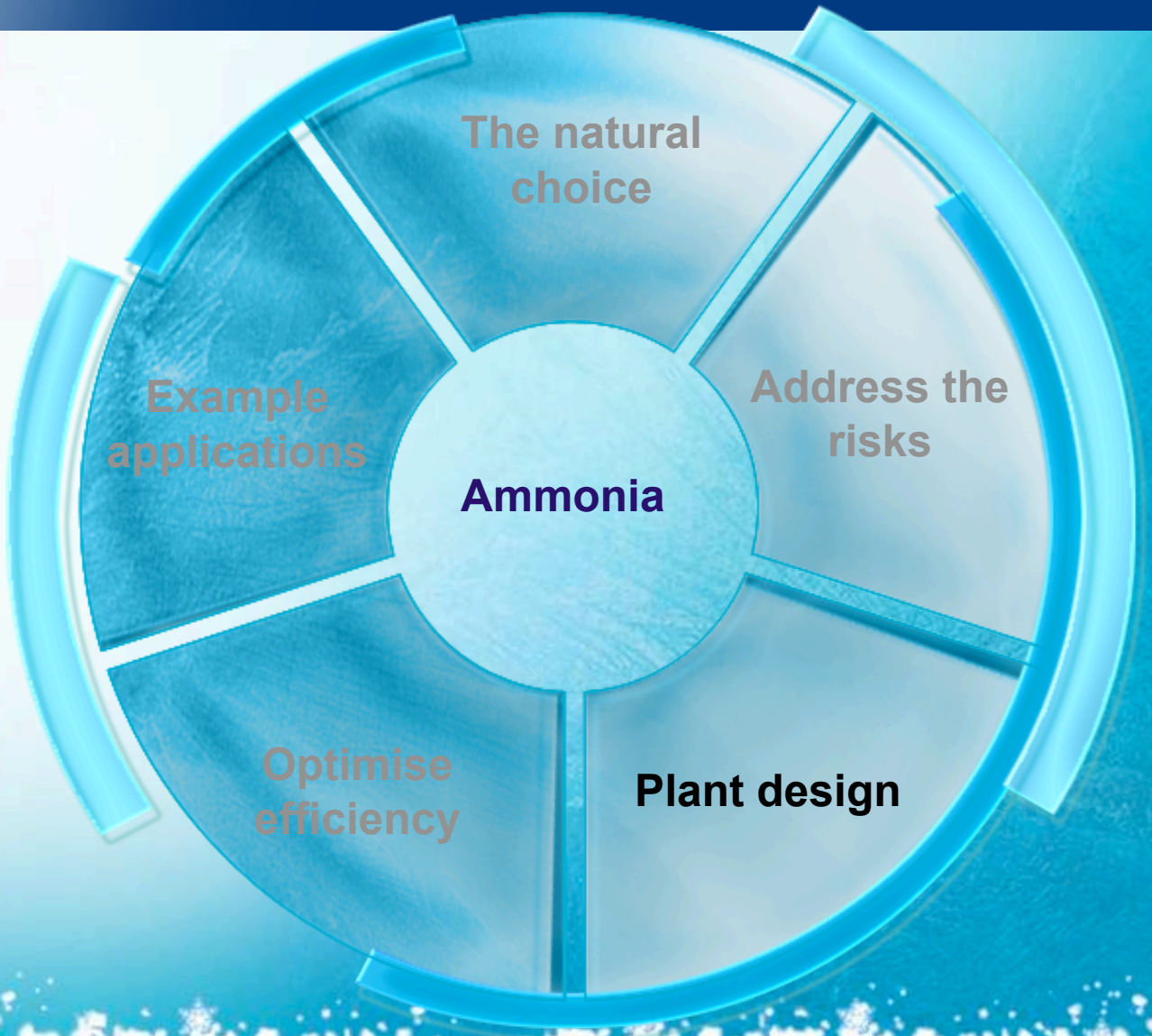

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