



We create chemistry

**Investor Update: Taking the next step  
in climate protection – from targets to delivery**  
**Speech**  
**March 28, 2022**

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Chairman of the Board of Executive Directors of BASF SE

Ladies and gentlemen,

Thank you for joining our virtual Investor Update.

Our world changed overnight on February 24 with Russia's invasion of Ukraine. There is a brutal war raging in Europe as we speak. Nevertheless, I believe it would be a mistake to lose sight of the greatest global challenge of our time – climate change. This is why we decided to go ahead with today's event as planned.

In my keynote, I will update you on the measures we are implementing at our sites to reach our corporate climate targets. And I will also report on our progress in building up business with products that have net-zero or low product carbon footprints (PCFs).

### **[Chart 2: We have ambitious CO<sub>2</sub> reduction targets]**

I want to start by reminding you of the commitments we made at our Capital Markets Day in March last year:

- We want to reduce our absolute CO<sub>2</sub> emissions by 25 percent by 2030, compared with 2018.
- We are committing to achieve net zero emissions at BASF by 2050.

In 2021, we reduced CO<sub>2</sub> emissions by around 3 percent compared with 2020 despite significantly higher production volumes. This was due to the increased use of renewable energy and measures we took to improve energy efficiency and optimize our processes. Emissions were also lower because we produced less ammonia due to high natural gas prices.

### **[Chart 3: Our two perspectives on emission reductions]**

Let me first explain how we tackle emissions at BASF. We focus on two dimensions: our sites and our products. With technical measures at our production sites, we directly address our Scope 1 and Scope 2

emissions. These are the direct emissions from our production processes and from the generation of steam and electricity as well as indirect emissions from the purchase of energy. We are directly responsible for these emissions, and they are reflected in our corporate targets. We can address them by technical measures and by making investments at our sites.

Our customers are not interested in our progress at site level. They want products with net-zero or low carbon footprints. Our product offerings to customers include the Scope 3 emissions associated with the raw materials we purchase from our suppliers. We make these product-related emissions transparent from cradle-to-gate in the form of product carbon footprints that we calculate for our around 45,000 sales products.

**[Chart 4: Next step: First net-zero and low-PCF products available]**

And we are making progress in developing markets for net-zero and low-PCF products. A fast market buildup is an important precondition for maintaining competitiveness and economic efficiency during the energy transformation. We expect that demand for net-zero and low-PCF products will exceed supply in the midterm, and that their market value will more than compensate for the higher production costs. That is why we want to be among the first companies to provide large volumes of as many products as possible with reduced carbon footprints. This will set us apart from our competitors and will enable us to grow faster than the market.

Using a McKinsey methodology, BASF is in the process of finalizing a study into the cost impact of net-zero chemicals in consumer products such as diapers, mattresses and shampoo. In most products investigated, raw materials account for more than 50 percent of the

CO<sub>2</sub> footprint. The chemical industry can therefore significantly contribute to reducing the emissions of households.

According to the study, a 25 to 50 percent rise in production costs for the chemicals used, would only lead to a 5 to 15 percent increase in prices for consumers.

**[Chart 5: Agenda – 1. On the road to reaching our CO<sub>2</sub> reduction targets]**

I will speak in more depth about the reduction plans at our sites in a moment and show what measures we are taking to reach our corporate emissions targets. Before I do so, I want to take a quick look at where BASF is coming from and revisit some key facts that we presented in March last year.

**[Chart 6: No downstream decarbonization without upstream decarbonization]**

We have identified five levers to address and reduce the main sources of greenhouse gas emissions from our production.

The “grey-to-green” and the “power-to-steam” levers focus on avoiding CO<sub>2</sub> emissions from the production of electricity and steam. Emissions from our upstream and, to a lesser extent, downstream processes are being tackled by “new technologies.” And we will also use the lever “bio-based feedstocks” to reduce emissions by increasingly replacing fossil feedstocks.

Lastly, these levers are supported by a large number of operational excellence measures across the company that focus on efficiency and our CO<sub>2</sub> emissions.

**[Chart 7: Our path to reduce BASF emissions from 2018 to 2030]**

This chart shows the contribution of each of the levers on our path to reduce our CO<sub>2</sub> emissions by 25 percent by 2030, compared with the 2018 baseline.

