



Johnson Matthey
Inspiring science, enhancing life

Sector call – Clean Air

13th July 2018

John Walker

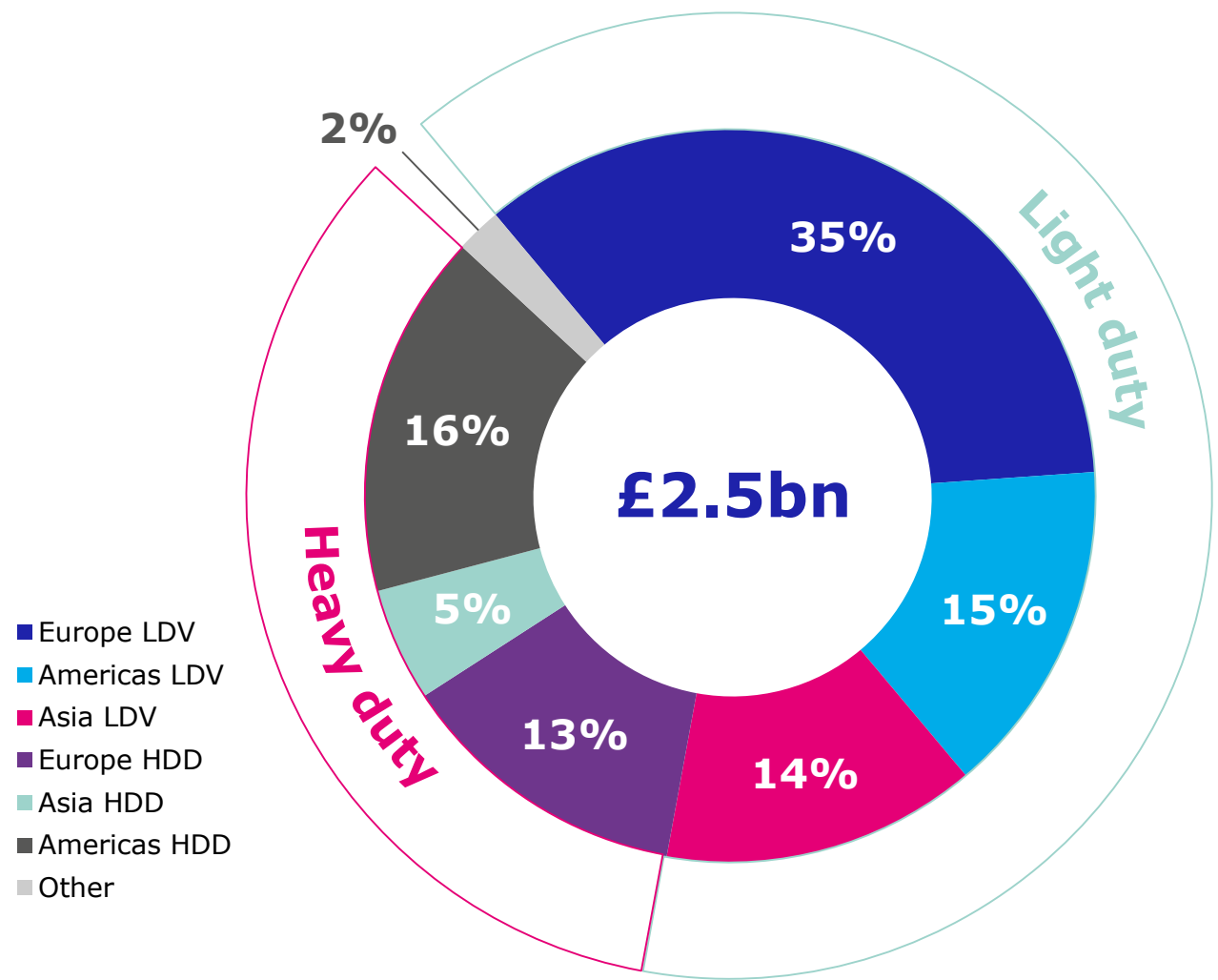
Sector Chief Executive, Clean Air



Cautionary statement

This presentation contains forward looking statements that are subject to risk factors associated with, amongst other things, the economic and business circumstances occurring from time to time in the countries and sectors in which Johnson Matthey operates. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a wide range of variables which could cause actual results to differ materially from those currently anticipated.