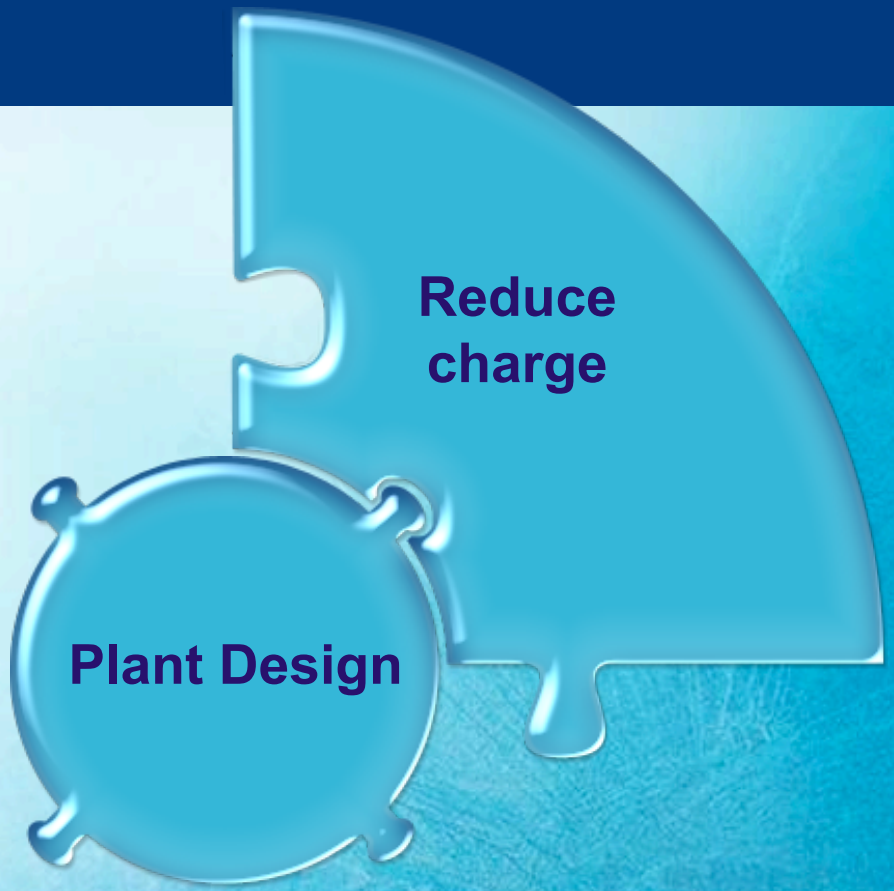
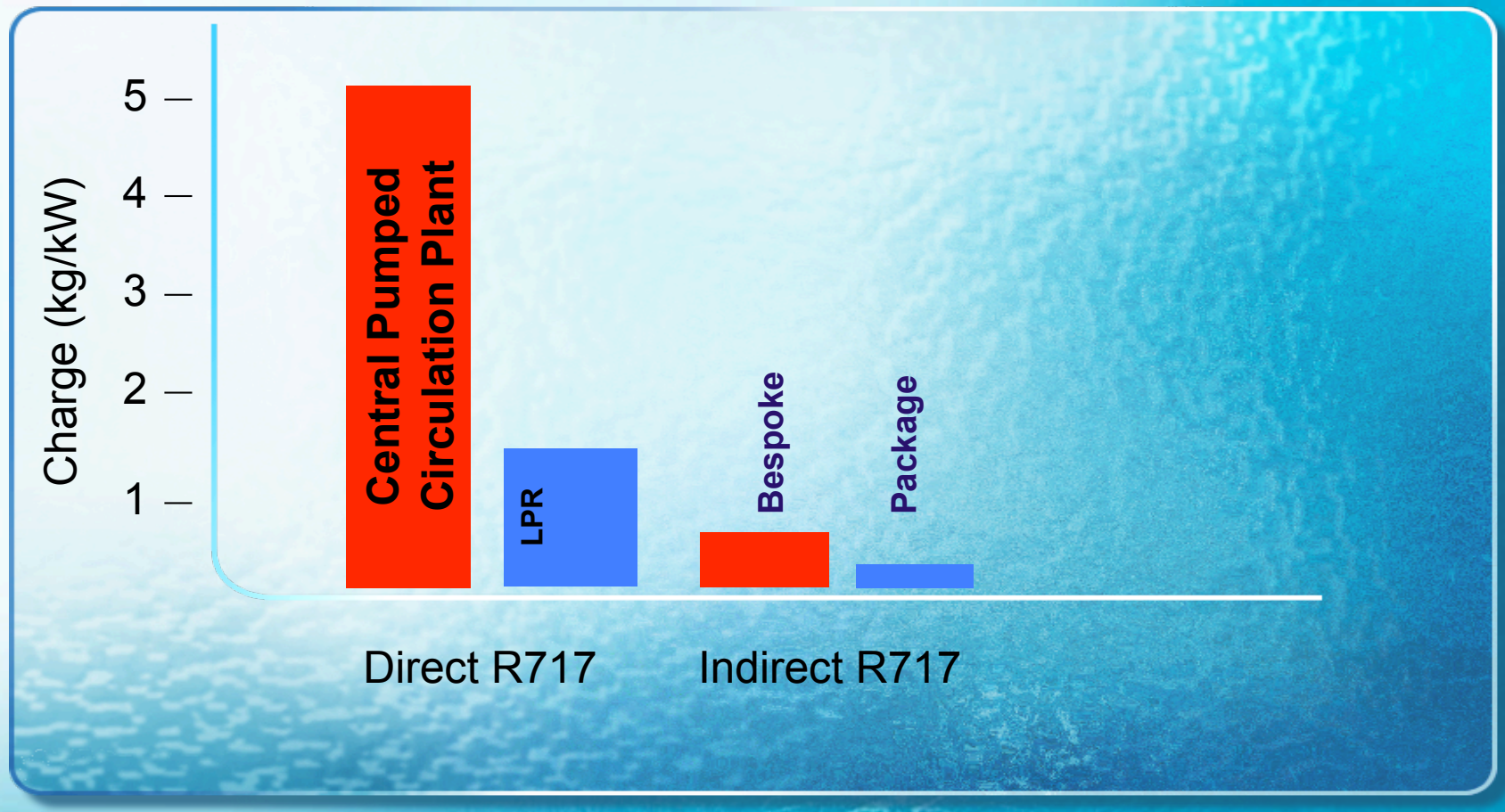