The contribution from bio-based feedstocks might seem rather small. But you should bear in mind that we are looking here only at the impact on Scope 1 and Scope 2 emissions, and not at the impact at the product level.

Also, in terms of operational excellence you should remember that we have already harvested the low-hanging fruits: Since 1990, we almost halved our carbon emissions while simultaneously doubling sales volumes.

Together, the measures would result in a remarkable 50 percent reduction in emissions by 2030 compared with 2018, assuming that our business continues unchanged. But our challenge is that BASF intends to grow further! Our 25 percent reduction target is very ambitious in view of the additional CO<sub>2</sub> emissions from this growth.

**[Chart 8: We have defined a corridor for reducing our emissions until 2030]**

Today, we are providing you with a trajectory for our CO<sub>2</sub> emissions in the period up to 2030. The orange line indicates where our emissions would likely be without mitigation measures based on 2018 projections. Since 2021, as part of our outlook, we publish an annual CO<sub>2</sub> emissions forecast for BASF Group with a corridor of plus or minus 0.5 million metric tons, shown here shaded in green. In the last few years, reductions have also been due to a number of special effects related to the corona pandemic as well as plant turnarounds and shutdowns. We expect to see a more pronounced impact of the

levers from 2021 onwards. I will now provide you with updates on the progress we are making in each of the five levers.

**[Chart 9: Photo – Construction of offshore wind farm Hollandse Kust Zuid on track]**

Offshore wind parks are the main contributor to the grey-to-green lever. Last year, BASF acquired a share in Vattenfall's wind farm Hollandse Kust Zuid (HKZ). Once fully operational in 2023, it will be the largest offshore wind farm in the world with 140 wind turbines and a total installed capacity of 1.5 gigawatts. It is BASF's first major investment in facilities for renewable energy, and it is the first offshore wind farm in Europe ever to be built without subsidies for the power produced. Vattenfall will use HKZ to supply fossil-free electricity to its customers in the Netherlands, while BASF will support chemical production at its sites across Europe, mainly in Antwerp, Belgium.

**[Chart 10: Switching our power to renewable energy will be the main driver of emission reduction until 2025]**

The replacement of grey by green energy will have the largest impact on reducing our emissions in the coming years. With increasing electrification of our processes, we expect our global power demand to at least double or even triple by 2040.

In 2021, renewables accounted for 16 percent of BASF's global power demand. By 2030, our projection is that this figure will rise to more than 60 percent, which would be equivalent to BASF Group's total power demand in 2021.

To cover our demand for renewable energy, we are pursuing a make-and-buy strategy. In other words, we are selectively investing in own renewable power assets and purchasing green power from third parties over a long time horizon. We anticipate that our early investments in renewable power assets will offer advantageous

economics, as we are already seeing increasing demand and a corresponding rise in prices.

**[Chart 11: We are delivering with a pipeline of projects to secure supply of renewable energy at competitive prices]**

BASF's share in the HKZ wind farm is one example of the "make" part of our strategy for securing renewable energy. But BASF is also delivering on the "buy" part in the form of power purchase agreements (PPAs).

For example, BASF has signed a 25-year PPA for renewable energy in Europe with ENGIE. Under the agreement, which is effective since January 1, 2022, ENGIE will provide multiple European BASF sites with up to 20.7 terawatt hours of fossil-free electricity in total throughout the term of the agreement.

BASF has concluded another 25-year agreement with Ørsted. We will offtake the output of 186 megawatts from Ørsted's planned Borkum Riffgrund 3 Offshore Wind Farm in the German North Sea. The offshore wind farm will have a total installed capacity of 900 megawatts and will go into full commercial operation in 2025.

Ultimately, the percentage of green energy will to some extent depend on market and regulatory developments. You can nevertheless expect us to further deliver projects as part of our make-and-buy strategy in the coming years.

**[Chart 12: High potential from changing to power-to-steam allows decoupling from electricity supply]**

Let's now take a look at the other lever related to energy production: power-to-steam. Here we will take a new approach to generate steam using electricity.

We can produce electricity-based steam using technologies like e-boilers and special heat pumps. E-drives – electric motors that will replace existing steam turbines – will reduce our overall steam demand and thus allow us to replace steam directly with electricity. Selecting technologies like these that already exist today and that can be used on an industrial scale will help us move quickly towards achieving our goal of reducing CO<sub>2</sub> emissions by 25 percent by 2030.

