Clean Air sector call

Friday, 13th July 2018

Operator: Good day and welcome to the Johnson Matthey Sector Conference Call. Today's conference is being recorded. At this time, I would like to turn the conference over to Mr Martin Dunwoodie, Director of Investor Relations. Please go ahead, sir.

Introduction of John Walker

Martin Dunwoodie

Director of Investor Relations, Johnson Matthey

Thank you, Daniel. Good afternoon. As Daniel says, I'm Martin Dunwoodie, Director of Investor Relations at Johnson Matthey and I'd like to welcome you to our call today. This is the latest call in our series to give you more detail on our sectors and our strategy to deliver sustained growth and value creation. As such, we will not be giving a trading update as part of this call. I'm pleased to be able to welcome John Walker, Chief Executive for our Clean Air sector today, which will be the subject of the call. We have about an hour and with that, I will hand over to John.

Clean Air Sector

John Walker

CEO of Clean Air, Johnson Matthey

Introduction

Thank you, Martin. Good afternoon. So I'm John Walker, Chief Executive for our Clean Air sector. Our Clean Air sector represents around 60% of the Group's sales and underlying operating profit. In this business, we use our world class science and technology to develop complex products and solutions for our customers. Our catalyst formulations and systems help to substantially reduce emissions from vehicles and improve air quality from around the world. We're a global leader in this space and we have strong relationships with almost every major car and truck manufacturer across the world.

Today, I'm going to talk about the exciting opportunities we have for sustained growth in the sector over the next decade. I'm going to briefly recap the main growth drivers we have, and then go into additional detail on the share gains we've made in Europe and the efficiencies we're driving across the sector to maintain margin. Then I'll open up to Q&A.

Cautionary Statement

So on the slide deck, I'll point you to slide 2, which is our cautionary statement that this presentation contains forward-looking statements. I'll just have you read that. And then move on to slide 3.

Sales 2017/18 by sub-business

Our business saw strong growth in 2017/18. Our light duty to heavy duty split is around 65% to 35%, and this will stay broadly similar over the next ten years. Looking at geography, Europe is currently around 50% of our business, the Americas are 30% and Asia is 20%. Our return on invested capital was strong at 31%. The investments we have approved in Poland and China will be highly flexible and efficient plants to help enable us to deliver growth and maintain a high return on invested capital over the medium term. The latest trends we're seeing are in line with the development of the market we outlined at the Capital Markets Day.

In Europe, since the emission scandal in 2015, consumers want the cars they buy to have the lowest emissions and consumer behaviour surrounding car purchases is changing because of this. This means that our customers, the auto OEMs, are finding it harder to forecast how well individual platforms will perform on a month by month basis. The world harmonised light vehicle testing procedure, or WLTP, coming into force this September in Europe continues this uncertainty in the market around production schedules.

However, we do not expect to see a dramatic effect on our business. It creates opportunities in the medium to longer term, as it drives increased catalyst value per vehicle. Therefore, our agility and flexibility is key to enabling us to continue to meet customer requirements and win business in this market.

We're seeing a change in the diesel to gasoline mix in Europe and developments here are in line with our thinking. A number of OEMs have announced smaller engine diesel variants will be discontinued in favour of gasoline. OEMs are also adding more selective catalytic reduction and ammonia slip catalyst products to meet Euro 6d final requirements. This is another opportunity for us to win business.

Despite these market changes, the fact that many OEMs are starting Euro 7 diesel programmes confirms our view that this technology is attractive in the long term, particularly for larger vehicles and especially for the light commercial segment. So there's no change to the guidance we gave at our Capital Markets Day last year and we currently assume diesel will be 20% of new passenger car sales in Western Europe by 2025, and that is 25% of the overall light duty sales, which includes commercial vehicles.

As a reminder, on a gross profit level, a percentage point change in the mix between diesel and gasoline will impact us by just £4 million. And that is before we do any mitigation. To give some context, £4 million represents only 1% of Clean Air's operating profit.

Conversely, in the United States we continue to see increasing penetration of diesel in the light duty market, which supports our growth and the US heavy duty market is currently in an upcycle which we expect to continue for the rest of this calendar year.

These trends are all aligned with our medium to longer-term guidance.

Clear Visibility for Sustained Growth over the Next 10 Years

For now – looking now at the longer term on slide 4, we have clear visibility for sustained growth in Clean Air over the next 10 years, driven by a number of things: including share gains in Europe, tighter legislation around the world, particularly in Europe, China and India, and continued internal combustion engine production growth, despite the evolving powertrain mix.

