



2016 Global Data Centre Segment Update

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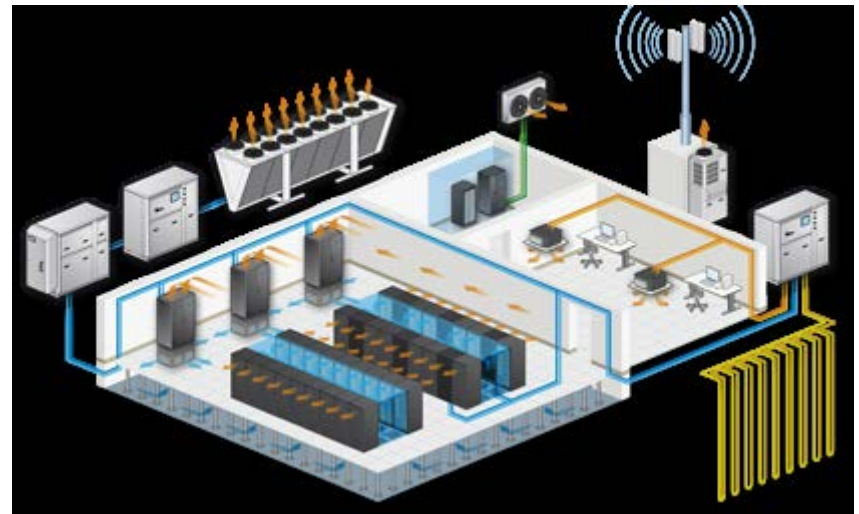


*65% energy savings in Data Centers available using Munters cooling
—
in a world where DC cooling consumes almost
1% of global electricity...*

Uptake of Free Cooling in New Builds, Why was this not 100%?