Reduce charge
Plant Design

Critical Charge Solutions



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Critical Charge Plant

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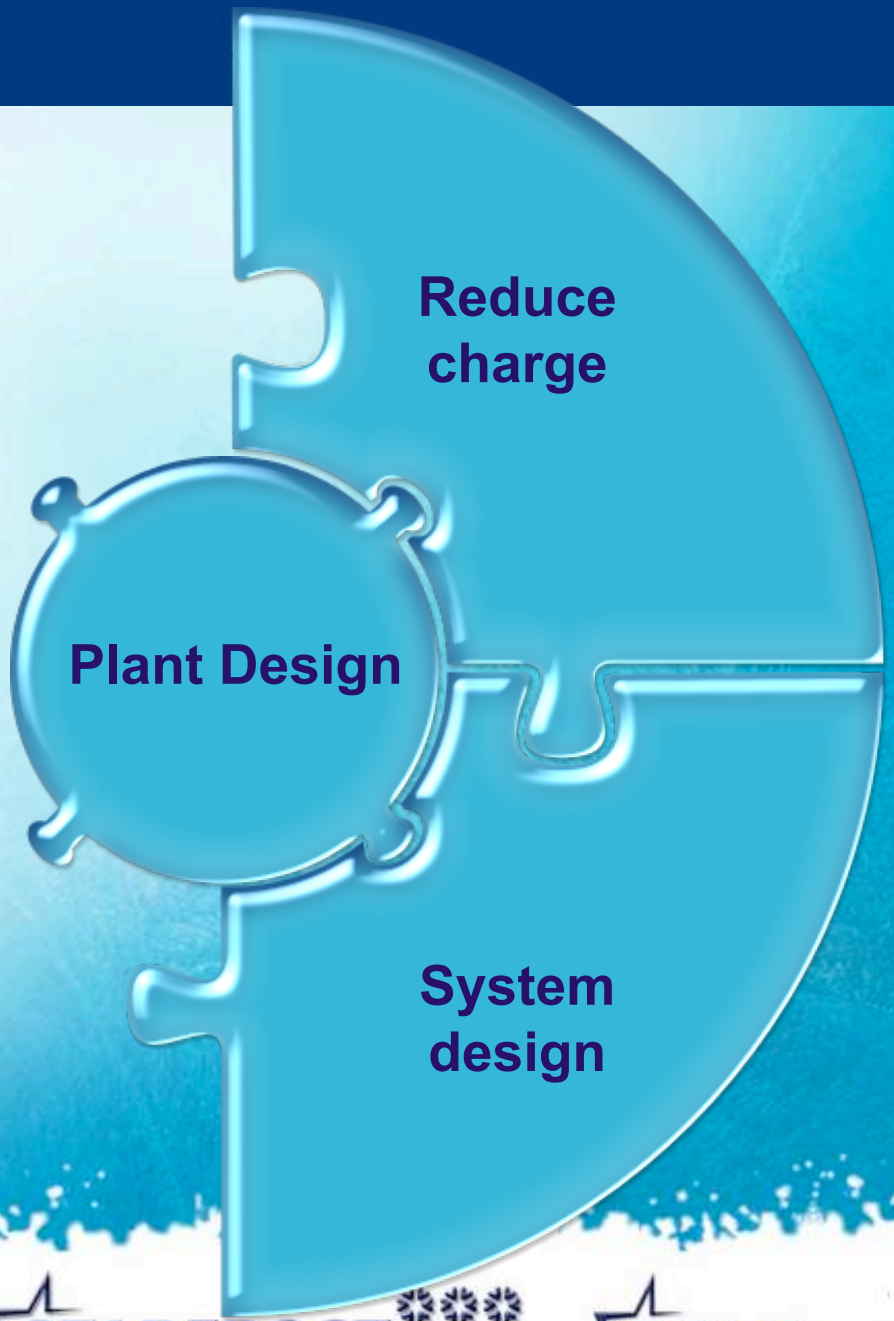
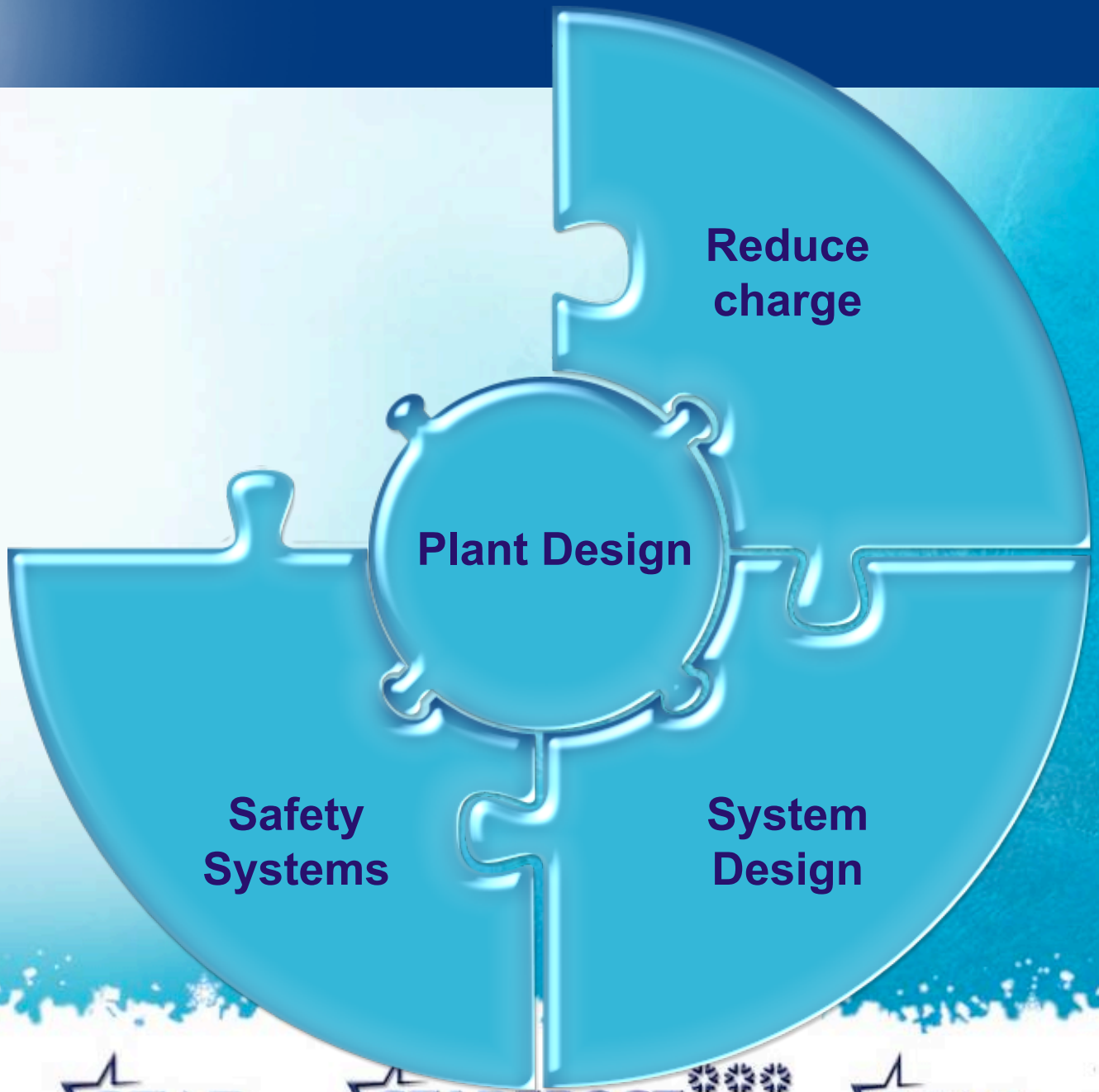