Share gains

The share gains in Europe comes from our technology leadership and our ability and willingness to work closely with customers and adapt quickly to their changing needs. In light duty diesel, we expect to gain around 20 percentage points of share over the next year to reach around a 65% share by the end of the 2018/19 financial year. All the platforms that these share gains are based on are now in production. In light duty gasoline, we expect to gain around five percentage points of share as the adoption of Euro 6c and d ramps up. The business we have won gives me confidence that we will deliver these gains, so they come through over time by 2020/2021. I'll go onto more detail on how we won this share shortly.

Tighter legislation in Europe

Tightening legislation in Europe provides us with growth potential in addition to the share gains with tighter rules for both gasoline and diesel increasing the value per vehicle. For gasoline, Euro 6c is now in force with new models of gasoline direct injection vehicles. This requires a coated filter to be fitted to certain vehicles to control the number of particles emitted and doubles the value to JM of these vehicles. The fitment rate will increase over time from a low level this year, gradually reaching around 90% of gasoline direct injection by 2025.

For diesel, Euro 6d adds up to 50% to the value per vehicle from tighter NOx control systems. A large number of vehicles will require a more advanced filter system and in some cases, additional catalyst content. And of course, this is just Euro 6. If Euro 7 is introduced, that could drive further value from the middle of the next decade.

Tighter legislation in China and India

Tighter legislation is not just the European story. Both China and India are jumping to European type standards from 2020. China introduces China 6a for light duty vehicles from July 2020 and this requires some cars to have a coated filter which, like Europe, doubles the value for us. The fitment rate will increase over time, particularly as China 6b comes in from July of 2023. And in heavy duty, the introduction of China 6 is now mandated nationwide from July of 2021 but allows cities the opportunity to implement earlier, with the earliest date in July of 2019. This will roughly triple the value per truck for us.

In India, the move from BS6 from April 2020 will also give us a great opportunity. The value uplift will be mainly on heavy duty with catalyst value roughly tripling. Light duty will see some benefit, but we do not currently expect filters to be added to many gasoline cars.

As well as these specific growth drivers, our Clean Air business will continue to benefit from the growing number of vehicles overall across light and heavy duty. And we continue to expect consistent growth in light duty Americas and heavy-duty Europe and Americas.

This is despite the gradual move to electric powertrains across the world. Remember, of course, that any form of hybrid still has a combustion engine and therefore requires emission control. And a hybrid is neutral to slightly positive in terms of value for us.

Mid-single digit CAGR

All this delivers mid-single digit compound annual growth rate over the next ten years. During this period, we need to broadly maintain our margin and I'm pleased that the work we've done on efficiency will enable us to keep margins broadly stable this year, ahead of our previous expectations.

I'm now going to cover in more detail how we achieved European share gains and the work we are doing to improve efficiencies. I'll now move on to slide 5.

How we have won share in Light Duty Europe

So our share gains in Europe were driven by a few key factors. Essentially, it was through working closely with our customers. Our agility and technical leadership enabled us to move quickly to serve our customers at a key point in time when the market was going through large changes, following the diesel scandal towards the end of 2015. This created an environment where OEMs wanted to move further and faster than the legislation. We were well positioned to be able to help them through this key phase with the ability to scale up to meet future demands.

Technology leadership

Our technology leadership in diesel enabled us to develop solutions for OEMs to meet post-2023 standards now, more than five years early. Our focus – we focus our investment on technology according to the future end market value for that technology, with the diesel light and heavy-duty market being a high value market that we've invested in over many years. Our diesel technology offered better results across the board, including excellent low temperature NOx conversion and outstanding thermal durability. It is all about having a full offering of best-in-class products to meet the differing customer needs, and this is particularly important as a number of products per vehicles increases. This leadership, coupled with strong customer relationships working rapidly to provide new solutions tailored to different OEMs, and our flexible manufacturing base enabled us to win share in diesel.

Strong filter technology

In gasoline, we've been increasing our R&D investment the last few years, reallocating this away from our light duty diesel in line with the development of gasoline legislation in Europe and China. This has yielded results with the new wins and European gasoline platforms to provide coated filters for Euro 6c. Designing gasoline particulate filters is all about getting the balance right between filtration efficiency to enable the regulations to be met, and back pressure, which we need to keep low to enable minimum impact on engine power output while optimising catalyst performance. We have class-leading technology on particulate filters to ensure that our OEM partners can meet tightening emission standards with downsized engines and still deliver performance.