**[Chart 13: Future steam supply concept for Ludwigshafen: Heat pumps to replace fossil-generated steam from today's power plants]**

Currently, about 50 percent of the steam demand at our Ludwigshafen site is based on steam generation processes that produce CO<sub>2</sub> emissions. We see a potential to replace up to 1,100 tons of fossil-generated steam per hour using the technologies I just mentioned. We launched various technical feasibility studies at our Ludwigshafen site in 2021 and are now taking concrete steps to introduce them.

**[Chart 14: First high-temperature heat pump to supply steam to the BASF Verbund in Ludwigshafen]**

Our chemicals plants produce a huge amount of waste heat that is currently unused and that we can use for heat pumps. At our Ludwigshafen site, we are working with Siemens Energy on a first project. It uses heat pumps and vapor recompression to upgrade waste heat such that it can be used as steam for the steam grid of the site. We are planning to take this complex in the acetylene plant into operation in the second quarter of 2024.

The integration of this heat pump project not only enables us to produce around 60 metric tons of steam per hour, but also avoids around 160,000 metric tons of CO<sub>2</sub> per year and reduces the



consumption of cooling water by more than 20 million cubic meters each year. Compared with an e-boiler, the heat pump technology is more energy-efficient and thus allows more steam to be generated with the same amount of electricity. The system will be the first industrial heat pump of this kind and will generate steam at pressures of up to 6 bar. With this project in the acetylene plant, we will collect day-to-day operational experience and standardize the way the heat pumps are installed. This will simplify the rollout to other sites in the future.

**[Chart 15: Preparations for the world’s first electrically heated steam cracker furnace on track]**

Another project we are pursuing at the Ludwigshafen site forms part of the new technologies lever. Currently, cracker furnaces are heated with gas and produce about 1 metric ton of CO<sub>2</sub> per metric ton of olefin. We have signed an agreement with SABIC and Linde to develop and pilot electrically heated steam cracker furnaces. Our eFurnace project for a multi-megawatt pilot plant in Ludwigshafen is progressing as planned and is on track to start up in 2023 subject to a positive public funding decision. We are also moving forward with developing other new technologies, for example the methane pyrolysis process for the production of hydrogen that I presented in March last year.

**[Chart 16: Operational excellence – a lever to continuously increase our energy efficiency and avoid CO<sub>2</sub> emissions]**

I would like to close this chapter by showing you the impact of our operational excellence measures that we are continuously implementing across the company. Some projects are on a relatively small scale, but the cumulative impact is impressive: Between 2013 and 2021 such measures reduced the CO<sub>2</sub> emissions of BASF Group by around 1 million metric tons. We are constantly challenging the

organization and ensuring funding for projects that could potentially reduce greenhouse gas emissions. We have also set up a new process to foster their implementation.

**[Chart 17: Agenda – 2. Global reduction efforts, individual site approaches]**

Having looked in general at the levers we are using to reduce emissions and a few examples that we are implementing in Ludwigshafen, I would now like to move on and explain in more depth what measures we are taking at other sites.

**[Chart 18: Photo – Antwerp is BASF's second largest Verbund site worldwide]**

BASF's Verbund site in Belgium is located in the northernmost part of the port of Antwerp. Founded in 1964, it covers six square kilometers and employs around 3,500 people. With its more than 50 plants, it is the largest chemical production site in Belgium and BASF's second largest Verbund site after Ludwigshafen.

**[Chart 19: Antwerp Verbund site with the aspiration to be the first petrochemical site to approach net zero in 2030]**

This chart shows the steps we plan to take in our efforts to reduce emissions at the site from 3.8 million metric tons in 2021 to close to net zero by 2030.

Due to its coastal location and with its specific Verbund setup, our Antwerp site is well suited to become the first petrochemical site to approach net zero in 2030. A combination of different levers from our energy transformation roadmap drives this ambition and could enable this pathway. But let me state clearly that this is a challenge in this short period of time, and we require support from politics in setting the right framework conditions.

I would now like to talk you through the specific measures on the chart. The import of green power from offshore wind parks and other sources will replace grey power supply.