Historically -

- Server reliability
- Data Halls tended to be sealed systems
- Much lower supply temperatures
- Low energy costs
- Thought CAPEX was higher
- Do what we have always done



Uptake of Free Cooling in New Builds, Why is this not 100%?

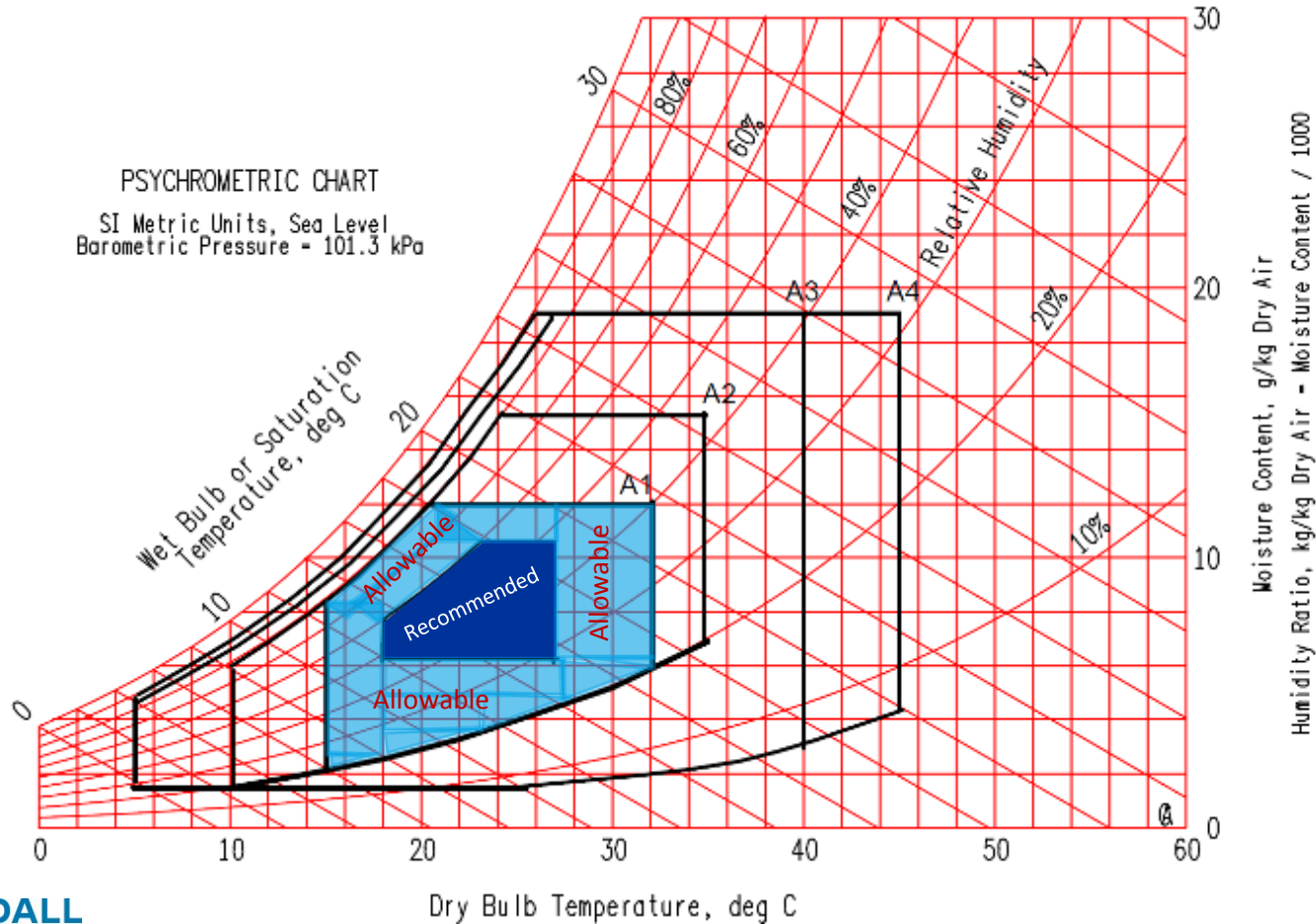
What Changed?

