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**Against coronavirus, for the climate:
with responsibility and technology “Invented for life,”
Bosch is tackling the crisis**

Presentation by Dr. Volkmar Denner,
chairman of the Board of Management, Robert Bosch GmbH,
and Prof. Stefan Asenkerschbaumer,
deputy chairman of the board of management,
at the annual press conference on April 29, 2020

Check against delivery.

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Ladies and gentlemen:

All of us – across the globe, as well as right here at Bosch – are living through an extraordinary crisis. The coronavirus pandemic demonstrates our limitations, but it also demonstrates what is really important – the health of our associates and their families. But also your health, ladies and gentlemen. In times such as these, annual press conferences can only be virtual, but my welcome to you is warmer than ever.

But in times such as these, where should I begin? At Bosch as well, so much of what is happening is completely new. Before the crisis broke, it would have been inconceivable:

- that we, and our customers and suppliers with us, should have to suspend production on a massive scale, initially in China, and then in 20 other countries in Asia, Europe, and the Americas.
- that nearly 100 plants across the globe should be shut down. The figure now is 63 plants, 20 of them in Asia Pacific, 21 in the Americas, and 22 in Europe.
- that in Germany alone, more than half our associates should be working reduced hours.
- that an interdisciplinary task force, supported by 10,000 associates around the world, should be working 24/7 to ensure Bosch can continue to supply its customers. Normally, supplying 300 million parts a day is no problem for us. But now, it is crucial to constantly analyze where there are bottlenecks in supply and demand, and where manufacturing and freight capacity is tight.
- that we should be synchronizing plans for a resumption of our supply chains. We have already successfully performed this ramp-up in China, and we aim to follow the same path in Europe next month. Our preparations are underway, with checklists for various scenarios. Two things are decisive. First, that our associates are confident their health will be protected and, second, coordinated action with authorities, customers, and suppliers to ensure a smooth ramp-up.

In times of coronavirus, our utmost priority is of course that everyone stays healthy. First and foremost, our thanks go out to the doctors, nurses, and scientists fighting the virus on the front line. But we would also like to thank our associates and business partners – for the solidarity with which we are tackling this crisis.

The widespread use of digital technologies is also good news – and not just because we wouldn't be able to give this press conference without them. The fact is that the number of people dialing in to daily Skype conferences at Bosch has nearly tripled at peak times since the pandemic broke, and more than 100,000 associates have been working from home at times. The internet was not invented as a guard against infection, but it does help keep operations running even in times of social distancing.

But while we may have gained a newfound appreciation for the benefits of digitalization, we must have no illusions about the scale of the losses being inflicted on growth and income. The longer the lockdown continues, the more such losses threaten business existences. The losses also affect social and political life as we know it. We have to closely monitor any possible side-effects and take action to counter them if necessary. Three points are important for me here:

- First, the pandemic could mean that globalization is in for a sustained setback. What we are seeing in many countries is a knee-jerk reaction – as though the present intensity of global economic interdependence were the root cause of the pandemic. In fact, waves of infection were capable of spreading across continents in medieval times, when there was only the Silk Route, but no air traffic. We need to see things less simplistically: while we will have to take a critical look at critical dependencies in the supply chain, across-the-board isolationism of the kind demanded by certain populist politicians cannot be the solution. It would result in even greater losses of prosperity than those already threatened by the pandemic. In 2019 alone, punitive tariffs that had arisen as a result of trade

disputes around the world cost Bosch nearly 100 million euros. Anyone who wants to retreat to pre-globalization times is undermining what companies like Bosch stand for – our associates come from 150 countries, and even when faced with coronavirus, we see ourselves as a “United Nations.”

- Second, we have to maintain a sense of the correct balance of government and business – something that has changed quite radically in recent weeks, with shelter-in-place mandates, store and factory shutdowns, but also rescue packages running into the billions. Given the seriousness of the situation, any criticism is out of the question. But it is essential that we return to normal when the time comes. Here as well, we must not underestimate the appeal of the idea of stronger or more authoritarian regimes being spread by populists in certain democratic countries. We cannot let any of the current overregulation of the economy, and certainly any of the restrictions on freedom, remain once this emergency ends.
- But how should we shape our exit strategy? This is my third point, and seems to be the most difficult question of all at the moment. To make the right decisions, policymakers will have to exercise a keen sense of proportion. As far as we know at present, an exit from lockdown can only be gradual – and course corrections will be needed depending on the fall or renewed rise in cases. And each step will have to be taken conscientiously, with the protection of human life on the one side and efforts to minimize economic and social harm on the other. Nobody should believe this is simply a “money or life” trade-off. If a sustained recession threatens too many existences and jobs, there is a risk of social unrest, which would again be grist to the mill of radical elements.

