Global trends & challenges in Cooling
Opportunities in emerging countries?

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World Bank
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Agenda

• Brief Introduction to BSRIA

• Global market trends and challenges in AC

• Focus on trends in emerging markets

• Future Growth areas

• Sum up
Intro to BSRIA

**BSRIA**
- Consultancy, Test, Compliance and Research
- Promotes best practices in building
- Est. 1955, 800+ members
- Non-profit association

**WMI**
- Over 30 years of Market Intelligence
- Independent, authoritative studies
- Unrivalled technical expertise
- Research in 90+ countries
The spread of AC in Europe has pushed down heat-related deaths by a factor of ten since 2003

The Economist

In the next ten years, as many air-conditioners will be installed around the world as were put in between 1902 and 2005

From Miami to Shanghai: 3C of warming will leave world cities below sea level

1.1 billion people at risk of lack of cooling globally

CHILLING PROSPECTS:
PROVIDING SUSTAINABLE COOLING FOR ALL
EXECUTIVE SUMMARY

Source: International Energy Agency

South Beach, Miami, would be mostly underwater. Photograph: Nickolay Lamm/Courtesy Climate Central
## Top 10 in 2018e

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Country</th>
<th>Trend</th>
<th>Market Value USD million</th>
<th>Market growth % 17-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>China</td>
<td>↑</td>
<td>37,920</td>
<td>+ 10%</td>
</tr>
<tr>
<td>2</td>
<td>USA</td>
<td>↑</td>
<td>17,740</td>
<td>+ 7%</td>
</tr>
<tr>
<td>3</td>
<td>Japan</td>
<td>↓</td>
<td>13,910</td>
<td>- 1%</td>
</tr>
<tr>
<td>4</td>
<td>South Korea</td>
<td>↓</td>
<td>2,980</td>
<td>- 5%</td>
</tr>
<tr>
<td>5</td>
<td>India</td>
<td>↑</td>
<td>2,830</td>
<td>+ 9%</td>
</tr>
<tr>
<td>6</td>
<td>Australia</td>
<td>↑</td>
<td>1,720</td>
<td>+ 4%</td>
</tr>
<tr>
<td>7</td>
<td>Italy</td>
<td>↑</td>
<td>1,620</td>
<td>+ 12%</td>
</tr>
<tr>
<td>8</td>
<td>Brazil</td>
<td>↑</td>
<td>1,220</td>
<td>+ 5%</td>
</tr>
<tr>
<td>9</td>
<td>Saudi Arabia</td>
<td>↓</td>
<td>1,210</td>
<td>- 5%</td>
</tr>
<tr>
<td>10</td>
<td>France</td>
<td>↑</td>
<td>1,170</td>
<td>+ 11%</td>
</tr>
</tbody>
</table>

Global AC Market Shares 2017

Source: BSRIA
World AC market

World Air Conditioning Market, 2017 to 2022 (F)

Total Units in 2018e: 145 million
CAGR 3.9%

Total Value in 2018e: USD 109 billion
CAGR 5.0%

Source: BSRIA
Single splits Market

World Market for Single splits, from 2017 to 2022 (F)

- 6% growth in 2018
- Splits account for 80% of global volume sales
- Unpredictable sales
- Asia is the sales and production hub – 86% of global total
- Rapid rise in R32 refrigerants
- MEA and Europe growing fastest

Source: BSRIA

USD 68.8 billion in 2018(e)
Market Value

CAGR (2017-2022)
3.9% Vol

116.5 million in 2018(e)
Market volume
AC VRF Market

**World Market for VRF, outdoor units from 2017 to 2022 (F)**

- 13% growth in 2018(e)
- European market maturing
- Rapid development in the Americas
- Early days in the MEA
- Rapid success of mini-VRF for residential applications
- Competes with Unitary, Chillers and BACs

**USD 12.8 billion in 2018(e)**
Market Value

**CAGR (2017-2022)**
9.0% volume

**2.3 million in 2018(e)**
Market volume

*Source: BSRIA*
AC Chiller Market

World Market for Chillers, USD million from 2017 to 2022 (F)

USD billion

- 3% growth in 2018(e)
- US/China dominate with 45% of global sales
- Growth Inverter & reversible chillers
- Increase in capacities of compressors
- Rising demand centrifugal chillers
- Rise in modular chillers
- IP enabled chillers becoming the norm

Source: BSRIA
Inverter penetration Splits vs Chillers

Energy efficiency legislation is pushing inverter technology

Penetration in single and multi splits in key countries by volume %, 2017 and 2022 (F)

Penetration in chillers in key countries by volume %, 2017 and 2022 (F)

* Key 5 European countries: UK, France, Germany, Italy, Spain

Source: BSRIA
AC in Middle East & Africa

Growth by product in the MEA 2018 by volume

- Airside
- Chillers
- Large Packaged
- VRF
- Single split (ductless)
- Multi Splits
- Single Splits ducted

Growth rates of air conditioning in MEA countries, 2018 (units)

- Egypt 15%
- Tunisia -2%
- Ethiopia -18%
- Kenya 6%
- Tanzania -5%
- Ghana 10%
- Nigeria 10%
- Iran -5%
- Kuwait 0%
- Qatar 6%
- Saudi Arabia 3%
- South Africa -4%
- UAE 5%

Source: BSRIA

6.1 billion$ PAC Market Value
1.8 billion$ CPAC Market value
8.6 million PAC Market volume
0.9 million CPAC Market volume

CAGR
5.8% Vol + 6.1% Val
4.7% Vol + 5.0% Val
AC in Latin America

Growth by product in Latin America 2018 by volume

- Airside
- Chillers
- Large Packaged
- VRF
- Single splits (ductless)
- Multi Splits
- Single splits (ducted)

3.6 billion $ PAC Market Value
0.7 billion $ CPAC Market value
CAGR 3.1% Vol + 5.3% Val
CAGR 4.5% Vol + 5.4% Val
7.9 million PAC Market volume
0.2 million CPAC Market volume

Growth rates of air conditioning in Latin America countries, 2018 (units)

Source: BSRIA
AC in South East Asia

Growth by product in SE Asia 2018 by volume

- Airside
- Chillers
- Large Packaged
- VRF
- Single splits (ductless)
- Multi Splits
- Single splits (ducted)

Growth rates of air conditioning in SE Asia countries, 2018 (units)

- Indonesia 6%
- Vietnam 8%
- Thailand 3%
- Malaysia 1%
- Hong Kong 5%
- Taiwan -2%
- Philippines 5%
- Myanmar 4%
- Singapore 2%
- Cambodia 4%

Source: BSRIA

5.2 billion$
PAC Market Value

0.8 billion$
CPAC Market value

CAGR
5.0% Vol + 6.4% Val

CAGR
2.8% Vol + 4.5% Val

10.6 million
PAC Market volume

0.3 million
CPAC Market volume

www.bsria.co.uk
World fastest growing AC markets, CAGR 2016-22

- Hot spots >5% growth
- Warm spots 1-5% growth
- Cold spots <1% growth

Source: BSRIA
Conclusions

- The World AC market is growing; emerging markets driven by urbanisation and increasing disposable income

- Refrigerant switch will impact technologies of the future

- Environmental and legislative measures will drive up energy efficient products and solutions, but also encourage the use of alternative solutions for more efficient buildings.
Thank you