



## “Bosch Limited Road Show ”

Meeting From 11 30 to 12 45 PM

**February 24, 2016**



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**Dr. Steffen Berns:**

Thanks to all of you for your interest and for joining us this morning here. I would like to give you short overview on how we see the markets, how we see the technological developments and when the specific points we want to explain which we announced after our last board meeting on 5th of February is the carve out of the starter motors and generators business and this overall presentation is going to take about half an hour and then I would be available 45 minutes for question-and-answers.

So looking at the automotive market, I always tell you that we are taking as reference the production volumes of everything except the two wheelers, so that is the three wheelers, the tractors, the passenger cars and the commercial vehicles because these production volumes are of relevant market, two wheelers which is hard to picture because the volume of numbers of two wheelers is also big. And here we have just drawn the chart of the production volumes for the different quarters, so that is the total of all the segments except two wheelers. And you see that these production volumes since the first quarter of 2012-13 have been in this corridor of 1.3 million to 1.4 million per quarter. And there is only one exception which was the second quarter, so July to September 2015 quarter which actually exceeded this relatively small bend but otherwise we have been in this corridor of plus minus 6% throughout which is surprising to many because we always see there is big increase and there is big reduction but as this is the total of different market segments we have seen a huge dip in commercial vehicles in between, and at the same time increase in tractors and now we are seeing the reverse. And if you take the total it was actually levels out and because production also includes exports this is a pretty muted development now for nearly four years.

And compared to this muted development, the business of Bosch Limited is also shown here and this is relatively I think a very strong performance part from one quarter, fourth quarter 2014-15 we have consistently outgrown the automotive market. Initially we had some good developments because of exports in starter motors and generators but this has leveled down, but consistently grown and gasoline systems overall also had some good development in diesel systems and we have also more or less in line with the rest of the business developed or business in the non-mobility solutions, I will explain afterwards in more detail what all this consists of for those who are not too familiar with our business.

If we come to the current topics, we recently had the Auto Expo in Delhi, or to be specific in Greater Noida and there was a Supplier Expo in Pragati Maidan in Delhi and we decided that we have to be close to our customers so we had our own show opposite the Auto Expo because we are not a manufacturer so we could not participate inside, but at least we were very close and had a nice stall and very good footfall from all our customers who came there. And Bosch Group and Bosch Limited had strong exhibits on the direct injection or gasoline to be correct overall on diesel and also including on the engine maintenance system and some of the aftermarket parts which also have been covered by the press. Guessing direct injection to start from the left is getting increasing importance at the moment, it is still relatively small, certainly a few applications but this is going to increase because of improved fuel economy especially. So the



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CO2 reduction is you take a gasoline direct injected engine it is about 15% advantage compared to gasoline part fuel injected naturally aspirated engine and similar to the diesel also low in torque which is translated into fun to drive, so improved drivability if you put it neutrally. So guessing systems division overall, although still small is developing well. We have opened a plant in Gangaikondan last year and have a lot of competency now in-house both on the components as well as on the systems and this is developing into a strong part of our business.

The second part here on diesel where we exhibited our common rail systems for different sizes of engines for different market segments and also the exhaust gas after treatment system, so that is specifically the SCR system. And the big topic of the last months' discussion was BS-VI, so the BS-VI emission legislation which currently as it looks like is going to come on 1st April, 2000, India will be the first country to jump from BS-IV to BS-VI in four years without touching BS-V which is a very big challenge. Bosch you know has the slogan 'Invented for Life' and we stand for clean, for fuel economy and also for safety and therefore we are fully supporting the development of clean technology and clean engine technology, we are convinced that in the long-run the diesel engine can only be successful and will only be successful if it is really a clean engine we are convinced that the diesel engine is clean or at least has the potential to be very clean and therefore we are fully supporting this together with our customers to go in for the BS-VI emission legislation because with BS-VI then we will be at least as clean as gasoline system on the particulate side and also on the ex-Nitrogen Oxide side reach very good levels. And when the discussion which is currently dominating the press would stop and we can concentrate on the real benefits of the diesel engine and that is the CO2 and we do need the CO2 benefits because CO2 as so called climate gas has worldwide focus and attention and Mr. Modi recently in Paris signed the convention and set the relative CO2 emissions by India compared to the GDP have to be reduced substantially and India is going to be part of this and this is not possible if we go away from diesel but this is only possible if we continue and perhaps even strengthen the diesel. And Bosch is well prepared and fully supporting this trend to make diesel clean and to even expand it more.