The fight against the virus: how Bosch can help technologically

At all events, while politics looks after its responsibilities, Bosch must do what it can. And more than anything in these times, that means developing and producing technological solutions for the fight against the virus. Let me mention a few important examples:

- Wherever possible, we want to contribute our expertise to containing the pandemic, such as by quickly developing medical aids. For this purpose, we are working with other companies, but also assessing the feasibility of our associates' ideas. They have to fulfill clear criteria: above all, they have to satisfy a concrete need and comply with prevailing approval procedures.
- Within a short time, we have started production of face masks. Even now, thirteen Bosch plants in nine countries – from Bari in Italy, to Bursa in Turkey, to Anderson in the United States – have taken the initiative and are making such masks for local requirements. Furthermore, our special-purpose machinery unit has designed a new production line within just a few weeks. On this basis, we are currently setting up two fully automatic production lines at our Stuttgart-Feuerbach location – and will set up a further line in Erbach in Germany, as well as lines in India and Mexico. All in all, this will allow us to produce half a million masks a day. Initially, we want these masks to protect the workforce at our locations worldwide, but wherever possible, we will also make them available for others. If we produce masks ourselves, we will at least not have to buy any in the market.
- Moreover, we are producing hand sanitizer for in-house use – some 1,000 liters a week at our Anderson location in South Carolina, and nearly 4,000 liters a week on our research campus in Renningen, Germany. In this way, we can keep associates at our American and European plants supplied.
- Finally, we have now launched our rapid test for Covid-19. It takes just two-and-a-half hours to deliver a result – fully automatically and straight to

the doctor's office. In this case, time is health. We do not want to put commercial laboratories out of business with our Vivalytic analysis device, but to provide additional support – and to do so where the need is especially urgent. So while personnel at the Robert Bosch Hospital in Stuttgart and Bosch associates in an initial number of plants are benefiting from the rapid test, it is also being used by companies as an aid to vaccine development. The devices are in great demand, and by the end of the year we will have increased our manufacturing capacity five times more than planned. In this way, we want to produce more than a million rapid tests in 2020, and to increase this to three million next year. We are doing everything to increase production, with additional associates coming not least from our automotive locations. That, too, is Bosch in transition. The rapid test is already being delivered to European customers with a “research use only” label, and can be used following validation. We expect to comply with CE marking requirements by the end of May. Furthermore, we have nearly finished completing the development of an extra-rapid test that delivers reliable results in less than 45 minutes. In outstanding fashion, these achievements are guided by our “Invented for life” strategic imperative.

Staying with this strategic imperative, there is one subject that should no less concern us – one that is difficult enough to tackle even in normal times: climate change. Curbing this change is an existential task – not only for the people in the world today, but also for their children and grandchildren. We have to combat the virus, but this fight will not stop global warming. The decision to keep climate action as the central theme of our press conference this year was therefore made whole-heartedly.

Ladies and gentlemen, climate change is the dominant issue this year as well, despite coronavirus. It is good that policymakers are taking climate action seriously, but the paradigm shift in many industries is also serious. This also affects Bosch, but still I have to say, loud and clear, that while climate action costs money, doing nothing will cost even more. A company's mood

cannot be one of resignation, but instead has to be one of innovation. So even in these difficult times, we have no choice but to plan for the short and the long term. It is above all to two questions that we want to give answers at our annual press conference:

- First, what can we do technologically to combat both climate change and the paradigm shift in the industries in which we operate? We are acting to make our value creation chains carbon neutral, we are electrifying our product portfolio in areas such as powertrain and heating technology. And not least, we are advocating a bold move into the hydrogen economy.
- Second, how are we negotiating the crisis? Even last year, business activity had slowed. This led to a drop in result, while sales remained stable. This year, there are signs of a recession, and we have to contain its consequences for Bosch. So before we go any further, Stefan Asenkerschbaumer will give you some more details...

Business situation of the Bosch Group: enormous challenges in 2020

Ladies and gentlemen, today I would like to focus mainly on current developments. I will end my presentation with a cursory look at the figures for 2019. As Volkmar Denner already said, we are in an unprecedented situation.