The first phase of our CCS project Kairos@C together with Air Liquide is on its way to collect and sequester the emissions from our ammonia and ethylene oxide production. A second phase of CCS will complement the application of new low-emission technologies that enable a beneficial adjustment of our Verbund integration. These new technologies include the use of hydrogen as fuel and potentially green ammonia imports as well as the partial electrification of our steam grid using e-boilers.

Beyond the use of e-boilers, the power-to-steam options are less relevant than in Ludwigshafen because the overall steam balance is almost neutral at the Antwerp site.

Finally, there will be remaining emissions from several very dilute sources, whose abatement is technically complex and extremely expensive. This final portion will likely have to be mitigated by compensating measures such as the use of bio-based feedstocks and verified emission reduction certificates.

**[Chart 20: Verbund site Antwerp: CCS is a mature drop-in solution for large-scale process emission abatement]**

As shown on the previous slide, CCS is one of the key measures we are working on to cut emissions in Antwerp.

The port of Antwerp is a world class port and, at the same time, the biggest European chemical cluster. Under the lead of the port authorities, a consortium named Antwerp@C was founded in 2019. It aims to halve CO<sub>2</sub> emissions in the port by 2030 and will provide shared infrastructure for transporting and exporting CO<sub>2</sub>. This would

make it possible to transport CO<sub>2</sub> to offshore sinks, such as depleted gas and oil fields in the North Sea.

Using the Antwerp@C infrastructure, BASF and Air Liquide – two of the consortium's founding members – have set up the joint project Kairos@C and are planning to develop the world's largest CCS value chain. In addition to combining CO<sub>2</sub> capture, liquefaction, transportation and storage on a large scale in the North Sea, the project involves the use of BASF's Sorbead® solution for drying the CO<sub>2</sub>.

The project has been selected for funding from the European Commission's Innovation Fund and is planned to be operational in 2025. In a first step, Kairos@C aims to reduce BASF's emissions at the Antwerp site by 1 million metric tons per year.

**[Chart 21: Photo – Zhanjiang to become BASF's third largest Verbund site worldwide]**

Moving on to South China: The construction of our Verbund site in Zhanjiang in Guangdong province is a milestone for BASF. When it is completed, it will be our third largest Verbund site worldwide. It will be the foundation for our future growth in China and Southeast Asia. And we are implementing the latest and most innovative technologies and production processes here.

From the very outset, we planned this Verbund site to be a frontrunner in terms of sustainability, with significantly less carbon emissions compared with the conventional set-up used by competitors.

An advanced Verbund concept and the use of renewable energy will play the key role in significantly lowering the site's CO<sub>2</sub> emissions. Replacing fossil-fuel energy by electricity from renewable sources is a main lever. A good example is driving the turbines for the compressors in the cracker with electricity instead of steam.

Secondly, by balancing the heat surplus from Verbund production with the site's steam demand, we are able to reduce the overall energy demand and largely avoid on-purpose steam production and associated emissions.

We will also deploy process innovations, for example in the process for syngas production. CO<sub>2</sub> off-gas that is a by-product of the ethylene oxide process and excess hydrogen from cracker operations will be used to manufacture syngas. Furthermore, excess gases and other by-products will be used as raw materials for further steps in the production chain.

**[Chart 22: Verbund site Zhanjiang uses latest technologies to reduce CO<sub>2</sub> footprint compared with standard gas-powered petrochemical site]**

Our plan for Zhanjiang is ambitious and guides the way for chemical production in China. Phase 1, which will follow on from the initial phase, includes the heart of the Verbund site – the steam cracker – and some of the associated downstream plants. These are expected to start up as of 2025.

With the use of renewable electricity, we are a frontrunner in the process industry in China. With strong support from the Guangdong authorities, BASF was instrumental in triggering a policy change for renewable direct power purchase. We were thus the first company to be able to purchase renewable energy under the new pilot trading rules. We have secured 100 percent renewable power for the first downstream plants of the Performance Materials division that will come on stream in the initial phase.

And now we are proud that we can take another step forward. We recently signed a second framework agreement over 25 years with the State Power Investment Corporation Limited (SPIC), China's largest

renewable energy company, and are exploring further cooperation opportunities in the renewable energy sector. This agreement is the largest volume and longest green electricity purchase framework agreement that has been signed in China. Supported by this deal and partnerships with other energy suppliers, we are speeding up our efforts to run the entire Zhanjiang Verbund site with renewable electricity. By 2025 – earlier than originally planned – we aim to power the site with 100 percent renewable electricity.