There are a few challenges as I already mentioned which we have to overcome apart from the timeline. One is that India is different from many other countries overall and also with respect to the driving conditions and the driving profiles and therefore you cannot simply put a Euro-VI vehicle into India and hope that it is turning into BS-VI because looking at the driving cycles and we are coming from Bangalore where the average speeds of driving is very low and therefore the temperature of the engine never reaches a level which is required to do the regeneration of the exhaust gas system. And therefore you need to have some specific adaption and calibration principles and you have to do a specific validation also to make sure that the vehicles are actually meeting the quality requirements and are not being stalled or even something worse overtime. So the availability and the quality is critical and needs some specific effort in India and this is overlooked in many cases.



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The second part which is overlooked is the fuel availability. Currently it is being promised that BS-VI fuel from Indian refineries is going to be available on 1st April, 2000 and let us assume that this as effect we as Bosch and we agree with many of our customers also say this is not sufficient because logistically you cannot manage a transition from one day to the other, but you have to launch vehicles earlier and have some kind of phase in if you want to be ready on 1<sup>st</sup> of April. The second part is that you also have to do some kind of validation and the validation means for us we have to make sure that the vehicles are working under all different conditions, which means different temperatures, summer and winter, high and low altitude, monsoon and therefore you need 12 months for one cycle of validation. Suppose after this one cycle you find out it is not working, you need to optimize and you need another cycle. And therefore our request has been that a sufficient quantity of fuel should be available two years prior to the introduction which would mean on 1st April of 2018 to meet these two years. This should be possible, but it is important that the fuel comes from Indian refineries so we cannot simply import because if you translate this into technology or technical terms BS-VI fuel means 10ppm sulfur content and sulfur is negative for the exhaust but sulfur is a very important lubricant in the fuel. So if you take the sulfur out the lubrication of the fuel deteriorates and you have a lot of moving parts and the engine not only in the fuel injection systems and if you take out the lubrication then you can run into all kinds of different problems. Therefore, you have to add additives to the fuel to make them same lubricating characteristics as you had earlier and this has to be validated because otherwise you will get a lot of engine parts damages if this is not done properly. So these are two aspects which are required as boundary conditions and the third one actually is the most important because although everybody now talks about BS-VI, it is not notified and we do not know what it means. And if you shoot and cannot see the target you may miss it and therefore it is very important that we get this clarity soon, because only then we can derive proper technology roadmaps and solutions and also volume roadmaps and everything which is required to actually meet the target.

So as I mentioned we are fully supporting, we are very much in favor of clean technologies and in spite of the challenge we also see BS-VI as opportunity for Bosch because on a worldwide level we have excellent experience, we are providing Euro-VI and Euro-VI equivalent fuel injection systems around the world, have a lot of experience with this, have competent people in India, have a large calibration base and also have our application infrastructure and therefore although it is challenging I think we are relatively best prepared to go in this direction.

Last point here is the two wheeler engine management systems, you may know from several con-calls which we have had that we took a conscious decision to strengthen the two wheeler field, we have been in two wheelers for very long but typically the high end systems which look more like a passenger car engine than a two wheeler engine and are not used in India. But now we are also focusing on the specific Indian requirements and we have project in serious production with a large number of two wheeler manufactures now and this is more the high end but this is also going to percolate downwards and we are in development and discussion with many of our customers to also go in the lower cc, so lower swap volume classes. And once BS-



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VI is specified we would also know whether our current assumption holds good, current assumption that would BS-VI meet emission legislation we will have to do the shift from carburetor to engine management systems which than of course opens up a large part of the market. As I said, currently assumption because the target is not clear but we would hopefully know in a few months from now. So overall, technology for clean efficient vehicular emissions as I said good footfall, good customer discussions and at the moment very intense phase of scenario planning I have to call it because it is not quite clear where we have to go and how we are going to go there.

So after these two aspects on the market and on some of the overall technology highlights I would like to now lead over to the third part which is the recommended sale of the starter motors and generators business. To put this into the right perspective, currently Bosh Limited has eight or nine business divisions and these are the four on the left side which belong to the mobility business divisions and the four or five on the right side which belong to the beyond mobility solutions. Bosch has four business sectors, mobility solutions being the biggest in India accounting about 90% of the business, then industrial technology to which packaging technology belongs to our plant in Verna Goa, power tools which is part of the consumer goods and energy and building solutions, thermal technology and security technology which is part of the Bosch energy and building solutions. So these four boxes here on the right side in Bosch Limited contribute to about 10% of our turnover or 13% of our turnover. To be correct, the vast majority is the mobility solutions on the left side and out of the total starter motors and generators contributes to 10% of the turnover.