The challenges are formidable. This is reflected in our first-quarter figures. They already show the effects of the coronavirus pandemic.

- Bosch Group first-quarter sales fell 7.3 percent year on year, and by 17 percent in March alone.
- We see a similar picture in our Mobility Solutions business sector, with a 7.7 percent fall in the first quarter and a 19 percent drop in March. In Industrial Technology, by contrast, the 18.5 percent drop in sales to the end of March is mainly caused by the steep decline in business activity in the machinery sector, which had its origins in 2019. First-quarter sales in our

Consumer Goods business sector are down 2.7 percent year on year, and in Energy and Building Technology, the figure is 4.8 percent.

- Regionally speaking, sales in Asia Pacific (incl. Africa) have fallen 15 percent. In Europe and North America, the decline is 4.7 and 6 percent respectively. The considerable 10 percent drop in South America is due to exchange-rate effects.

Even if production has been ramped up again in China, and European industry is preparing for a ramp-up of its own, we have to steel ourselves for a severe global recession over 2020 as a whole. The actual extent of the drop in economic output can still only be guessed at. Our assumption is that it will be significantly steeper than the roughly 1.5 percent fall we experienced in the 2009 recession. In automotive production, our current expectation for 2020, based on the effects that are currently apparent, is that it will fall at least 20 percent.

As concerns our business, we expect sales losses to be especially pronounced in our Mobility Solutions and Consumer Goods business sectors. But in our other business sectors as well, we are anticipating a significant decline. Given the many imponderables, we feel unable to make a reasonable forecast for the Bosch Group for the year as a whole. It will take a supreme effort to achieve at least a balanced result. In this severe crisis, it is again an advantage for us that we are so diversified, with different business sectors.

This explains why we are attaching such great importance to our many activities to cut costs and secure liquidity. These include the reductions in working hours in place at many of our locations in Europe – which means losses of income for our workforce. At the locations affected, managers and executives are playing their part by taking as much as eight days of unpaid vacation in April and May – on average, a 20 percent cut in salary in the two months. For our senior executives and the board of management, this applies regardless of local measures.

All our divisions are under instruction to exercise extreme restraint in their capital expenditure. Nonetheless, we are pushing ahead with investments in our company's future, such as the construction of our wafer fab in Dresden. But even here, we are examining whether expenditure can be spread over a longer period in individual cases. Especially in Mobility Solutions, with its tight supply chains, we are very closely monitoring our suppliers' financial situation. But that is not all: our logistics and purchasing teams have worked successfully with our suppliers and customers to secure deliveries. This means we have a good basis from which to ramp up production again.

In such troubled times, our very sound financial structure is especially valuable. Our traditionally high equity ratio was 46 percent at the end of 2019, and balance-sheet liquidity was 19 billion euros. A few days ago, moreover, we agreed an additional credit line of 3 billion euros. As in the financial crisis of 2008 and 2009, this is a precautionary measure.

In our planning, we had already expected the 2020 business year to be a challenging one. We had expected global economic activity to cool further and assumed that both automotive production and the diesel share of passenger cars would continue to fall. Just like the automotive industry as a whole, Bosch is both in transition and in upheaval. On the one hand, we are making considerable upfront investments in areas of future importance. They comprise electromobility (including fuel cells), automated driving, future automotive electronics architectures, the internet of things, the application of methods of artificial intelligence, the connected factory of the future, and electrification in heating technology. At the same time, considerable adjustments are necessary, especially in the Mobility Solutions business sector. These upfront investments and adjustments are an additional burden on result.

This is also reflected in our 2019 business figures. Our documentation provides detailed information. Owing to a number of successful products, Bosch Group sales reached 77.7 billion euros, nearly on a par with the previous year – and this despite an already weak global economy and a 5.5 percent drop in

automotive production. Especially in Mobility Solutions, we were able to gain market share. However, at 4.2 percent, the Bosch Group's EBIT margin from operations was significantly below the previous year's 7 percent. Without positive extraordinary effects, above all as a result of the sale of our packaging machinery activities, the margin was 3.5 percent.

Right at the start of 2020, therefore, we adopted a comprehensive program to improve cost structures and secure liquidity. It applies to all units and functions worldwide. However, the measures take account of differing requirements. In the medium term, our objective is to return to a roughly 7 percent margin from operations, but without neglecting the essential tasks to secure our future. We are devoting all our energy to this and to overcoming the coronavirus pandemic. In this way, we will create the financial foundations we need to seize the many huge opportunities that lie ahead for the Bosch Group. And with that, I would like to hand back to Volkmar Denner.