**[Chart 23: Schwarzheide site is a prototype for the energy transformation at mid-sized sites]**

Although certain emission reduction measures are only possible at Verbund sites, every BASF site has to deliver a site-specific plan to reduce CO<sub>2</sub> emissions that takes account of local opportunities and framework conditions. A good example is the plan for the mid-sized site Schwarzheide in Brandenburg, Germany, that offers approaches that can be rolled out elsewhere.

Last month, BASF Schwarzheide and enviaM established a joint venture to build and operate a solar park. With a total installed capacity of 24 megawatts peak and an expected electricity production of 25 gigawatt hours per year, the plant will be the first major solar power plant in which BASF is directly involved.

BASF holds a 51 percent share in the joint venture. The majority of the electricity generated will be used to supply the BASF site via a long-term electricity supply contract. Startup is planned for the second quarter of 2022. Once completed, the solar park will be able to provide on average about 10 percent of the site's current annual electricity demand. By installing a stationary battery in the solar park, we will also be able to buffer fluctuations in supplies of renewable energy.

To achieve the highest possible energy yield with the lowest possible greenhouse gas emissions, BASF has also invested in its combined heat and power plant. In Schwarzheide, our gas and steam turbine power plant is undergoing a 73-million-euro modernization. Once it is started up later in 2022, it will produce 10 percent more electricity with 16 percent lower CO<sub>2</sub> emissions thanks to higher fuel efficiency.

**[Chart 24: Our roadmap is backed by robust calculations and solid planning]**

Ladies and gentlemen,

I would like to return to the trajectory of our CO<sub>2</sub> emissions and the path to our 2030 emissions target. We know where we want to go, and we know how to get there. We have underpinned our journey with specific measures.

As you can see here, we expect that measures related to the grey-to-green lever will dominate our reduction efforts in the next few years. This is not surprising since the technical hurdles in switching to renewable energy are relatively low. From 2025 onward, we will see an increasing contribution from the new technologies we are developing as we move from pilot phase to scale.

Relative to 2021, we expect to avoid a total of 11 million metric tons of CO<sub>2</sub> per year in 2030 compared with our path without avoidance measures. In the past weeks, EU ETS carbon pricing fluctuated between approximately 60 and 90 euros per ton of carbon dioxide. If we were to assume that all our avoided emissions were achieved in the EU and neglect any free allowances for a second, this would correspond to an undiscounted value of around 0.7 to 1.0 billion euros – and this annually!

**[Chart 25: Structured approach to capex spending]**

The sequence of measures shown in the previous slide is also reflected in our capex spending. This chart is divided into two sections. In the bottom half you can see technologies that can be purchased and installed relatively quickly. The top half shows technologies that will take more time to develop and that will first need to be piloted before being scaled up. When deciding on which measures to implement, we evaluate them in terms of CO<sub>2</sub> abatement costs and how the measures compare with one another.

During the period from 2021 to 2025, we will need less than 1 billion euros to develop the low-emission technologies and scale them up in pilot plants. This is included in our capex budget. As indicated, public funding has already been granted for some projects, for others a decision is expected shortly.

In the following 5-year period, from 2026 to 2030, capital expenditures will increase to around 2 billion to 3 billion euros. In this timeframe, we plan to bring our first new Carbon Management technologies to scale and shift up a gear in our efforts to switch to renewable power. Significantly higher investments are then to be expected for the construction of world-scale production plants using the new technologies, and to further scale up the use of renewable energy.

We gave you a rough first estimate of more than 10 billion euros for capex spending for the period beyond 2030. However, I would like to stress that this is only a very indicative figure because so many variables will play a role in deciding which technologies will be deployed and in what timeframe.



**[Chart 26: Agenda – 3. Profitable growth with net-zero and low-PCF products]**

Moving on to the third chapter of today's keynote, I would like to talk about how we see BASF deriving profitable growth from net-zero and low-PCF products.

Based on our technology portfolio to reduce our CO<sub>2</sub> emissions, BASF will be able to offer more and more net-zero and low-PCF products to our customers over time. As an integrated company with base chemical production, we are a key enabler in helping our customers to decarbonize their value chains. Let me give you some background on how we are doing this.