Explaining starter motors and generators India, in these slides here abbreviation SG-IN, business a little more in detail. We are part of this division, part of Bosch Limited manufacturing and sale of starter motors and generators established in 1989 in India, in Germany much older but at that time it was decided to also start this business in India, breakeven only in 2013 and since then operating at low margins. This business is quite different from diesel or gasoline which are more technology driven business divisions. Here this is more a commodity business driven by cost and price pressure and this is also reflected in the very low share of EBIT of Bosch Limited, so with about 10% of the turnover as I said we contribute about 1% of the EBIT of Bosch Limited, so a low share which gives you an indication of the low profitability and the high price pressure on this business.

The decision to hive off this business was not triggered by India though, but it was a global decision by the parent company which announced in the middle of last year to look for a joint-venture partner or a buyer including all the regions. And then our discussion here internally started what are we going to do because India is the only country with a listed entity and of course we have to take care of the interest of all the shareholders and say what is the best what we can do for all the different shareholders.



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There are three main points, plus one minor point showing the dependency of the starter motor and generators India business on the global business. The first point being very high export share in the last year which has increased substantially, however would not remain at such a high level because in more and more countries there will be local production by Bosch, so therefore this more profitable business would reduce and share definitely if we did it alone here would not be sustainable. Second is that all our products are part of global platforms including the specific products which we develop only for emerging markets. So therefore there is a high dependency on the global product and process, landscape and competence and this also includes the IP which belongs to Bosch Global with licenses granted to Bosch Limited. And last but not least, also some dependency on IT infrastructure.

So all this if we summarize this and now say what is the rationale for a carve out from Bosch Limited, first block is the dependency with the consequence that we cannot run this business profitably without global support. The second and third is looking at our employees and customers, is extremely important for Bosch worldwide to continue the business in a positive way and not impact the employees or the customers and if we ourselves cannot continue the business then it would not be good to keep it and then afterwards close it down and say what are we now going to do with more than 500 customers. So we want to provide them a future and a stronger future with a partner as currently we can offer them. And it is very important that our customers do not get disappointed in this transition process because this would have a negative impact on our image overall. So we must make sure that this is a smooth transition and this business is continuing strongly and all the commitments towards the customers are being kept and therefore this has to be strongly aligned. And last point but not the least point here on this slide, because we carve out or sell a business with very low profitability, the overall profitability of Bosch Limited is going to increase and we can focus more on what our strong points are which is the technology driven areas of mainly powertrain which is the main part of our business in gasoline and diesel areas. And therefore we said it is in the best interest of all the stakeholders because we will not be able to continue the business ourselves now to find a fair price and to sell it to Bosch Group in a first phase. So we cannot propose this to sell it to a 100% holding company, so a 100% subsidiary of Bosch to have it done in one sell and in the second phase than Bosch Germany of Bosch GmbH is going to sell this complete holding company either to a buyer or put it into a joint venture. And currently we are discussing the first phase to sell the business from Bosch limited to this 100% holding company.

What are the premises, how did we go about this? We want to do it as a going concern by way of slump sell because this is the clearest and fastest way and the lowest uncertainties which can be done and this uncertainty reduction, the overall process is very important because at a certain time we have to have it in this 100% subsidiary to sell it then as a total package or Bosch to sell it as a total package to the new owner. One very valuable part of this today's operation is to lend approximately 11 acres on which SG is operating and this will continue to belong to Bosch Limited and we will lease it out to the proposed new subsidiary at a fair market value initially for period of 15 years. So this is going to remain with Bosch Limited and therefore is not part of

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the overall sales price and which was actually recommended by our fairness value, we have negotiated a contingent consideration with Bosch GmbH that in case the globalization action gets executed within the next 18 months and results in a higher implicit price for SGIN, there will be an additional contingent consideration payable to Bosch Limited. So if the overall deal has a higher price and the implicit price of the India operation is higher than what is put here there will be additional money paid by Bosch GmbH to Bosch Limited.

The different steps and we looked to do it according to our ways on high governance, we have gotten valuation done by KPMG and as at November 2015 the price of 486.2 crores. Then fairness evaluation done by Ernst & Young who confirmed that the valuation by KPMG is fair and reasonable and the additionally we recommended this contingent consideration that we have had it in the old committee in the board meetings on 5th of February with an in principle approval subject to the shareholders' approval and including this contingent consideration. And within March we will seek the shareholders' approval with an e-voting process, the Bosch Group will not participate in the voting. So that is the approach and the timeline.