**Climate action remains vital:
a technology offensive as the way forward**

... Many thanks, Stefan. How can Bosch return to growth, despite coronavirus and despite the paradigm shift in the automotive industry? How can the fundamental change in our world, and not least in the natural world, be tackled on a business level? To answer these questions, I would like to present a number of strategic considerations centering on climate action, which remains the greatest challenge humanity faces. We believe the response to this challenge should be an aggressive one, deploying not less, but more technology – and above all technology that is new and smart.

In our view, climate action policy should not be merely defensive, or indeed restrictive. A policy of sacrifice and prohibition would only inhibit our engineers' ingenuity. We want technology neutrality, and in the end, this means a technology offensive. First and foremost, neutrality means that there is more

than one path to sustainable mobility. Batteries are one way, but so are renewable synthetic fuels and fuel cells. And a technology offensive means that the move to alternative energy must eventually go hand in hand with a move to alternative fuels. It is obviously not possible to electrify every mode of transport. We also need carbon-neutral liquid fuels. This means boldly embracing the hydrogen economy, and doing it now. If we do not, Europe will not achieve climate neutrality by 2050.

It is good to see this debate gaining momentum, and good to see that Germany intends to test hydrogen applications in the field. But these applications need to become industrial reality soon, for climate change is already very real. We already have a German hydrogen strategy. However, the objectives it sets out still lag way behind climate-policy exigency, as well as what is technically feasible. Hydrogen is figuring prominently as a subject of debate, but it's high time it was commercialized.

What needs to be done politically? I see three fundamental points:

- First, subsidize hydrogen production, either by levying a lower rate of energy tax, or by exempting it altogether.
- Second, support research, so that hydrogen-processing technologies can be commercialized faster.
- Third, establish infrastructure and logistics, including a nationwide network of hydrogen filling stations.

Ladies and gentlemen, a climate-action policy such as this could also be a policy for economic growth. It would be a policy that benefits the environment without neglecting prosperity. In the end, a successful move to a hydrogen economy is also important for the future of our company. And Bosch is also making itself H₂-ready, as a number of examples already demonstrate:

- We are preparing to manufacture a Bosch stack for the use of hydrogen in vehicles, especially trucks. Market launch is planned for 2022, and as

early as 2030, one in eight newly registered heavy trucks could be powered by fuel cells.

- Stationary fuel cells will also soon be coming into commercial use, supplying computing centers and industrial facilities with electricity. We started field tests in Germany in 2019, and will this year be setting up pilot plants in the U.K., China, and the United States. By 2030, we forecast that the market volume for fuel-cell power plants will be more than 20 billion euros.
- Finally, we are preparing for the use of hydrogen in heat generation. We expect the share of H₂ in the natural gas network to rise over the long term. And as millions of homes are connected to this network, gas-fired boilers will have to be made future-proof. Even now, our range includes an industrial boiler that is 100 percent hydrogen-ready.

All locations becoming CO₂ neutral: from statement of intent to reality

For all our technological push, climate action starts at home – in our company. This brings me back to the promise I gave at this event a year ago: to make all Bosch locations carbon neutral by the end of 2020. And we will keep our promise – the first global industrial enterprise to do so. To do this, we are applying four levers: one, increase energy efficiency; two, expand our supply of renewable energy; three, procure more green electricity; and four, offset unavoidable CO₂ emissions. In the years up to 2030, the first two levers will enhance the quality of our CO₂ neutrality. The latter two levers are above all short-term in effect. That said, the share of carbon offsets will be significantly lower than planned in 2020, at just 25 percent instead of nearly 50 percent. In other words, we are making faster progress than we expected in improving the quality of the measures we take. And we are confident that we can stay this ecologically correct course economically as well – especially as our efforts to achieve energy efficiency also make us more cost efficient.