- Server reliability increased
- Energy costs rose
- ASHRAE Guidelines
- Higher supply temperatures
- Corporate responsibility – Green Issues
- Trust started to build in free cooling solutions



ASHRAE 2011

(Guidelines for Data Processing Environments)



CUNDA

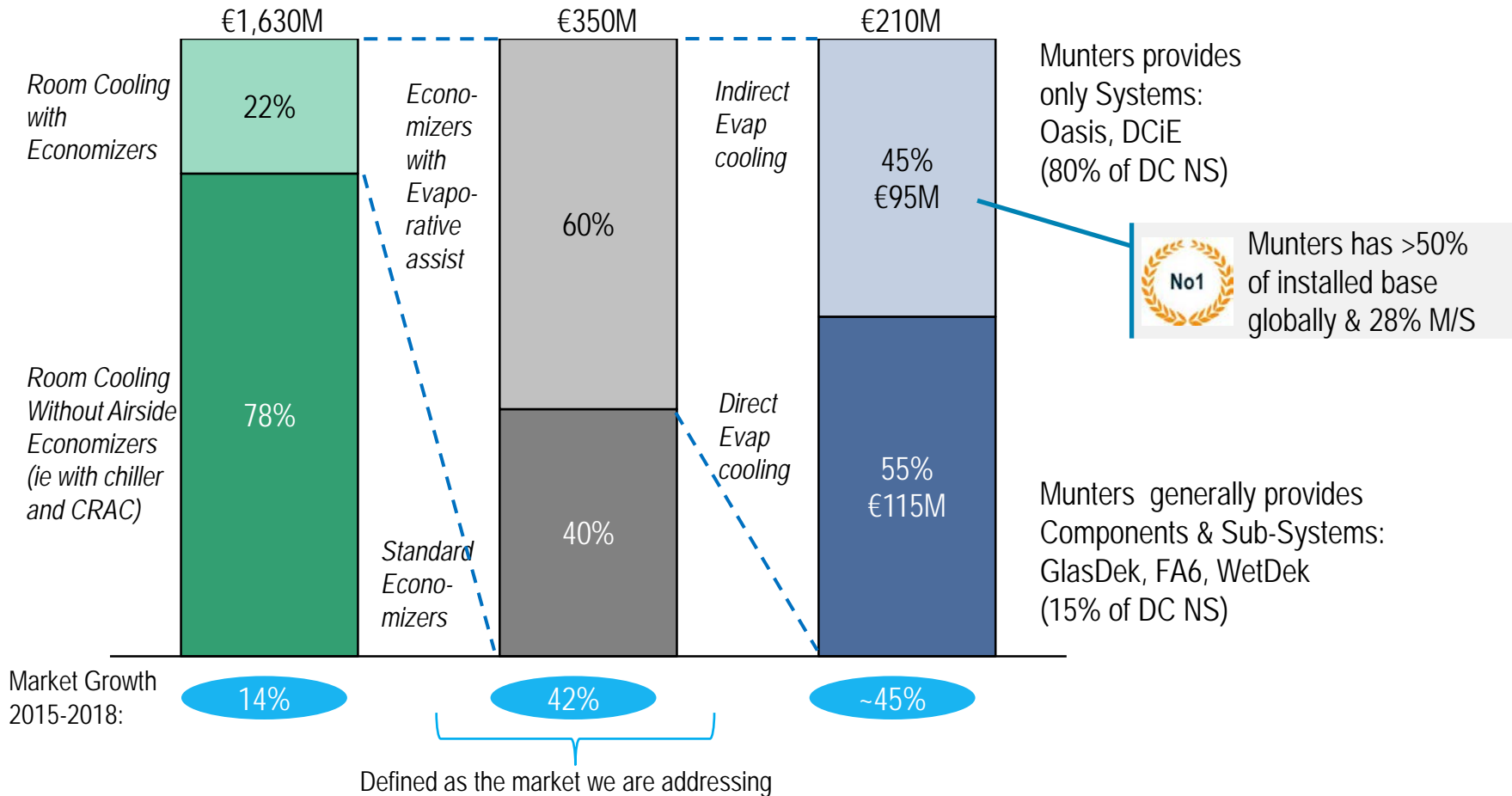
Recommended 18-27°C at server inlet (5.5dew point - 60% rh)
Allowable 15-32°C at server inlet (20-80% rh)