And to summarize my presentation, the automotive market over the last nearly four years quite subdued. If you take the total production volume we have been growing faster than the market due to positive developments in many of our areas. We are fully supporting introduction of BS-VI and working with the OEMs to meet the challenging timelines. So quite a few challenges but also opportunities for Bosch. And the Bosch Group announced realignment of the starter motors and generators division in June 2015, we looked at this for India, it cannot be run profitably without the global support therefore we have to propose the sale and we try to do this in a very transparent and fair way which I have described which also got the approval of our board of directors and we have taken additional precautions to safeguard the interest of the company, namely the two points on keeping the valuable land and also adding this contingent consideration clause into our resolution and negotiation with the holding company. So that is the sale, at a proposed value we think it is in the best interest of all the stakeholders.

To finalize without going into detail, Bosch is a 130-year-old company by now in India, MICO indecently was founded 65 years ago, so today's Bosch Limited with a good track record and very positive development and of course we plan to continue this. And what is most important for us are the strong values of the Bosch Group which are as applicable in India as everywhere which are always guidance for us and for all our employees and all our actions.

So with this I would like to close and ask for your questions. I would propose that we perhaps sort it little bit and start with starter motors and generators because this was last in the presentation and then if there is anything on BS-VI or anything else we do it subsequently. But if you like to do it the reverse way that is also fine. So up to you now for your questions please.

**Participant:**

Sir, what happens to the proceeds of the investment once you receive the money in listed company will you keep that money for the CAPEX or give some dividend?

**Soumitra Bhattacharya:** So this is 486.2 to be precise, first of all we have a very clear game plan, you must have seen that over the last many years we have continuously generated cash and you must have also seen that we have had a very focused approach on our CAPEX plans. Earlier if you look at five years ago, our average was anywhere between 400 crores to 500 crores today, it is anywhere between 650 to 1000 crores. We recently made a commitment and it is publicly known, so I can even state it that just in Karnataka the investment in 2016 is going to be 1000 crores. And that was for the Bosch Group, but in Bosch Limited we will continue to make investments, number one. Number two, you must have seen that last year we announced in our annual report that we did open up the Gangaikondan factory in GS, the Bidadi plant 100 acres for the diesel factory outside Bangalore and then of course about tools factory in Chennai. So all these expansion plans in a very planned, very clear story line for the different divisions and businesses we will continue to do CAPEX. The headquarters of Bosch in Bangalore is undergoing a big change and the first two multi-story that means nine floors each two buildings have already come up which is converting ourselves from a manufacturing base and ending it by 2018 getting out of manufacturing to a tech center. So we continue doing these things. Second, we have a very prudent as well as a well processed treasury management system for our investments. And third, we are absolutely open and looking at new businesses, from time to time we indicate what they are, we talk about products or areas and lastly you must have seen also that besides our mobility business where of course BS-VI, the company is getting fully prepared with a clear story line and game plan working backward to meet the BS-VI 2020 timelines which includes all sorts of things, it includes CAPEX, it includes competency development, it includes investments and other things. We are also focusing on our smaller businesses which is in Bosch Limited. So short point, this will form a pool of our cash management system under various heads and we will continue doing it, but all in all in a very prudent way and with a very clear story line on how we want to grow.

**Dr. Steffen Berns:** Sir, the impact for us is the question on the contingent consideration and even if you put it into a joint venture you have to determine some value and say that both partners bring in something and the value of whatever they bring in is considered x and y respectively and within this also there is a part of the Bosch Limited share and this will also be the considered equally. So it does not matter in the next step whether this is going to be 100% sale or whether this goes into a joint venture.

**Participant:** Just wanted to understand if in this JV the Bosch Limited India continues to hold the 50% or does the parent continues to hold?

**Dr. Steffen Berns:** In this first phase now we are selling the business and then we have nothing to do with the second phase apart from this contingent consideration on the sales price. Therefore because the new company which will by its is owned by the starter motors generators holding GmbH and they will do with it whatever they like.

**Participant:** If it happens after the 18 months then there is no contingent consideration?

**Dr. Steffen Berns:** That is correct and we checked this timeline and we are told that six to 12 months is normal and we extended this to 18 months, but beyond this you never know why has the value increased, was it because some new products were added or any other decision happened in between and then we cannot contribute it to today's value, therefore we said this is a quite long for such matters actually a quite long period and therefore we came up with the 18 market months, beyond this there will be no contingent consideration.

