BSRIA Worldwide Market Intelligence

• Turnover £3.7 million for 2013
  40% multi-client
  60% private client including management consultancy

• Research across 94 countries

• 35 permanent multi-lingual analysts and
• 35 independent consultants

• Offices in China, US, Brazil, UK, France, Spain, Germany, partners in other countries

• Japan office opening shortly

• Global network of associates eg. JARN
BSRIA Regular Multi-Client Studies 2013 & 2014

Renewables
- Worldwide Heat Pumps
- Worldwide Solar Thermal
- Micro CHP
- Fuel Cells
- Gas Heat Pumps
- Hybrid Heat Pumps
- Residential Heat Recovery
- Commercial Heat Pumps
- Commercial Solar Thermal
- Solar PV

Air Conditioning
- Worldwide Review
- Worldwide Review and In-depth
- Air handling units & fan coils
- Chillers
- Large packaged & close control
- Splits
- Windows & moveables
- Brand & Distribution
- Refrigeration

Heating
- Annual Worldwide Review
- Domestic boilers
- Commercial boilers
- Water heaters
- Radiators & under-floor heating
- HVAC 2020
- Integration/overlap

Smart
- Environmental Controls
- Security
- Lighting controls
- Fire Detection
- Smart Homes
- Energy Management

IT
- Annual Worldwide Review
- Structured cabling
- Data centres
- Wireless
- Passive optical LAN
- IT Convergence

Europe
- Air Conditioning: 11
- Heating: 18
- Renewables: 14
- Cabling: 11

Asia Pacific
- Air Conditioning: 11
- Heating: 6
- Renewables: 6
- Cabling: 5

Americas
- Air Conditioning: 4
- Heating: 5
- Renewables: 3
- Cabling: 3

Middle East, India & Africa
- Air Conditioning: 3
- Heating: 7
- Renewables: 4
Policy long term impact on dwellings – Europe

- Reduction of CO2 emissions
- Reduction of energy consumption
- Efficiency of products & systems
- Integration of products & systems

Source: BSRIA
Policy & incentives impact on HP sales – Europe

France

2006
- Existing tax credit have been raised to 50%
- Quick rise in fossil fuel prices but low electricity price

2010
- Reduction of tax credit to 25% for A/W HP (15% in 2012)
- Announced increase in electricity price
- High tax credit and FiT for PV
- SHW HP receive 40% tax credit (reduced to 15% in 2014)

Germany

2006
- Low interest loans
- Lower electricity tariffs from utilities
- Market driven by new dwellings that was going strong

2008
- HP included in market incentive program

2010
- HP financial support available for existing dwellings only
  Quick rise of electricity prices slows market growth

Source: BSRIA
Policy & incentives impact on HP sales – Japan / US

2002
- Japanese government financial support for CO2 water heater heat pumps.
- HP parts of ECO points scheme

Early 2012
- Government direct subsidies for HP stopped
- ECO points remained.
- ECO CUTE seen as electricity consuming product – bad image

End 2009
- G/W/W heat pumps receive federal and state incentives.

April 2015
- New federal efficiency standards of DOE: all new electric storage water heaters over 55 gallons will effectively become an air-to-water cylinder-integrated water heater.

Source: BSRIA
World Heat Pump
2020 Outlook

Sales volume per country with CAGR 2012 - 2020

Source: BSRIA
World Water Heating Markets

World Water Heating, 2013

- Brazil: 28%
- China: 28%
- Europe: 11%
- North America: 11%
- Russia: 3%
- Japan: 4%
- Saudi Arabia: 3%
- Others: 10%
- India: 2%

Total: around 98.6 mln units (include ESWH, GSWH, EIWH, GIWH, ST WH, SHWHP)

Based on BSRIA market analysis for 44 countries

Source: BSRIA

Largest Water Heating markets, 2013

Source: BSRIA
Excellence in Market Intelligence

Water Heating market - Europe

Water Heating market, by type of provision, 2013

- Electric storage have been the most popular product.
- The share of renewable WH systems is stable but SHW HP have increased at ST WH expense.

Source: BSRIA, based on market analysis for 19 European countries
World Solar Thermal 2020 Outlook

Thousands m²

CAGR 2012-2020 = 7.1%

Source: BSRIA,
ErP - Impact on products

Eco Design

- Labels mandatory from Sep. 2015

- Dramatic decrease in sales of non-condensing boiler

- Increase in Combined & Hybrid systems
  Hybrid Heat Pumps

- Enhanced Controls

<table>
<thead>
<tr>
<th>Label</th>
<th>Efficiency</th>
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<tbody>
<tr>
<td>A +++</td>
<td>≥150%</td>
</tr>
<tr>
<td>A ++</td>
<td>≥125%</td>
</tr>
<tr>
<td>A +</td>
<td>≥98%</td>
</tr>
<tr>
<td>A</td>
<td>≥90%</td>
</tr>
<tr>
<td>B</td>
<td>≥82%</td>
</tr>
<tr>
<td>C</td>
<td>≥75%</td>
</tr>
<tr>
<td>D</td>
<td>≥36%</td>
</tr>
<tr>
<td>E</td>
<td>≥34%</td>
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- From 26/9/2015 products with Label D to G are no longer allowed to be sold

- Cogeneration
- Gas HP
- Condensing boilers
- Non-condensing boilers
- Fuel cell
- Combined CB + ST system

Excellence in Market Intelligence
Boiler technology shift

Domestic gas & oil boiler sales, 2012 - 2017

**Inside the EU market**

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>70%</td>
<td>30%</td>
<td>8%</td>
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</table>

**Outside the EU market**

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>88%</td>
<td>12%</td>
<td>15%</td>
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</tbody>
</table>

Source: BSRIA, based on the analysis of 9 largest European markets

Source: BSRIA, based on the analysis of Turkey, Russia, China, S. Korea
Domestic boilers - main world heating markets

Total domestic boiler sales, 2012 - 2017

Source: BSRIA
Small cogeneration (CHP <50 kW)

- Total market in 2013: 20,660 units (CAGR 2009/2016: 9%)
- Expected decline in Japan due to competition from Fuel Cell

Source: BSRIA
Stationary Fuel Cell Systems - Japan

- PEM FC entered the market in 2009.
- SO FC entered the market in 2012.
- FC old under the name of ENEFARM.
- Supported financially from 2009.
- Part of the Off-Grid Power System Enhancement Programme (BUNSANGATA DENGEN DONYU SOKUSHIN JIGYO HOJYO KIN)

Source: BSRIA
Stationary Fuel Cell systems - Europe

European sales of Fuel Cells under 10kWe

Source: BSRIA
Thank you

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