Strong customer relationships

Additionally, our agility and strong customer relationships give us the ability to respond in a fast-changing environment.

That explains how we won share in Europe. And we aim to maintain this share and see some opportunities to gain share in other areas of the world, for example, heavy duty in China, as tighter legislation puts more pressure on our customers and requires more sophisticated solutions.

Efficiencies support strong margin

Now moving on to slide 6. We're making better than expected progress on margin across the sector. We've previously expected margin to be down up to 100 basis points this year but now expect to broadly maintain margin with improvements running ahead of expectations and offsetting the pressures from serving such a large share gain so rapidly. The improvements are down to many reasons but principally, we can group them into: increasing capacity of our existing plants; new plants to deliver additional capacity with state of the art efficiency; reducing process losses; and procurement benefits.

Increasing capacity of current sites

If I take a look at these in turn, starting with the improved current – starting with improving current capacity, we've been enhancing best practice across the sites, including standardising equipment, our operating model and organisational structure across the plants. This provides us with greater agility in how we use our manufacturing assets to serve customers, allowing us to more easily shift production between facilities according to demand. Running our most efficient lines 24 hours a day, seven days a week, decreasing downtime on our lines – so for example, we've reduced the time to change one line over from one product to another – and we're also debottlenecking our processes continuously.

Reducing process losses

We're reducing process losses by improving the efficiency of new product launches, helped by reengineering our product introduction process. The whole product life cycle process is audited by coordinated sector level quality management team now and we have implemented global launch teams.

New plants to deliver additional capacity and improved efficiency

The new plants we're building in Poland and China will deliver further benefits. As they come onstream, they improve the flexibility of our overall manufacturing footprint and reduce our underlying cost of production. So they will use the latest equipment to be fully flexible between light and heavy duty, gasoline and duty: helping us to optimise the return for our manufacturing assets and giving us more agility to serve customer demand; support the consistent implementation of manufacturing best practises leading to improved yields; and to be materially more efficient, offering significantly faster production times due to improvements, including a longer continuous line and the latest coating technology.

Procurement benefits

We're also benefiting from the group procurement programme, which delivers significant savings. One example of this is renegotiating supply contracts with service providers and leveraging scale across sites to obtain significant price reductions.

Now this is a business where we have a strong track record of continuously improving efficiency and driving strong top-line growth at the same time, which we will continue to do.

Sustained growth and value creation from a global leader

And then finally, to conclude on the last slide, our Clean Air sector will continue to drive significant growth based on our strong technology and leadership positions. We have a clear view of this business and a great deal of visibility as to its growth drivers. We have big share gains in Europe light duty coming through this year, and then China and India will see significant growth in the medium term driven by legislation. We're driving efficiency in the business and our investment and additional capacity enhances our agility, improves our flexibility and reduces our costs.

So for at least the next decade, we will deliver a mid-single-digit compound annual growth rates with margins broadly stable. The internal combustion engine will be around for many years to come, particularly in heavy duty, and we remain very well positioned within this space to deliver sustained value creation.

I'm now happy to take any questions that you have about that.

Q&A

Operator: Thank you. If you would like to ask a question at this time, please signal by pressing *1 on your telephone keypad. If you're using a speakerphone, please ensure that your mute function is turned off to allow your signal to reach our equipment. Again, please press *1 to ask a question. We'll pause for just a moment to allow everyone an opportunity to signal for questions. We can now take our first question. This comes from Neil Tyler at Redburn. Your line is open. Please go ahead.

Neil Tyler (Redburn): Yeah. Good morning John, Martin. I'll start with a couple, please. Point of clarification on the direct injection penetration assumptions. You mentioned that you assume in Europe 90% – a fitment rate of 90% of GDI engines. Can you overlay that what your assumption is on what proportion of the gasoline market is GDI including hybrids? Same question for China. And then the second part of the question or second question is your long-term growth assumptions, the mid-single digit, can you clarify whether or not the share gains that you perceive as potentially on offer in China are part of that growth forecast? Thank you.

John Walker: Okay. On the direct injection question, our assumption, I think, hasn't changed. We say that 80% of the gasoline engines will be direct injections by 2025 and we expect a 90% fitment rate on those direct injection gasoline engines by 2025.

Neil Tyler: And that 80% includes the combustion units within the hybrid portion of the market as well?

John Walker: Yes.

Neil Tyler: Yeah, okay. Thank you.

John Walker: Okay. Then for your growth – mid-single-digit growth, are those additional share gains in China included in that? And the answer to that is no. We've assumed we maintain our existing share in China in our current base assumptions.