**Participant:** What is the nature of this contingent consideration if it happens before 18 months? So suppose we have sold this at the valuation of x the actual valuation which comes at the time of sale. why it is greater than x, whatever that number basically? So what will actually flow to this?

**Dr. Steffen Berns:** So we talk about the implicit value of the India business in this overall sale which has to be determined if it is amount greater x then it has to be determined by some neutral consultants again and when 100% of this difference will come to Bosch Limited.

**Participant:** Only thing that it will get valued first on the global basis?

**Dr. Steffen Berns:** Yes, of course every valuation is a challenge. Because alone of tax purposes if you do such worldwide deal you have to say there are these parts contribute to India and to Germany and to whatever else. This will give you already a very good indication in which order of magnitude this implicit value of India is going to be and then we have to ask our consultants or advisors to make this in an objective way to determine this part of the sales price.

**Participant:** It would be function of some multiple of sales or some multiple of EBITDA, if that 46 crores certain multiple and if the global sale happens at the prior multiple of sales so should we assume that there would be....

**Dr. Steffen Berns:** So how this is done, we have not defined it and we don't of course, we do not know anything how this final sales is going to be, but we must assume there will be a way to figure this out and this will be fair towards the minority shareholders.

**Participant:** How much amount has been invested in sales?

**Dr. Steffen Berns:** We have invested some 300 crores and the current book value stands at 30, so this is 486 is considerably above this.

**Participant:** **Does the exports of this starter motor and generators business is much higher than the average exports?**

**Dr. Steffen Berns:** The exports of this starter motors and generators business is much higher than the average exports as you can figure out from the overall numbers. So it is correct that the overall export or the export share in Bosch Limited is going to go down, because of this we have always tried to balance our imports and exports which so far we have not achieved even with this business and

on the other side Bosch is developing for the region approach or is having an in the region for the region approach and we are mainly focusing at the local market and then seeing are there any additional export opportunities, we are working on a number of areas and I think there is some scope to bring in the first step at least to bring the exports again into a similar dimension, but export as such is not a primary business target but it is mainly helping us to reduce the exposure to foreign exchange, etc.

**Participant:** Exports would also contributed by the SG segment over the last and other segments sort of non SG are they also facing the pressures?

**Dr. Steffen Berns:** This is also facing the pressures because especially if emerging markets being very weak where we had some good exports and because SG exports are relatively high this is noticeable.

**Participant:** Gasoline is currently a very small part of our business so over say 3 to 4 years, how do you envisage this business going for you and what is the kind of competitive intensity you see in that segment?

**Dr. Steffen Berns:** As I said in my speech, the gasoline systems business has been developing very well, so it has grown far above average which is easier if you are small and when you are big and because we have good technology and product and also because currently there is some discussion on the diesel, so there maybe some shift from diesel to gasoline systems in the passengers cars, we expect further good growth. And also because two wheelers are typically gasoline engine and only in exceptional cases diesel engines, this gives us another growth driver. So therefore we expect that the growth of gasoline systems is going to remain strong and as I said it is going to become a strong pillar of our business. The competitiveness or our competition level is quite high. But especially looking into gasoline direct injection, I would still call it more technology driven definitely than compared to starter motors and generators business. And Bosch worldwide has an excellent position in gasoline direct injection which is also going to help us here in India.

**Participant:** **Is direct injections in India is too small as compared to worldwide?**

**Dr. Steffen Berns:** Well, on a worldwide basis you mean or?

**Participant:** Worldwide or India, both.

**Dr. Steffen Berns:** So I guess indirect injection in India is too small, so on a worldwide basis these are the big automotive suppliers who are similar to the people in the diesel area, so I do not want to forget anybody but you talk about Conti, Denso, Delphi...

**Participant:** How do you see BS-VI challenge as we are a big supplier so who is the ballpark approximately these are available along with the cost....