Sales 2017/18 by sub-business



Clear visibility of sustained growth over the next ten years

Share gains in Europe

Tighter legislation in Europe

Tighter legislation in China and India

Production growth across Light and Heavy Duty

Mid single digit sales CAGR with margin maintained



How we have won share in Light Duty Europe

**JM diesel share increases by
~20 ppts in 2018/19**

Technology leadership

- Lowest NOx emissions
- Excellent low temperature NOx conversion
- Outstanding thermal durability

**JM gasoline share will increase by
~5 ppts by 2020/21**


Strong filter technology

- High filtration efficiency
- Low backpressure

Working closely with our customers

- Tailored solutions
- Manufacturing agility
- Fast response

Efficiencies support strong margin

A blue-tinted image showing a line graph with a prominent upward-pointing arrow, symbolizing growth and increasing capacity.

**Increasing
capacity of
current plants**

A red-tinted image showing a dense, aerial view of industrial plant structures, representing new plants and improved efficiency.

**New plants to
deliver additional
capacity and
improved
efficiency**

A blue-tinted image showing people in a meeting, with one person pointing at a whiteboard covered in sticky notes, representing process improvements.

**Reducing process
losses**

A purple-tinted image showing hands writing on a document, representing procurement benefits.

**Procurement
benefits**

Sustained growth and value creation from a global leader

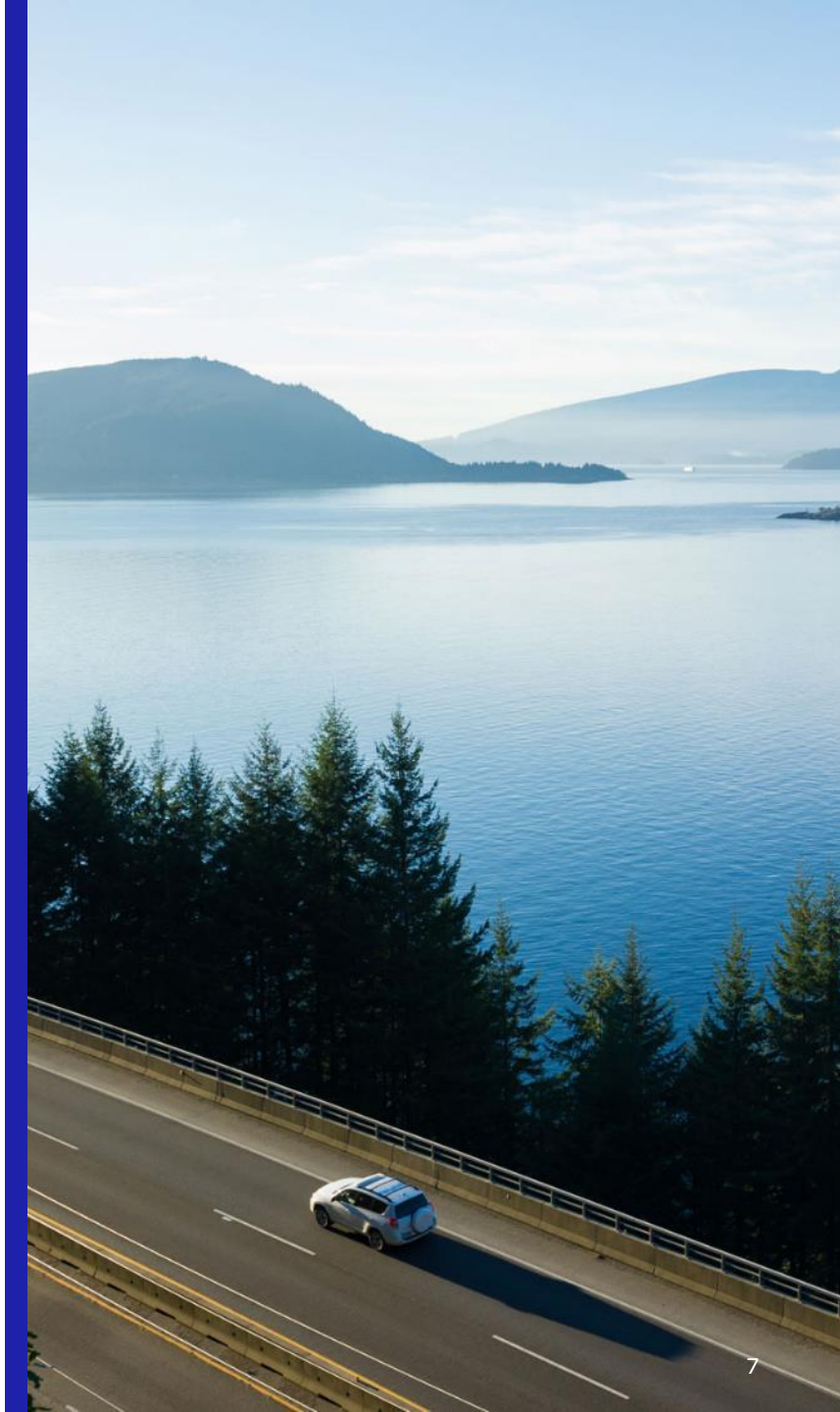