Neil Tyler: Great. Thank you, that's helpful.

Operator: Thank you. We can now move along to our next question. It comes from Andrew Stott of UBS. Your line is open. Please go ahead.

Andrew Stott (UBS): Thanks a lot. Thanks for the presentation, John, and good afternoon, Martin, as well. Yeah, I've got a couple. So first thing is I just want to check the truck leverage you have in China. You mentioned this threefold uplift and I think you said from earliest mid-2019. So I just wanted to check that first of all, that comment. And then secondly, the threefold increase, is that your economic profit or is that a revenue number that includes some substrate? I just want to make sure I'm right on the modelling there.

And then the second one was just a short-term question around WLTP. You raised that, John, as a sort of issue maybe around volatility, if nothing else. But are there any other concerns you have? I mean, one thing we're picking up is this concept of overproduction in Q2 and Q3 ahead of WLTP.

John Walker: Okay. So, you've got a few diverse questions there. In terms of your uplift in China, what we're saying is that the legislation, which was just gazetted, actually compared to our previous guidance, is coming in six months later. But what they've also said is that they're allowing cities to actually pull forward legislation. And we've been working with a lot of our customers on that pull forward for quite some time, and we do expect some of them to pull forward ahead of this 2021 date. So we don't expect to see much change in our guidance from what we've said before in our China heavy duty sales.

Andrew Stott: Okay.

John Walker: And then the point on – I didn't quite get your economic profit –

Andrew Stott: Yeah. Well, the three times uplift, sometimes we've seen in the past there's some substrate content in that revenue number, which is zero margin to JMAT. I just wondered if that is the case or not. So is it threefold –?

John Walker: Yeah, yeah, yeah. Okay. Oh and you're three times compared – okay.

Andrew Stott: Yeah.

John Walker: And that question, yeah, that three times uplift does include substrate.

Andrew Stott: Okay, so I shouldn't assume a three times increase in your EBIT in effect, per vehicle?

John Walker: No, it'll be less than that.

Andrew Stott: Any rough point from it?

John Walker: No, we haven't discussed any of the margins in any detail on that.

Andrew Stott: Okay.

John Walker: And then in your WLTP comment, WLTP is effectively impacting gasoline vehicles more than diesel vehicles. Part of that's just due to the fact that there's a lot more gasoline platforms that are being certified. And secondly, when you have the particulate issues on the real world driving part of the WLTP, some people are – there's two parts to that. Some people are struggling to get their systems to pass on the new test. And I think the second part of that is that when you look at some of the people who are manufacturing

some of the gasoline filters, they're trying to separate the functionality of the catalyst activity from the filtration. So they want to try and keep those two functions separate and they're trying to maintain that configuration.

So I think a lot of this stuff will eventually get across the line. There may be some delays in gasoline sales. But if you look at our plans for this year, most of our growth in this financial year that went right now, is all diesel. So we do not expect much of this WLTP impact to affect us.

Andrew Stott: Okay. Perfect. Thank you very much.

Operator: Thank you. We can now move along to our next question. It comes from Ranulf Orr of Redburn. Your line is open. Please go ahead.

Ranulf Orr (Redburn): Hi. Thanks for taking the question. It's just on your margin guidance; I think you said you expect the growth to come at a fairly constant margin going forward. I was wondering what gives you the confidence you can do this, given the higher cost, the cost pressures the OEMs are stating with electrification and various other things.

And then just to follow up to the previous question, I think you said that the EBIT growth will be slower than the revenue growth, kind of implying the growth will come at lower margin. Can you just help me square all that up? Thank you.

John Walker: Okay. So on the margins, I guess our point about the margins is that we're saying that we're maintaining our margins at the current levels. And the reason that we're saying that is there's kind of a – on the positive side of ledger we have all of our continuous improvement activities, which are looking at standardisation built into the factories, a standard plant operating model, with the structure of management built into that, downtime reductions, cycle time improvements, quick changeovers. We have a new procurement organisation, which we've talked about in our past presentations, and some of those procurement benefits are starting to come through.

So all of those things are on the positive side of the kind of margin ledger. And on the negative side, we continue to expect to see pressure. We're in a very competitive business and we continue to expect to see pressure from our customers on productivity demands. And as we go out there, what we're also seeing is the increase of a lot of filters in our product mix and those filters have a large substrate content. So you have positives offset by negatives and that's why the balance of that is why we're forecasting neutral margins over time.

Ranulf Orr: Thank you.