- Dr. Steffen Berns:** We are not the engine manufacturer and therefore you have to ask the engine manufacturing purchase people to give you bill of materials and tell you how much is the engine price going to go up. Point two, there are always different ways how to achieve a certain target and you can optimize engine in different ways, you can do it cost driven approach and reach BS-VI and then the item cost is going to be lower or you can say anyway I have to do something new so I have to bring high tech engine with best fuel economy and performance and whatever else, then your cost is going to increase more. So I am not in a position to tell you any number, sorry.
- Participant:** Recently say in North India that gone for BS-IV supplying kits they have an estimate how much will be the price of BS-IV kits if you are supplying to them?
- Dr. Steffen Berns:** Yes, but this only a part of the overall engine and we are talking about the fuel system and perhaps some part of the exhaust gas treatment system and there I can only give you a qualitative figure that or qualitative answer that is going up, but I cannot give you a percentage.
- Participant:** Coming to the gasoline systems and there are other player being there, the competition will be again tougher than the CRDI?
- Dr. Steffen Berns:** I cannot comment whether it is more tough and we are facing this on a worldwide basis that there every where is competition and you always again have to reinvent yourself and have to offer the best solutions and there is for every new engine there is a quote with a competition and you have to win this. So general statement will say one area is more competitive than the other so I think it is not correct.
- Participant:** What is the status of OEM? Do they want to sort of wait out before doing the fundamental changes to the engine or they are already sort of making fundamental changes and the second thing was as far as the **OES** is concerned both have to necessarily talking to each other or they can be different suppliers just your thoughts?
- Dr. Steffen Berns:** The first question at the moment, BS-VI is not notified and therefore we are kind of shooting in the dark, we do not see the target and therefore we do scenario planning as overall industry and say what happens. So this notification is required and then these strategies will evolve and without telling any secrets everybody is looking at a wide spectrum of possible solutions and for some people it is clear what they are going to do because they have engines already available and for others it is less clear because they have different options. And therefore at the moment there is no clear overall picture. The second point is that your second question, you can put different subsystems together and make an overall system out of this, there is not the one supplier who is offering everything anyway, so therefore you have to combine it, there are certain advantages if major parts of the system come from one source which goes into the overall system design and perhaps how these different subsystems can communicate with each other, but it is definitely possible also to configure engines in a flexible way.

**Participant:** Is there a clarity that we actually go through the Real-Time Euro-VI or we actually go with what you call Euro B & C status....

**Dr. Steffen Berns:** So the term I think you are referring is the so called real driving emissions and there is no clarity.

**Participant:** Is it like if we don't go to real-time system till we can meet with EGR or with the SCR and if we go to the Real-Time system then we have to go with the **SCR**, if EGR is not effective?

**Dr. Steffen Berns:** You have to understand the details and this notification is not clear and the question is what is Indian rear driving, because India rear driving will be different from European rear driving and if you compare drive patterns in Germany or India, this is very different. And therefore I cannot make a statement on this now. First, you have to know the target and I have to say this is the specific cycle which can be as of today cycle or it can be some kind of rear driving but this rear driving first would need to be defined. So this is currently work in progress and only guess work and I cannot comment on this. I do not know anybody who knows currently.

**Participant:** Then that will make a significant difference in the real driving emission whatever notification accordingly you will have to decide whether you are actually doing with EGR or....

**Dr. Steffen Berns:** Yes, there are many implications. So the notification has a big impact on the ways how to achieve it and therefore discussion is going on and I expect that this will be notified, we have to evaluate and have to see what are going to be the technically feasible solutions and what are the solutions also which can be introduced within the available timeline. And the time pressure we are having here is going to constraint the solutions and there may be different solutions because time is short.

**Participant:** At this emission norm and all are discussed at the Ministry level are you guys involved, invited to give your opinions and part of that overall discussion as to what to do and what is the effective way and things like that?

**Dr. Steffen Berns:** In the course of last year we were very much involved on the different discussions and Bosch also being, I think I can say, a respected partner because it is generally understood that for our strict emission legislation is high turnover, so if we say do it a little slower there must be some reason behind it. So in the last months the developments have speeded up substantially and the discussions have mainly been between the government and the vehicle manufacturers.

**Participant:** like you said that there is no clarity but how does that impact your next two years plan vis-à-vis India that some of it gets on the back burner because you would have planned BS-IV, BS-V, BS-VI and now you are looking at IV to VI does that alter your plans in any manner?

**Dr. Steffen Berns:** No, we have to be more flexible, we have to prepared to meet different scenarios but the base technologies do not change, there may be between the mix of different injection systems and



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maybe some changes required but basically to say we need certain injection systems, so main stream is common rail, that is anyway clear, that is not going to change and we need certain exhaust gas treatment systems as far as we supply it. The time scale and the details were changed but not the overall approach. But of course then the timing will be critical, maybe critical for investments and for localization for the overall industry, including us and also depending on the target the calibration effort, so how people / infrastructure do we need to do all the transition and the shorter the available time the bigger the challenge.

**Moderator:** Just to understand a little bit more let us say hypothetically if it gets postponed would it be reasonable to assume that the level of localization would be higher because we need that much more time?

**Dr. Steffen Berns:** Yes, 2020 is not more time but is shorter time currently and compared to 2023 we have less time and we have less localization.