Reduce charge
Plant Design
System design

Equipment and Pipework


Reduce charge
Plant Design
Safety Systems
System Design

Safety Equipment

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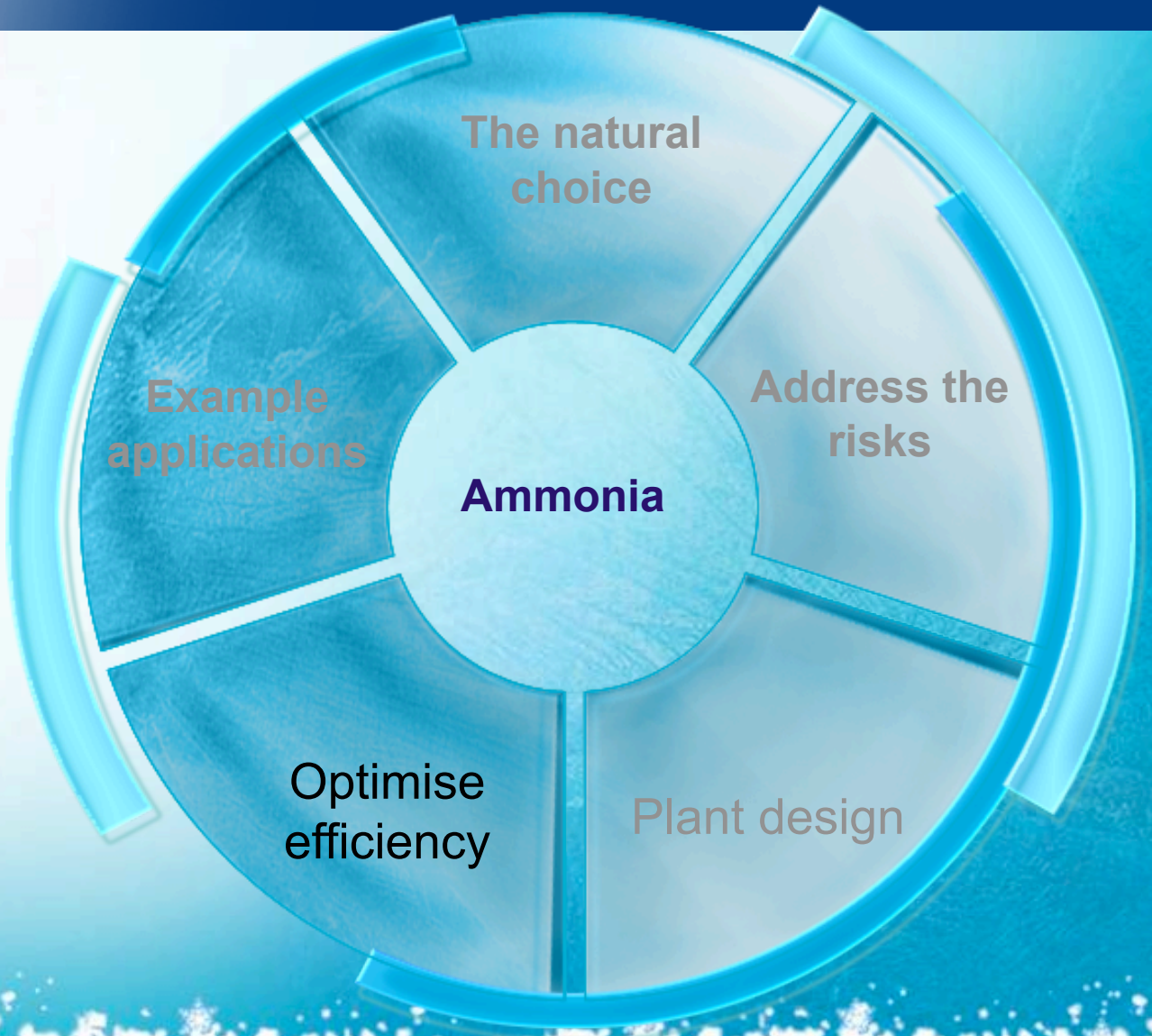