John Walker: And then the EBIT question, I think it's just we say that our sales is going to increase three times. There's a portion of that sale that's substrate. So, I think it's very clear that that doesn't just flow through the profit because there's the portion of substrate has – doesn't have a profit element to it.

Ranulf Orr: Yes okay, and that's offset by the continuous improvement?

John Walker: And that's offset by the continuous improvement, right.

Ranulf Orr: Great, thank you.

John Walker: And procurement savings as well.

Ranulf Orr: Thanks.

Operator: Thank you. We can then move along to our next question. It comes from Sebastian Bray of Berenberg Bank. You line is open, please go ahead.

Sebastian Bray (Berenberg Bank): Good afternoon, thank you for the presentation and taking my questions. I would have three, please. The first is on the maintenance capex of these facilities. Could you give us an idea as a proportion of sales, if these facilities one day do go ex-growth, obviously that would be over a decade away. What is the proportion of sales you'd have to spend on these facilities for maintenance early? That's my first one, please. My second on is one on the value uplift for the Chinese vehicles, once you have China 6 legislation. Am I right in saying – would I be right in saying that in the 300%, the tripling of the value content, you would have, let's say, vehicles going from zero platinum group metal content to something like three to six grams? Just as an idea so that we can back out the actual value uplift for JMAT. And the third one is on the actual timing of Euro 6c and Euro 6d. Apologies, I may have missed this earlier. But in what years exactly does Johnson Matthey expect the primary uplift from the Euro 6c legislation and Euro 6d legislation to occur? Thank you.

John Walker: Yeah, starting with maintenance capex, I mean, maintenance capex we've never really talked about that. But it's – in terms of percentages as a percentage of sales, it's a relatively low number going forward. So we can maintain our facilities with relatively low level of capex as a percentage of sales. I'm not going to give you any specific numbers on that.

As far as value uplift in China, with regards to precious metal loadings, I think what we might be able to point you to is some of the precious metal market guidance from the Johnson Matthey Group where they go into some detail of metal loadings per part as the legislation is rolling up. I don't have those figures to hand with me right now, but I think we've talked about that in the latest update that happened in platinum week a couple of months ago. So I think you can find those figures in the precious metal marketing information.

And then finally on timings for 6c and 6d, for 6c, what we're seeing, we're seeing a little bit of complication in the rollup rate of 6c that has some implications with WLTP. So I think, as I talked about earlier, you have several car companies who have complex product mixes that just the time to get some of those things certified is slower than I think they had anticipated. The new rules are kind of tighter on weight limits. So in the past, you were sort of able to certify multiple – like a whole platform with one certification. And now that these weight limits and the new regulations are out there, you basically have to certify every single application individually.

So because of that, the – just the architecture of the exhaust systems, you have car companies trying to hold on to the architecture that they designed. But if they can't get it across the line, they're going to have to change the architecture. And some of the people who have uncoated filters may have to add coated filters.

So because of that, I think the rollup of the gasoline particulate filters for Euro 6c is going to be ramping up. We had some sales last year. We're ramping up this year. And then,

that will continue over the next three years. So, we'll have a continuation of increased gasoline particulate filter sales over the next three years.

And then for Euro 6d, I think this is another bit of a complicated story because some OEMs, when they had the kind of naming-and-shaming that happened after the 2015 diesel crisis, some people were able to switch quickly to very advanced emissions control systems on some of these diesel vehicles. And actually, some of those already met Euro 6d ahead of time. And whereas some of the other people who have systems that haven't quite been able to make the legislation, that will extend. And you'll see that out through the end of 2020, where some of those Euro 6d final systems will start to come in.

Sebastian Bray: That's helpful. Thank you. You really couldn't give me a figure for – or as a rough guess for how much of 6d has already been implemented by the OEMs?

John Walker: It's difficult to put a number on it.

Sebastian Bray: All right. That is good. Thank you very much.

Operator: Thank you. We can now move along to our next question. It comes from Charlie Greig at Citi. Your line is open. Please go ahead.

Charlie Greig (Citi): Hi, Martin and John. Thanks for the presentation. Just one question. On the US heavy duty cycle, I was just wondering if you had any thoughts on when you – when that's – when you guys were modelling that turning the other way, and if that perhaps means this cycle might be different from others, given what we're seeing in freight rates at the moment. Any thoughts on that would be very interesting.

John Walker: On US heavy duty, I think we've said that we expect the current cycle to continue through the end of this calendar year. There's some possibility that it could extend through the end of our financial year. Then, we expect to see slowing in the 2019 calendar year.