Share gains from technology leadership

Tighter legislation in Europe and Asia

Improving manufacturing footprint and operational efficiency

Mid single digit sales CAGR over next decade

Margin to be maintained





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Q&A



Appendix

JM

Light duty emissions control legislation roadmap

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Europe	EU 6b		EU 6c / Euro 6d temp				Euro 6d final / 95 g/km CO ₂			EU 7?	
North America EPA	Tier 2		Tier 3 Phase In: NMOG + NOx, PM Tightening								
North America CARB	LEV III Phase In: NMOG + NOx, PM Tightening						LEV III Further Tightening				
Japan	JP09			JP18							
South Korea (Gasoline)	K-ULEV	K-ULEV 70					LEV III / 97g/km CO ₂				
South Korea (Diesel)	EU 6b				EU 6c/ Euro 6d temp		Euro 6d final/ 97g/km CO ₂			EU 7?	
China (Beijing)	BJ5 (EU 5)			China 6a			China 6b			China 6b / RDE	
China (Nationwide)	China 4 (EU 4)			China 5 (EU 5)			China 6a				
India	BS3 (EU 3)		BS4 (EU 4)				BS6 (EU 6)			BS6 / RDE	
Indonesia (Gasoline)	EU 2				EU 4						
Indonesia (Diesel)	EU 2						EU 4				
Thailand	EU 4								EU5		

LDV Europe: Tighter legislation adds value per vehicle

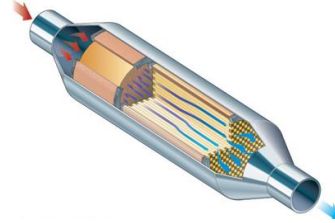
Gasoline : Sales per vehicle increases significantly

Euro 6b

Three way catalyst x2



Euro 6c/d



Three way catalyst +
gasoline particulate filter

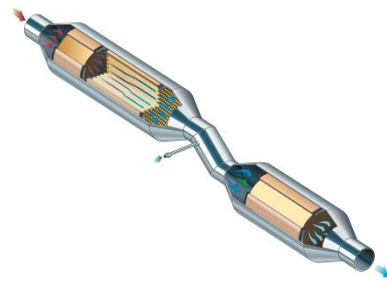
~2x value per vehicle

GPFs expected on >90% of GDI vehicles by 2025
GDI vehicles expected to be 80% of gasoline