Backup: Technology shifts makes evaporative cooling a winner

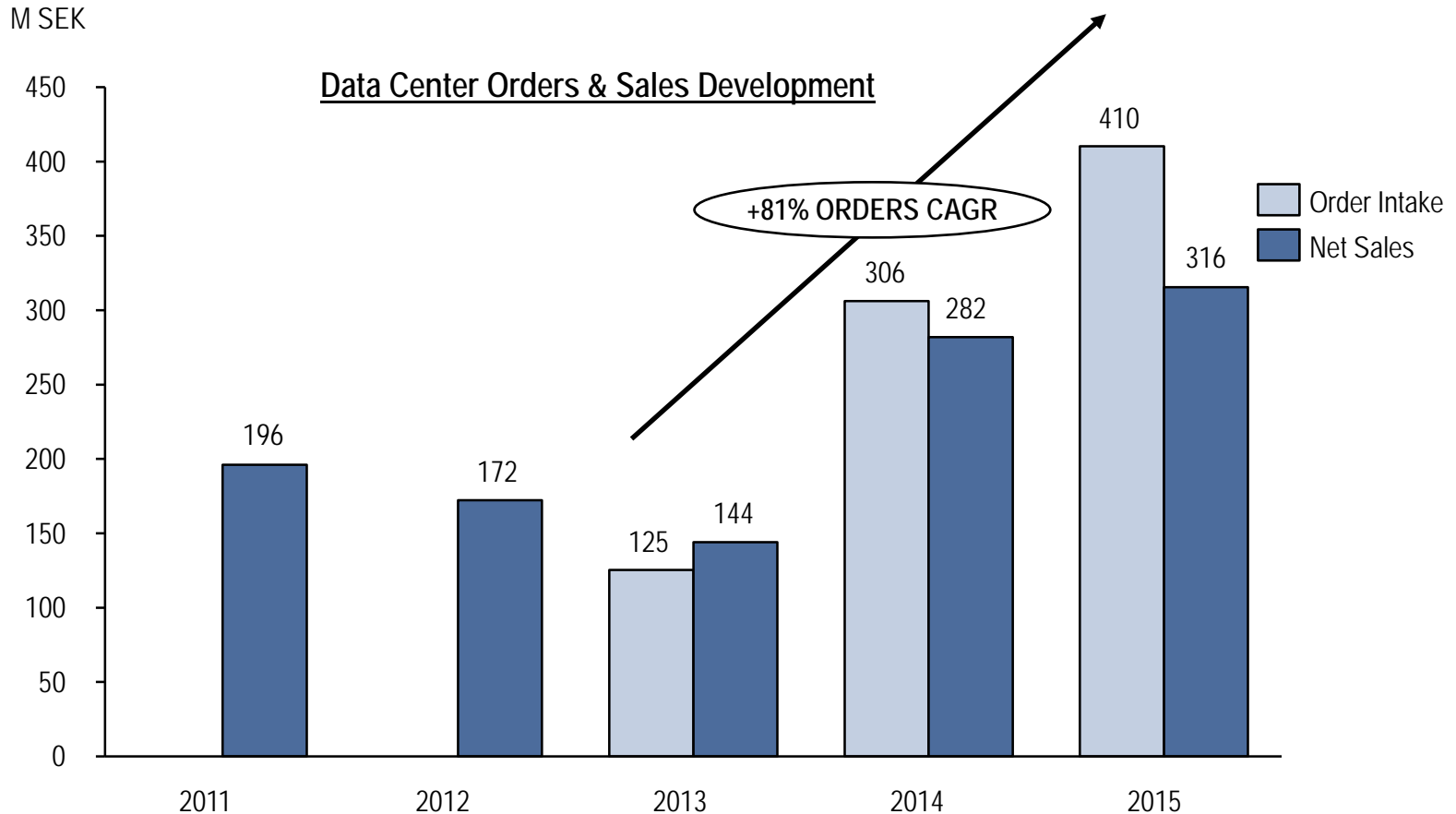
Driver	Reasons	Growth impact (to 2018)
1. Growth of room cooling	<ul style="list-style-type: none"> - Data transfer expected to grow by >30% pa - Increased server efficiency partially mitigates the need for additional cooling capacity 	14%
2. Shift to economizers	<ul style="list-style-type: none"> - Technology shift from traditional CRAC/Chiller solution, due to the lower energy consumption of economizers 	+28% = 42%
3. Shift to evaporative assist of economizers	<ul style="list-style-type: none"> - Evaporative cooling is more efficient, but swing is dampened by concerns regarding water usage 	+3% = 45%
Total growth of "Economiser with Evaporative-Assist DC Cooling Market"		~ 45%

Munters is a leader in the fastest growing evaporative segments

2015 DC cooling market



Technology gained traction in 2013 – Orders CAGR of 81% since then



Strong orders growth not yet translated into sales, due to phasing of projects

Executive Summary – Data Center Cooling

- The global **Data Center Cooling Market** is estimated to have been around €1.6 Bn in 2015 and growing at approximately 14% per year. The majority of the current market is served with compressor-based solutions including chillers & DX, while 22% of the market is based on Economizers with or without evaporative assist. Munters addresses the “economizer with evaporative assist market” which amounts to approximately €200 Mn and is expected to grow approx 45% per year.
- Munters has been actively targeting the DC market for approximately 8 years. In 2014 we established a dedicated DC Segment. The Segment organization remained somewhat virtual and most resources belonged to other parts of the AirT organization. In an effort to increase the level of specialization and momentum, and to exploit growth opportunities, we have in 2016 launched a **DC organization with more dedicated resources**.
- The **vision for Munters** is to become the leading supplier of Evaporative-based Data Center Cooling solutions, with sales of €130 Mn in 2019.