But as this cycle – I think when you go back over the last kind of ten, 20 years on the heavy-duty cycle in the US, I don't think any one cycle has been the same. So, it's a little hard, looking backwards, to kind of predict what we think is going to happen in this particular cycle. But I think where there was clear peaks in some of the previous cycles, it kind of feels like this cycle is lasting at a relatively higher level for longer than some of the previous cycles.

Charlie Greig: But you would –

John Walker: But eventually, the cycle, it will turn.

Charlie Greig: You – if it – eventually it will turn. But let's say it went on for another year, that wouldn't be something that you've currently accounted for in your guidance?

John Walker: No.

Charlie Greig: No. Brilliant.

John Walker: Our guidance is through the end of the calendar year – this calendar year.

Charlie Greig: Got it. Thank you.

John Walker: So, anything longer than that would be upside to our guidance.

Operator: Thank you. We can now move along to our next question. It comes from Chetan Udeshi of JP Morgan. Your line is open. Please go ahead.

Chetan Udeshi (JP Morgan): Yeah, hi. First question was just on your comments around rising catalyst values with standards getting tougher on emissions. How are – how do you think OEMs are coping with that, in terms of more for traditional ICE cars? Their compliance cost seems to be rising with EVs. They have to spend lot of more money. So, what are they doing to offset these pressures on costs, in your view?

John Walker: What are the OEMs – I mean, the OEMs are putting pressure on the supply base to reduce prices. But I think the – when you're looking at some of the flow-on technology that – I think there's a carryover of technology when you're looking at some of the applications that are coming into China and India.

So from a technology development standpoint there's a commonisation of some of the technology that's used in some of those markets that allows some savings, in terms of technology development. I mean, clearly, as car companies are adjusting and starting to reallocate some of their resource to alternate powertrains, the pressure on costs will continue.

But we've been in a competitive business for the 34 years that I've worked there. So, I don't ever expect that to change. And I'm not saying it's business as usual, but we continue to do what we can to hopefully offer some win-win solutions to our customers. And that's what we've done in the past, and that's what we'll continue to try and do.

Chetan Udeshi: Understood. And then, the other question I had was more maybe a clarification. In your full-year results, you guys said the diesel volume or production of diesel car in Europe in that whole fiscal year was flat.

I'm just trying to understand why was it flat when the diesel share came down so much. Is this just a timing issue, do you think? OEMs were sort of building inventory ahead of this WLTP rollout, or were there some other factors? Thank you.

John Walker: So, on our results in 2017/2018 it's just – the flat part of that curve was just before the ramp-up rates of some of the share gains that we built into this financial year. So we're seeing those diesel sales come through now. And I think when we report our next results, you'll see results that are in line with the guidance that we gave at the results presentation.

Chetan Udeshi: My question was more around the diesel production overall in the market, so the car production, not your volumes necessarily. So I think the point that was made during the results was that you think overall, diesel car production in Europe in your last fiscal year was flat, despite the declining share. So, I just wanted to check what were the reasons for that that we did not see a decline in Europe in diesel production. Is it more like some of the productions for exports which is actually manufactured in Europe, but sold for cars outside Europe? Would that be the explanation?

John Walker: I think when we look at the mix of the whole market, on the diesel side of things the thing that is holding up diesel sales are larger passenger cars and light commercial vehicles. So, when you look at just pure passenger car diesel sales, those are the figures that are published where you're seeing a pretty – a big drop in some of those

diesel figures. But when you add back that the light commercial vehicles, we don't see anywhere near the drop.

And for our sales in gasoline, that's only 20% of our sales. What we said at the results presentation was that our sales are heavily influenced by our customer mix and our product mix, and which models we're on, whether they're high-value models or less high-value models. And that had a big impact on the big growth of gasoline sales that we talked about at the results presentation.

Chetan Udeshi: Understood. And if I can maybe ask one more on the £4 million gross profit sensitivity – the 1% change in diesel share. Is that just based on the value of the catalyst or is inherently diesel margin, gross margin also higher than, say, gasoline?

John Walker: Yeah. So, gross margin on diesel or gasoline are about the same. So, it's all based on sales.

Chetan Udeshi: Okay. Thank you very much.

Operator: Thank you. We could now move on to our next question. It comes from Georgia Harris of Bank of America. Your line is open. Please go ahead.

Georgia Harris (Bank of America Merrill Lynch): Hi. Thanks for taking my questions. Just firstly, coming back to HDD in China, can you discuss the ramp-up that you're expecting from China 6? So, when do you think we can get to sort of the 100% fitment rate for that new legislation?