**Participant:** There is also no clarity on the implementation of BS VI and its investments. Could you pls share your views on that?

**Dr. Steffen Berns:** So if you have the clarity you please share it, that is what I tried to tell you, at the moment there is on clarity.

**Participant:** Directionally.

**Dr. Steffen Berns:** Directionally there is a headline and the details are very fuzzy and earlier we had assumed that 2019 would be BS-V and 2023 would be BS-VI and we could by now run full speeds towards 2019 BS-V and now we have to see when BS-VI is notified and the questions on the fuel availability etc. So I hope that we will have clarity and then we can discuss and say what are going to be the solutions.

**Soumitra Bhattacharya:** You see in this bounty condition of fuzziness and including 2023 becoming 2020 we in Bosch are doing internally what we can. So that we have never stopped, whether it was BS2 or BS3 or BS4 from aspect of looking at suppliers, looking at what we need to do for our BS4 which is All India 1<sup>st</sup> April, 2017 and not today but well before. So same for 2023 being preponed to 2020 whether it is competency building, whether it is aspect of what is our headcount required and all these focus stages will continue but as Mr. Burns mentioned the basic ground rules need to be cleared in granularity and including the aspect of fuel availability 2 years in advance.

**Participant:** BS-IV just notified so those systems are most electrical than the system in BS-III does that cut our competitive **and improve** margins in those scenarios.

**Dr. Steffen Berns:** Shifts from mechanical to common rail and we have also distributed pumps partly electronically controlled. We have very good value propositions for both the systems with proven systems and

competitive systems. There is competition everywhere and we have to see what is going to happen now on the next level and next engines and on the margins product specifically I do not comment.

**Participant:** So what is the price differential between electronic and mechanical system?

**Dr. Steffen Berns:** We do not disclose the specific price levels. I know this is all public domain and there is something like anti-trust so we cannot openly tell you -

**Participant:** Just the differential.

**Dr. Steffen Berns:** Even not on index or funded so it is going to be higher. There are many more components involved but how much I cannot tell you.

**Participant:** what would drive that change to go through injection system because it was a turbocharged as well so in terms of cost and in terms of technology you can shed some....

**Dr. Steffen Berns:** You have to look at the overall products available if you want to make a choice and if you want to put it simply you can say there is a pot fuel injection and the turbo charge gas in direct injection and a diesel injection or diesel engine. And of course you can also say there is something like advanced pot fuel and you can have a turbocharged pot fuel and then you can compare it to 100 different systems. But if you keep it to the three main variants then I always put it in simple terms and say you have a pot fuel gasoline and you have a diesel and the diesel turbocharged typically and then direct injection turbocharged is in middle somewhere. Looking at fuel economy on low end torque and with the fuel economy you talk about total cost of ownership. The fuel economy of course is a main driver for the total cost of ownership especially if you have high mileage, so for all commercial applications for taxis and whatever else is a relevant point. And because it is only halfway the typical taxi driver who drives really long distances he will still go for diesel engine unless there is any constraint. And then the next level becomes more complex because if you take a turbocharged TDI it is higher power per engine size, so you can make the engine smaller. You can for example, instead of forcing it in the PF I take a recent and turbocharged TDI which saves you some weight at least and some manufacturers also saves you some of the add-on cost which you need for the turbocharger and the TDI. And then you have taxation levels because if you then get into a small swap volume you have taxation benefits who pay for another part of the add-on cost of the GDI system. And then you make your overall optimization and say what is the benefit for the driver which is fuel economy typically. That is the main thing he is looking at and perhaps low end torque. And what is the benefit for the buyer from the overall perspective including the taxation which is beneficial for smaller engines.

**Participant:** In terms of the global portfolio, how relevant is this segment and where do we rank compare to the competitors as someone mentioned it is a very competitive market in the global...

**Dr. Steffen Berns:** Globally Bosch is very strong in gasoline direct injection.

**Participant:** **Market share of GDI globally for the BOSCH ?**

**Dr. Steffen Berns:** I do not comment on this. I think that is not published.

**Participant:** You said your CAPEX has gone up substantially compared to last 3-4 years from 650 around and you also said you are also looking at new business additions including non-mobility. Can you give some color as to what you are looking at and what we can see over the next 3-4 years?