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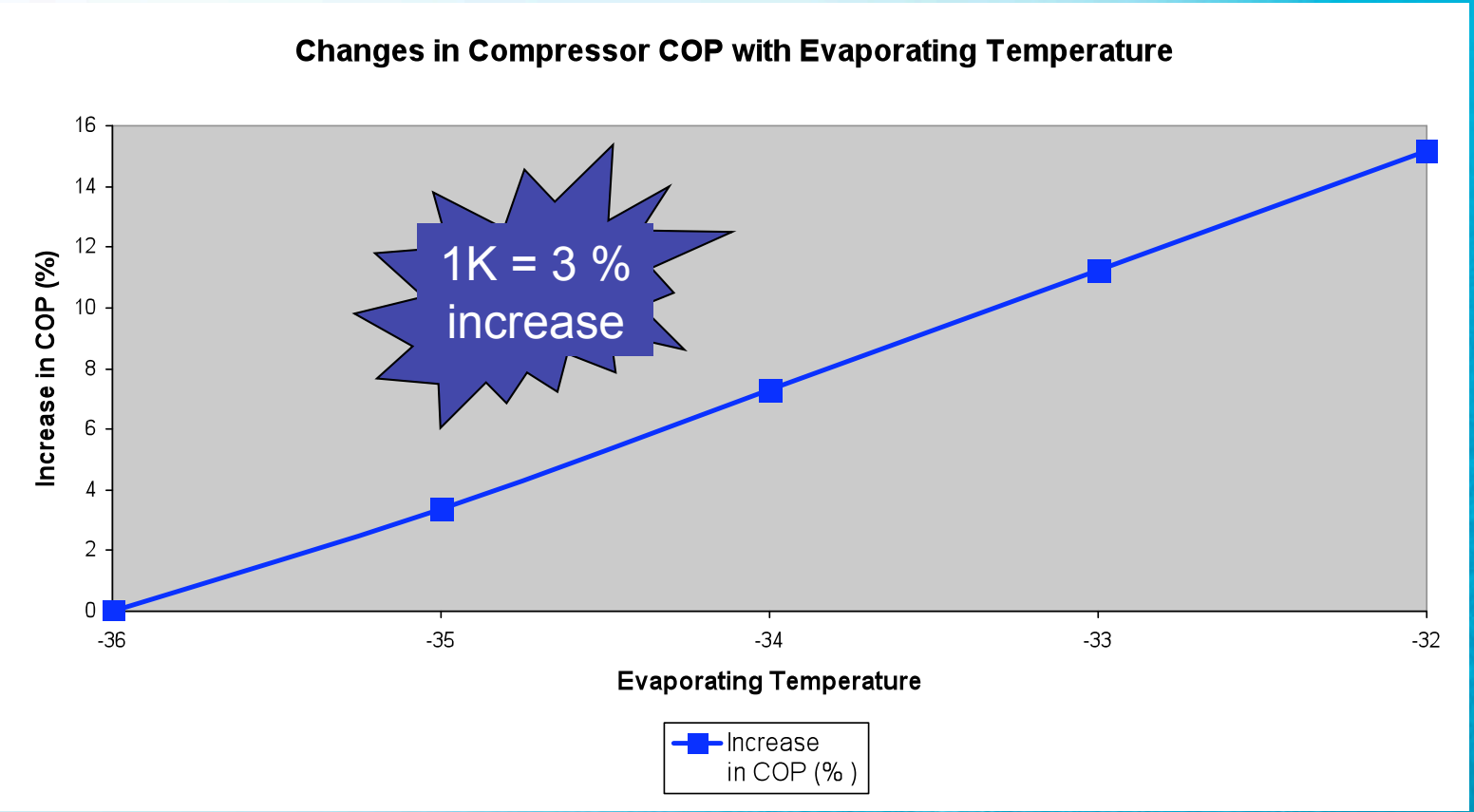
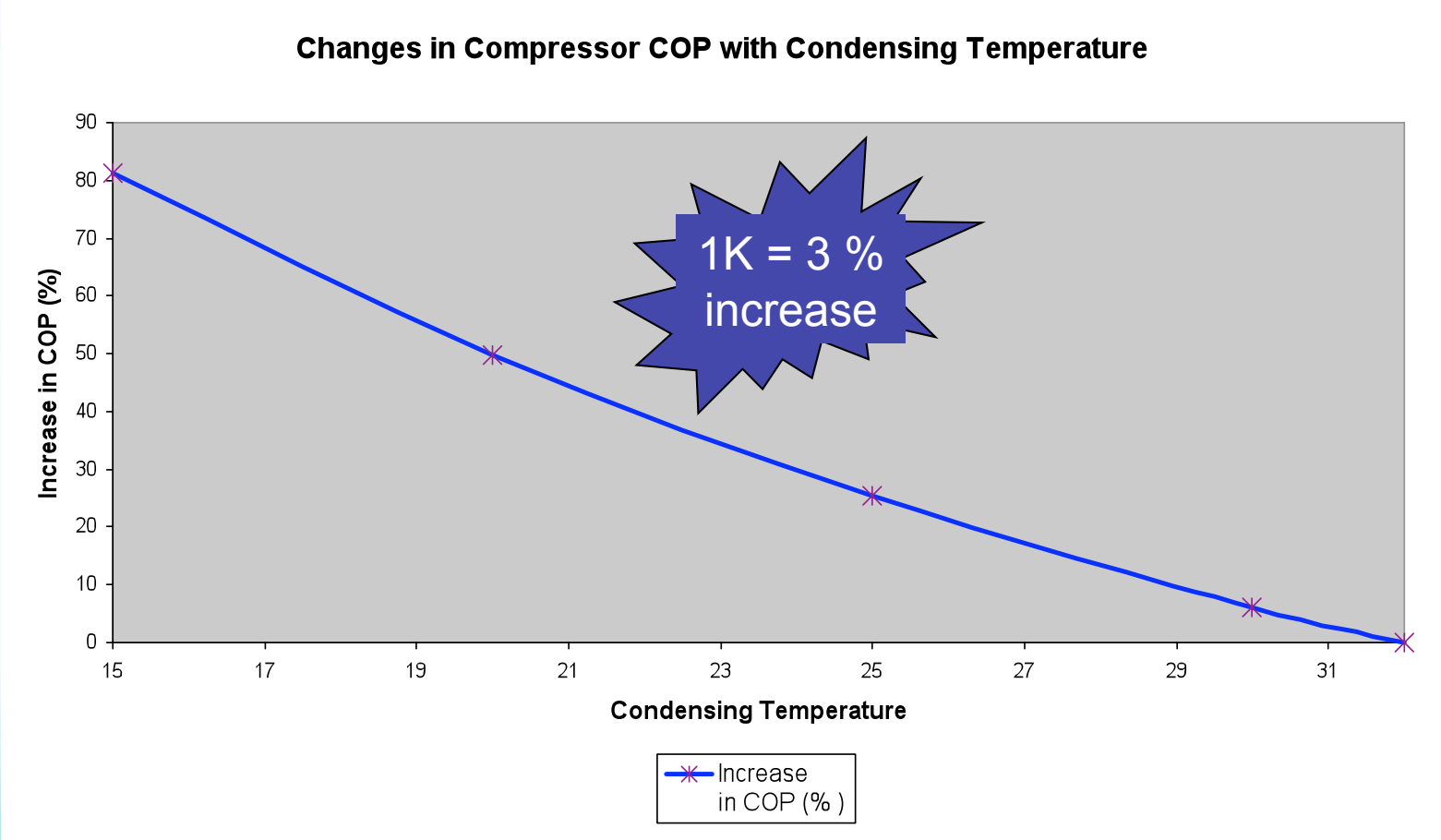
Close Evaporator Approach