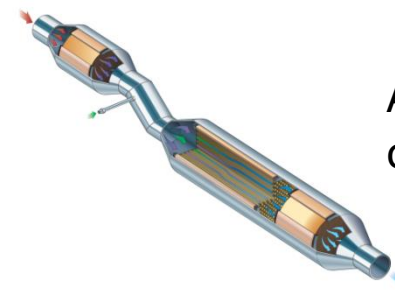
Diesel : Sales per vehicle increases

Euro 6b

Diesel oxidation
catalyst +
catalysed soot filter +
selective catalytic
reduction



Euro 6c/d



Advanced selective
catalytic reduction

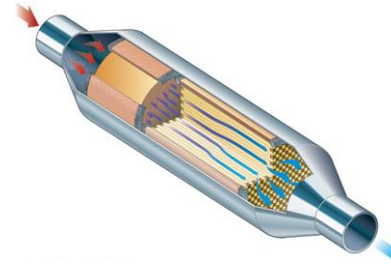
Up to 1.5x value per vehicle

LDV China: Tighter legislation doubles sales value per vehicle



China 5 gasoline

Three way catalyst x2



China 6a gasoline from July 2020

Three way catalyst + gasoline
particulate filter (GPF)

~2x China 5

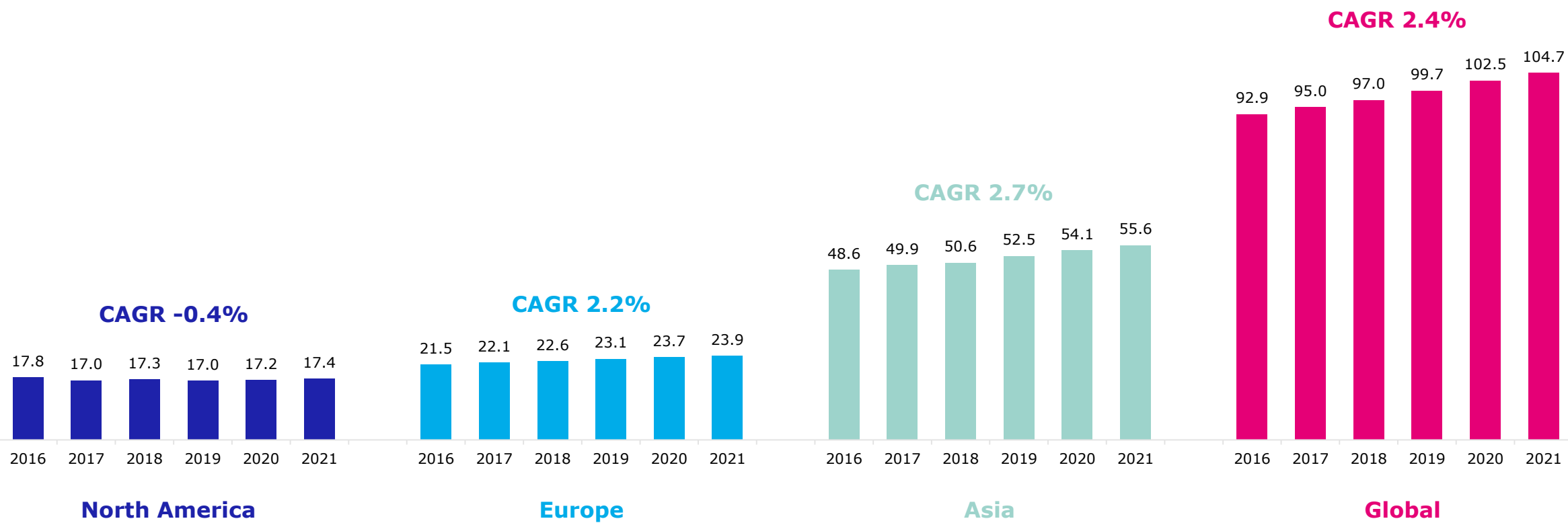
China 6b gasoline from July 2023

Three way catalyst + gasoline
particulate filter (GPF)