Beyond the company: Bosch as a climate-action multiplier

But climate action is too important for us to stop there. It concerns everyone, and we want our efforts to have a multiplier effect in the economy. For this purpose, we are taking two new paths:

- First, we are passing on our experience to other companies. Making 400 locations around the world carbon neutral means monitoring energy consumption at five million measuring points. Last year alone, nearly 1,000 experts worked on this in more than 1,000 energy-efficiency projects. We are contributing their expertise to an innovative new advisory business. For this purpose, we have set up a company called Bosch Climate Solutions. It has attracted a lot of interest, and gained some pilot customers, the technology companies Freudenberg and Prettl. Our CO₂ advisory service is intended primarily for manufacturing companies. Within three months, we present them with a detailed concept for reducing CO₂. Here, Bosch is using its expertise to help other companies progress to carbon neutrality.
- Second, we are stepping up our climate action relating to what the experts call Scope 3 emissions. In concrete terms, we are reducing CO₂ by working our way along the value chain, from “purchased goods” to “use of products sold.” This can only work if customers and suppliers also cooperate. But such joint efforts will allow us to have a multiplier effect on climate action. This is because the carbon footprint of all our upstream and downstream activities is roughly 100 times higher than what our own locations used to emit: 340 million metric tons a year in total. We had this figure checked by an independent certification organization, and want to reduce it by 15 percent by 2030. This is not a target we set on our own, but one we agreed with the Science-Based Targets initiative. We are the first automotive supplier to join this initiative with a defined target.

In our cars and homes: electricity is complementing combustion

Admittedly, the completely climate-neutral use of our products is still a great challenge. Just think of our injection systems for combustion engines. How far do such systems run contrary to the objective of climate neutrality? In fact, the diesel engine is especially economical and CO₂ efficient. But in the future, we will need more than this. We will need alternative powertrains, and we will need ways of making combustion engines themselves carbon neutral. We can achieve this with renewable synthetic fuels. Precisely for this reason, it would help to consider such renewable synthetic fuels in fleet consumption, instead of tightening the CO₂ rules for purely automotive emissions in a time of crisis. On a fundamental level, climate action is accelerating structural change in all the industries in which we operate. Not only in powertrain technology, but in heating technology as well, there is a trend toward more electrification. In both these areas, climate action means that electrical solutions are complementing the combustion solutions that have dominated up to now.

- In our cars, the twenties will see the ramp-up of electromobility. Even now, Bosch is in pole position. We are registering a consistently high order intake. This will also benefit our German locations. This year, we will be investing roughly 100 million euros in the production of electrical powertrain systems at our plants in Eisenach and Hildesheim.
- And in central heating systems, we predict a decade of electrification, especially through the more widespread use of heat pumps. Their market volume is growing by more than 10 percent a year in Europe. By 2025, it will be nearly as big as the market for gas-fired boilers. Bosch is investing an extra 100 million euros in the heat-pump business, with the aim of doubling development effort and market share.

**When entrepreneurial responsibility is put to the test:
we have to show we mean what we say**

Here, ladies and gentlemen, I would have liked to say even more about how we are networking our multifaceted industrial expertise – about digitally controlling the energy flows between our homes and our cars, or about software, the internet of things, and artificial intelligence. But we are negotiating a severe, unparalleled crisis – for society, for the economy, for our company, for everyone. This is why I limited my strategic statements in the midst of this pandemic to the subject of climate action, which is no less crucial for our survival. I would like to close with some thoughts about entrepreneurial responsibility in the current situation.

The paradigm shift in the industries in which we operate, which was underway before the coronavirus outbreak, is itself a tough test of our responsibility. We have to reorganize the divisions affected. Any other course of action would be economically irresponsible. But we want to make the effects of this reorganization socially acceptable, or at least to cushion them. Beyond the unforeseeable consequences of the coronavirus crisis, this remains our responsibility to our associates. In addition, however, we have to responsibly take up the fight against climate change. It is not too late to achieve the climate action targets – but only if major enterprises such as Bosch bring their weight to bear. They have to show how such great ecological concerns can be tackled without crippling economic effects. Bosch is taking climate action seriously, not just in its manufacturing operations, but gradually also in its products and services. This will cost money, but it will also create new business.

This alone shows that maintaining a balance in the interplay of economic, social, and ecological interests is difficult, but it can be done. Given the recessionary consequences of the coronavirus pandemic, I can only add that this balancing act will be even more difficult, but also even more urgent. This

acute crisis will test the mettle of all those who bear entrepreneurial responsibility. In this context, it is good to know how responsibly our associates are handling such an exceptional situation:

- that they understand and accept the burdens of reduced working hours, of sacrifice of income, and even of temporary shutdowns,
- that they are keeping their operations and our supply chains running, despite all restrictions.

Safeguarding jobs and securing our company's existence has been hard work, and will remain so. But there will be life and work after coronavirus. Our experience in this crisis of our "We are Bosch" spirit will help us pull through.