And then secondly, on India light duty, can you explain a bit more why you don't see many filters being added to gasoline cars?

And then finally – I mean, if you have an answer – but on the potential impact of trade war on autos, have you looked into this and are there any actions you can take to mitigate any potential impacts here? Thanks.

John Walker: Your first question was on heavy duty –

Georgia Harris: On the China –

John Walker: – in China?

Georgia Harris: – HDD. Yeah.

John Walker: And what – and just repeat your question again?

Georgia Harris: So on the ramp-up of the legislation – so, you say value triples, but how quickly can we expect that to happen? Do you have an idea of when we get to that triple value?

John Walker: Yeah. I think the cycle will be similar to Europe. So you're kind of two to two and a half years to be able to get the full fitment. And we expect something similar to happen in China. And just remember that the China legislation is split similarly, but differently to the European legislation, where you have 6a and 6b.

So two and a half years after you do 6a, saying that you'll have some early adopters that'll start in 2020 on the heavy-duty side, you're at 2022 and a half. And then the next round of legislation on real world driving comes in 2023. And again, there'll be another cycle that

will probably be shorter cycle of probably a year and a half for the 6b to be complete. So, that's probably the way that that's going to phase in.

In India – I think on filters, the legislation in India is a little bit different and less stringent on particulate number than the China legislation is. And that's why there's less of a need to be able to meet legislation to be able to put filters on gasoline cars in India.

And then with regards to the trade wars or however you described that, if we take a look at the things that are within our control – as far as the materials that we use to manufacture catalyst and things like that – we do have multiple suppliers of some of our key strategic raw materials than we would have – depending on how many countries were impacted, but if things stay as they are and China is one of the targeted countries, we would have options to source materials from other countries. That wouldn't be a 100% mitigation, but that would be some help to be able to offset that.

And as far as other trade wars go, most of our facilities are local to the actual supply of the catalyst. So, we don't have that much of our production base that actually exports catalyst around the world. So, our customers may be impacted on exporting vehicles from the US to China, for example. But for the things that are in our control, we have some mitigation impacts. And as I said, I think that because we locally manufacture a large majority of our catalyst, we're less impacted by manufacturing catalysts in one country and exporting them to another.

Georgia Harris: Okay. That's very helpful. Thank you.

Operator: Thank you. We can now move along to our next question. It comes from Martin Evans at HSBC. Your line is open. Please go ahead.

Martin Evans (HSBC): Yeah. Thanks very much. John, just on these efficiencies that you refer to again and which we've heard of before, in terms of helping to sort of maintain the margin.

I suppose it begs the question, if you're now talking about sort of procurement benefits, reducing process losses and so on, changes in the shift pattern, given your sort of 34 years or so within the company, what was going wrong before or how sustainable are these efficiencies in the long term if you've only essentially recently discovered them? What's the change in the mentality or the psychology been within the division Clean Air – I guess it used to be called ECT – such that you can now extract these quite meaningful new efficiencies? Thanks.

John Walker: So, it's an evolution. It's something that we've been working on for quite some time. Some of our – I think I've talked about this before, but some of our older manufacturing assets were very limited in their flexibility to be able to manufacture different kinds of products and things like that.

And we've been, over the last quite a number of years now, working towards a system of moving towards copy exact. And globally – as we've been globalising our organisation, we've been globalising our manufacturing footprint. And we've been optimising the key manufacturing plants that matter. And have really taken some of our more flexible assets and really leveraged them to be able to get some of that operating leverage out of them.

Now, you also will have heard something about some of the systems that are being put in. So our continuous improvement culture has been able to deliver some of these benefits sort of on a manual basis, if you will. These are now being followed up with systems being overlaid over the top to make sure that we maintain some of these benefits that were built in from our continuous improvement activities. And then have a system to be able to more easily manage those gains.

So, it's a combination of a number of things. And it's a combination of things that Anna has talked about, in terms of some of the systems work that we're working on. It's not all just an ERP system. We're also working on other efficiencies in a lot of other areas as well.

Martin Evans: Okay. Thanks very much.

Operator: Thank you. As a reminder, at this time, it's star one to ask a question today. We can now move along to our next question. It comes from Neil Tyler of Redburn. Your line is open. Please go ahead.