Real world driving

Global growth in vehicle production

Light duty vehicle production outlook (million)
Calendar years



Heavy duty diesel emissions control legislation roadmap

On Road

On Road	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Europe	EU VI									EU VII?		
North America	GHG Phase 1						GHG Phase 2					
North America (CARB)	GHG Phase 1						GHG Phase 2				CARB Ultra Low NOx	
Japan	JP09		JP16									
South Korea	EU VI									EU VII?		
Brazil	EU IV							EU V?				
Russia	EU IV			EU V?					EU VI?			
India (Main Cities)	BS IV							BS VI	BS VI / PEMS			
India (Nationwide)	BS III		BS IV					BS VI	BS VI / PEMS			
China (Beijing)	China V				China VI							
China (Nationwide)	China IV			China V				China VI				

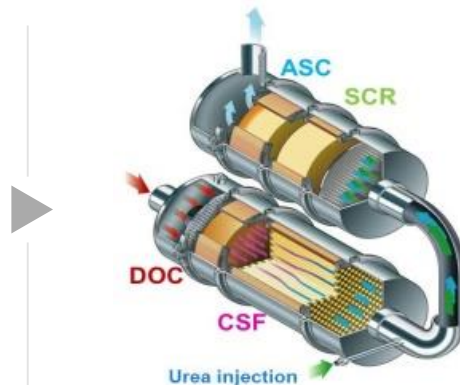
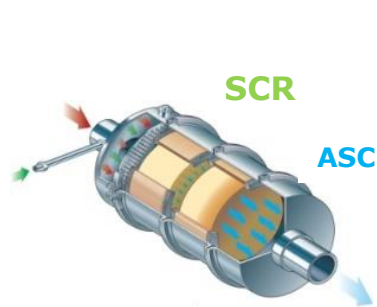
Non-road

Europe	Tier 4b			Stage V			
North America	Tier 4b				CARB/EPA Reduced NOx/PM?		
Japan	Tier 4b						
South Korea	Tier 4b			Stage V?			
Brazil	Tier 3			Tier 4a?		Tier 4b?	
China (Beijing)	Tier 3		Tier 4a		Tier 4b?		
China (Nationwide)	Tier 3			Tier 4a			Tier 4b?
India	Tier 3			Tier 4f			

HDD: Tighter legislation triples sales value per vehicle in China and India

China V

Selective catalytic reduction + ammonia slip catalyst



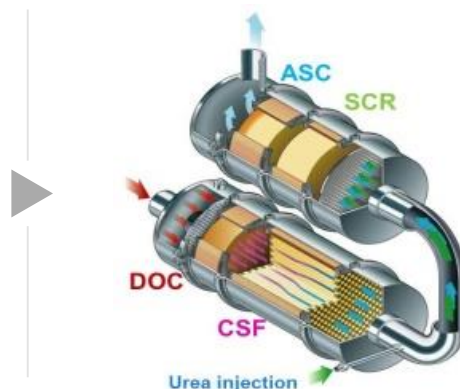
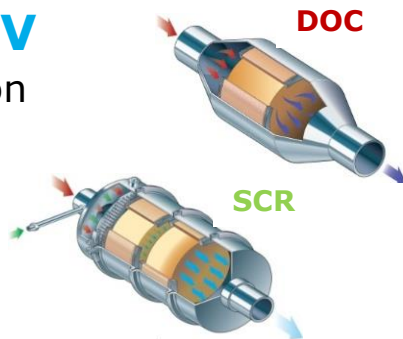
China VI

diesel oxidation catalyst + catalysed soot filter + selective catalytic reduction + ammonia slip catalyst
From January 2021 (expected)

~3x China V

India BS IV

Diesel oxidation catalyst or selective catalytic reduction



India BS VI

Diesel oxidation catalyst + catalysed soot filter + selective catalytic reduction + ammonia slip catalyst
From April 2020

~3x India BS IV

Heavy duty diesel vehicle production (regulated engines)

Heavy duty diesel vehicle (regulated engines) production outlook (thousands)
Calendar years