**Dr. Steffen Berns:** So first we have had CAPEX on a Rs. 600 crore level for some time and this is also going to continue more or less on the same level. So the number which Mr. Bhattacharya told was for the Bosch Group which was just announced so there will not be a huge increase in the Capex for the time being. Of course we always hope that the economy is going to pick up and then there will be additional investments but that is currently not foreseen or planned. Currently there is no major product envisioned to be introduced in India which would fit into our portfolio. So coming to your question how do we decide this typically, we do have divisions and the divisions have their core business. So if we talk about diesel fuel injection and there would be next generation of diesel fuel injection, this would typically come into Bosch Limited. That is how it has always happened in the past. If there is an entirely new business there is a discussion with basically a decision then by the Bosch Group to say who is the best owner for this looking at competencies, looking at capacities, looking at available infrastructure and looking at fit or match to the existing business. So if there was a new product which looked like a common rail injector there would be high likelihood even if it was not a common rail injector to put it into diesel. But that is of course now a very general statement. So it depends on the specific situation, if there is anything new whether it is going to be – or in which legal entity this is going to be. And apart from this, this is the continuity which always is the easiest but always needs to be checked if there is any other entity which would be better suited but for the time being there is no discussion about this and no plan to change.

**Participant:** How serious is the threat from electric cars and what does it mean to Bosch?

**Dr. Steffen Berns:** Two questions I would put it in a more neutral way how big is the likelihood that electric cars are going to have a breakthrough in the next three years I would say, this is very low. If you look into the next 10 to 20 years there will be, as it looks now changed over the most relevant part is the battery performance, battery cost, battery charging cycles lifetime, so overall aspect of what all you require from a battery and for quite some time now there has been good progress and there have been good developments at the moment. This breakeven is not reached with tipping point that you say battery is better option just from a commercial and functional aspect then of course this can be supported by legislation which we have seen in some countries. But I think in the long run battery is so expensive, you cannot fully subsidize it from any government because the budgets of the governments are limited. I said it helps. There are some pockets in some



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countries where either you have subsidies or you have restrictions for non-electric or you have fast tracks for electrics so some other benefits which also helps. So the best we know is that there will be progress in electrification. There will be progress in the battery and what we are seeing today is the two extreme ends of electrification. One is light vehicles. Bosch by the way is quite strong in electric bikes. So bicycles with an electric motor which is a big market in developed countries nowadays, has a substantial market share now in the bicycle industry. And we are also major player in electric scooters. So these light vehicles and also you have golf cars or something like this where you really have good applications and you have high benefits if you go to some resorts you enjoy that there are no combustion engines and the resort is driving around but this is also electric. That is the one side. The other side is the high end sports car where price does not matter. And also you do not need to go 600 miles but it is sufficient if it goes for 100 miles or so. In between there are very many vehicles available so all the big global OEMs do have a pretty offering or a wide offering different kinds of hybridization also electric vehicles. And we need some additional improvement on the battery performs up, price down and then this is not going to replace the combustion engine 100% but then it has the possibility to have a substantial increase of the passenger car share. You talked about the threat. Bosch does not see it as a threat but sees it as an opportunity so Bosch is very active in this field, and is offering electric motors, is offering power electronics, is active in the battery field having one joint venture developing ion batteries having acquired a company last year for advanced battery technology and wants to be significant player in this market and to participate in this development.

**Participant:**

On the two-wheeler side is there a possibility of a hybrid kind of technology, electric plus gasoline something like that? Can it get into a mass market?

**Dr. Steffen Berns:**

That definitely is a possibility for any technical solution. If you look at the cost pressure on this market in India and if you look into the disadvantage on the weight side if you carry two different proposing systems with you I personally think this is not going to be a mainstream. If you see what is happening in China because again of a ban of gasoline two-wheelers everybody has switched over to electric and the typical two-wheeler mileage a day is below 100 and not above 1000. So that is doable electrically. Then you do not need a hybrid.

**Participant:**

What about the two-wheeler product that e clutches how is the roadmap particularly on the two wheelers?

**Dr. Steffen Berns:**

eClutch we are still in the development and just making good progress although we have had some delay compared to our earlier estimation on the two-wheelers as I mentioned we have taken the decision to enter the market in India. We have a number of different customers where our systems are in the market. This is coming from the high-end and going down into the lower end and as I said we do see with a mission legislation coming although we do not know the details – good potential chance that this will lead to a transition from carburetor to engine management systems also in two wheelers and we will offer very attractive system for this.



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**Participant:**                      **Could you please tell us about the purchasing strategy for the specific customer?.**

**Dr. Steffen Berns:**              I do not want to comment on the purchasing strategy of specific customers now but we think that we are offering very good and attractive systems. Thanks a lot for your interest and coming here.