Floating Head Pressure



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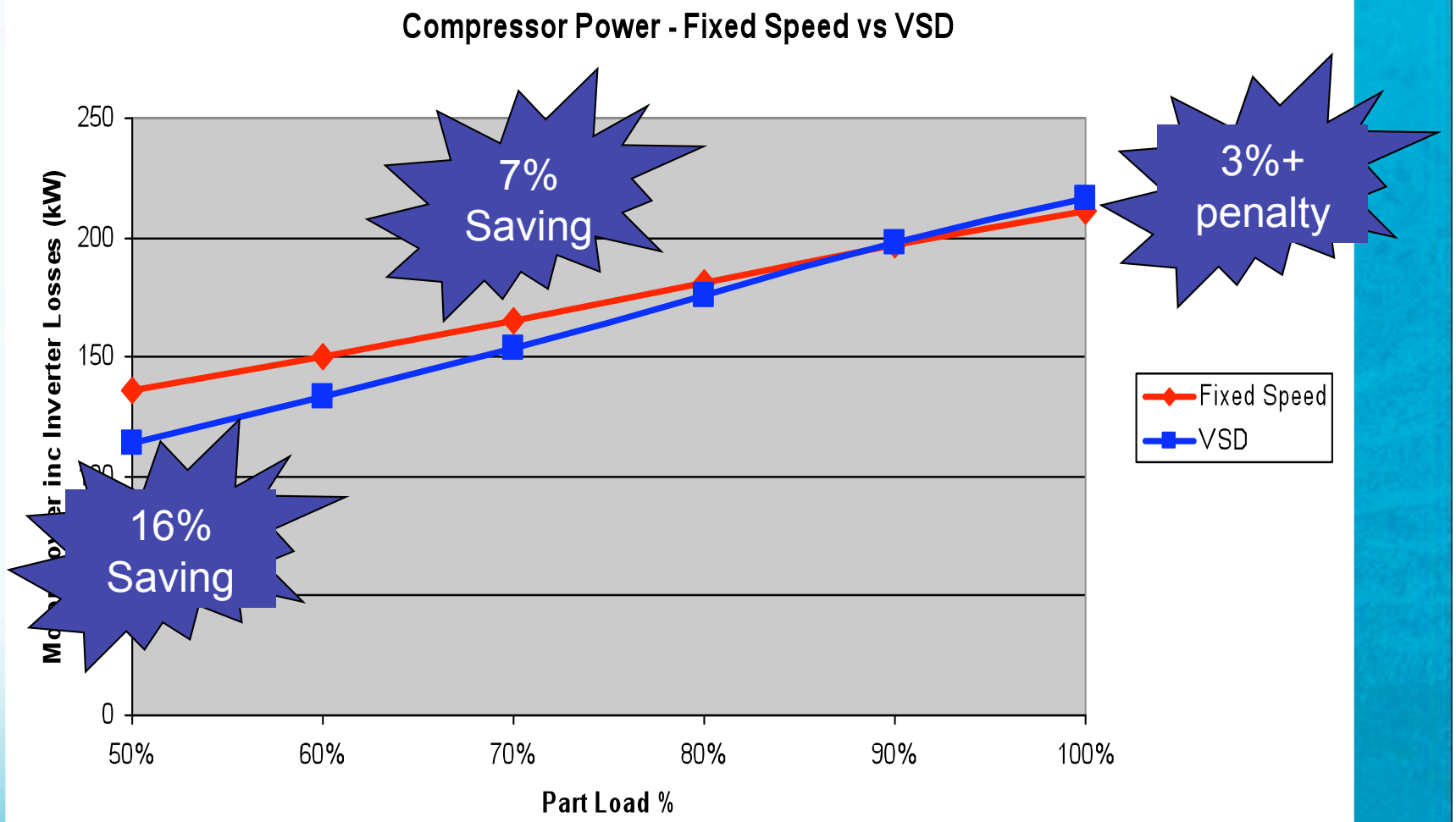
VSD Compressor Drive Motor