Neil Tyler: Yeah. Hello, again. Couple more from me, just clarifying two more points. Firstly, back to the HDD market and the market value as you perceive it. Can you give us a ballpark figure for how much of your revenues, for instance, of the broader market is comprised by vehicles that might be threatened by that legislation over the long term? So, sort of I'm thinking smaller short-haul delivery trucks and the like. I know the vast majority is not that. But if you can help us in any way understand what would – what the proportion is, that would be great.

And then, a bit of a left-field one, John. The divisional presentations going back some years used to quite frequently include a slide on the opportunity for the emission control systems in things like the shipping market. And with the IMO 2020 regulation coming in, I wonder if that opportunity is reviving at all or whether you don't see that as particularly material? Thank you.

John Walker: So, I think on the heavy-duty market, I think that our – as you say, we're more heavily weighted on the larger trucks. And I think of our heavy-duty sales in North America, I think we're at 75% of our US sales are heavy duty. So, we're heavily weighted there. And I think in Europe, we're also more heavily weighted into the larger truck sizes. So we don't see a large impact to – if, as you're saying, electrification or fleets would be impacted by some of the short-haul impacts to our business.

On marine, interestingly, the marine business is in what we call our Stationary Emissions Control business. So, I do know that ships do move. But actually that, as you see in sales, we do participate in that marketplace. And those sales in that business are a couple of percent of the total sales. So while we can see some opportunities in the marine space, we don't see that as being material to the whole sector.

Neil Tyler: So, you haven't paid that –?

John Walker: We haven't paid it [inaudible].

Neil Tyler: So from that, I can infer that you haven't received any sort of meaningful step-up in inquiries from customers worried about this legislation coming in?

John Walker: No, I think there is definitely interface with customers on this. But in the big scheme of things it's still going to be a relatively small part of our business.

Neil Tyler: Yeah. I understand. Okay. Thank you.

Operator: Thank you. Our next question comes from Chetan Udeshi of JP Morgan. Your line is open. Please go ahead.

Chetan Udeshi: Yeah, hi. Thanks. Just a follow-up question on how do you see the adoption of a mild hybrid – the 48-volt hybrid – in Europe? Because that's what my colleague who covers autos here thinks, that that is a way that OEMs might look to meet the CO_2 targets. And how does the content change for mild hybrid versus, say, Euro 6d, 6c and future standards? Thank you.

John Walker: So, we definitely see a large adoption of 48-volt coming into Europe. And as far as hybrids go, on plug-in hybrids and on mild hybrids we do see some additional content. We see that as relatively modest content because the catalyst kind of has to – there's different criteria that you need for a catalyst that has to depend on what the status of the battery is, in terms of the battery charge.

So, we do see more being required from catalyst on some of those hybrid vehicles. But we don't see that as that significant over standard gasoline vehicles. I think one of our competitors has a little bit more aggressive stance on that. But we do see directionally more content, but not quite to the level that they were talking about.

Chetan Udeshi: Understood. Thank you.

Operator: We can now move on to our next question. It comes from Sebastian Bray of Berenburg Bank. Please go ahead.

Sebastian Bray: Thank you for taking my follow-ups. I would have two, please. My first is more of a cross-selling opportunity. How much are your marketing guys and auto catalysts in touch with the guys developing batteries in New Markets? Do you find yourselves attempting to cross-sell and pool resources to be able to push for technology in battery tech or somehow be able to take advantage of existing marketing contacts?

And my second one is on the breakdown of variable costs. I think it's been mentioned in the past that about 80% of the cost of auto catalysts are variable. Are there any particularly large items in this that we should be aware of when modelling?

John Walker: On the battery question, I think on the commercial side, we are becoming more active in helping to cross-sell and in supporting the Battery Materials business with expanding their base to more and more OEMs on the Battery Materials side. So, that is going very well and we're having some pretty positive meetings there. So, I think yes, we are absolutely participating in there.

And I guess on the variable cost side, I guess we'd say that we're probably closer to 75% variable cost. But I'm not sure that I have any detail that I can give you to help with your models.

Sebastian Bray: Thank you.

Operator: Thank you. As we have no further questions, I will now hand the call back to the speakers for any additional or concluding remarks. Thank you.

John Walker: Okay.

Martin Dunwoodie: Right. It's Martin Dunwoodie here again. Thank you very much, everyone, for joining the call today. We'll wrap up here. Thank you to John for joining us and providing answers to the questions. If you have any other questions following this, then please come back to any of us in the IR team. And we will speak to you all soon. Thank you.

Operator: That would conclude today's conference call. Thank you for your participation, ladies and gentlemen. You may now disconnect.

[END OF TRANSCRIPT]