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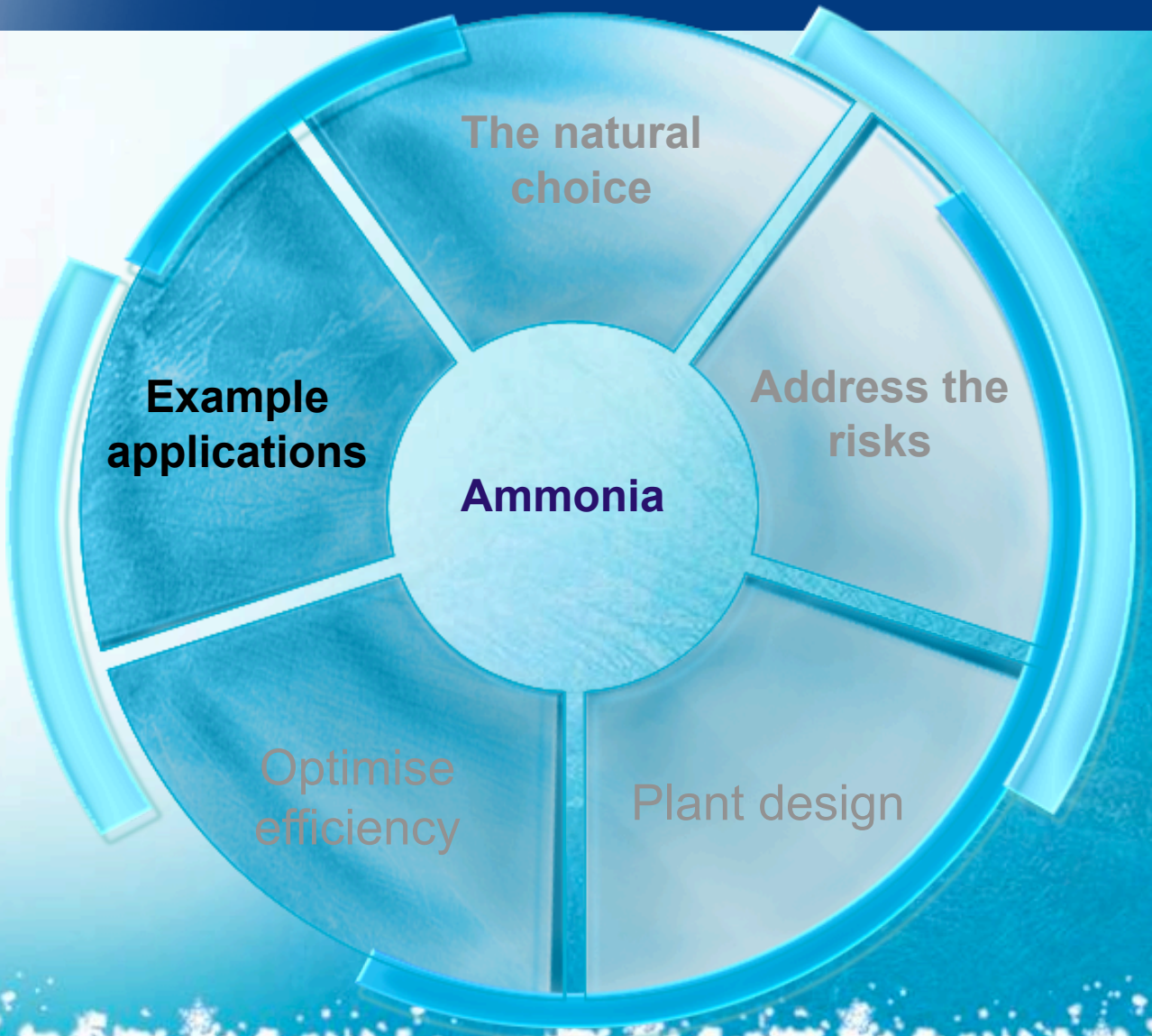

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Example Project 1 – Coldstore

Volume = 13,818m3

Temperature = -22°C

Installed Capacity = 218kW

Refrigerant = R717

System = LPR with RCD

Benefits:

- Charge circa 300kg (pump circ > 1Tonne)
- No roof void valve stations
- Skid package
- Heat recovery for heater mat

Example Project 2 – Retail Store

Azanechiller

Application = Air conditioning

Temperature = +6°C water

Installed Capacity = 500kW

Refrigerant = R717

System = Air cooled Azanechiller

Benefits:

- Removed R22
- Low ammonia charge (<100kg)
- High efficiency
- Pre-commissioned/charged package
- Low carbon solution

Example Project 3 – Office

Application = Air conditioning/data centre

Temperature = +6°C water

Installed Capacity = 2740kW

Refrigerant = R717

System = 4 x evaporative cooled chillers

Benefits:

- Natural refrigerant
- Low ammonia charge (<150kg/system)
- High efficiency
- Heat recovery
- Best life cycle solution

Many thanks

For support on legislative and regulatory requirements visit www.star-ts.co.uk

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