**[Chart 27: Consumers will drive demand for net-zero and low-PCF products]**

Ultimately, end consumers will drive the transformation towards net-zero and low-PCF consumer products. They are increasingly requesting alternatives to conventional consumer products and want to make a personal contribution to reducing emissions.

For a product like shampoo, for example, more than 90 percent of the PCF comes from the chemical raw materials used to make it. By using green power, low-carbon steam, bio-based feedstock and highly efficient processes at our sites, we are able to offer our customers net-zero and low-PCF chemicals.

**[Chart 28: We create transparency on the CO<sub>2</sub> emissions of our raw materials as an important step in reducing BASF's Scope 3 emissions]**

Product carbon footprints are an important tool for steering emissions in the value chain. The PCFs we calculate for our sales products include Scope 1 and 2 emissions and also the Scope 3 emissions of the raw materials we purchase and use to produce them. For most of

our sales products, Scope 3 emissions account for the largest share of the PCF. Today, we have to use industrial averages and values from commercial databases as the basis for calculating these upstream Scope 3 emissions.

We are taking a structured approach to change this to specific data that come directly from our suppliers. In 2021, we introduced a global Supplier CO<sub>2</sub> Management Program. The goal is to first create transparency, and then, over time, agree with our suppliers on reduction targets for upstream emissions. In a first step, we ask our suppliers to provide PCFs for the raw materials we purchase from them. Last year, we approached more than 700 key suppliers who account for about 50 percent of BASF's greenhouse gas emissions from the purchase of raw materials.

We support suppliers by sharing our knowledge of evaluation and calculation methods. In this way, we are contributing to the standardization of PCF calculations, which is a major challenge in our industry. In addition, we are supporting various initiatives such as "Together for Sustainability" to drive the development of workable standards. In a second step, we want to work with our suppliers on solutions to reduce product-related emissions and establish the PCF as a criterion for our purchasing decisions. We are encouraged to see that first suppliers have already given commitments to reduce emissions.

BASF fully acknowledges the importance of reducing upstream Scope 3 emissions. We are willing to commit to targets once the necessary level of standardization has been reached and our suppliers are able to provide reliable figures. Only then will it be possible to steer target achievement effectively. In our experience, the majority of our suppliers are still not in a position to provide robust data

and must invest in building up capabilities. With our Supplier CO<sub>2</sub> Management Program, we are taking steps to improve this situation.

**[Chart 29: More and more market leaders in important BASF customer industries are committing to reducing their Scope 3 emissions]**

From the discussions we have with our customers, we know that more and more market leaders in important BASF customer industries are committing to reducing their Scope 3 emissions.

Studies have shown that more than 70 percent of the top 20 companies in relevant customer industries had committed to CO<sub>2</sub> emission reduction targets by 2021; almost half had defined Scope 3 emission targets.

The first movers in terms of decarbonization are set to profit from a strong market pull for net-zero and low-PCF products. And our customers are looking to us for support.

**[Chart 30: We have built an industry-leading system enabling us to provide product carbon footprints calculated with a certified digital solution]**

To reach their emission goals, many of our customers are eager to reduce the carbon footprint of their products. To support them, a new level of transparency is required. We therefore use an in-house digital solution to calculate the product carbon footprints of our own products. In 2021, this was recognized by organizations such as the German chemical industry association (VCI) with the Responsible Care Award for digitalization. The methodology follows general standards for life cycle analysis such as ISO 14044 and ISO 14067, as well as the Greenhouse Gas Protocol Product Standard. Furthermore, it has been certified by TÜV Rheinland.

We use the method to calculate PCFs for around 45,000 of our sales products. With this transparency we can target our CO<sub>2</sub> reduction measures to those areas where our customers can later achieve the greatest value added from lower CO<sub>2</sub> emissions in the value chain. Keep in mind that our products are the Scope 3 emissions of our customers.

In 2021, we were able to offer the first products with a certified reduced carbon footprint via the use of renewable energy. We also started to make the automated PCF calculation approach available to interested industry players by way of partnerships. In a first step, IT companies will be able to use BASF's methodology and in-house solution through licensing agreements.

**[Chart 31: We help our customers to reduce their CO<sub>2</sub> footprints]**

Our businesses are using this competitive advantage and are now making the huge amount of data transparent and digestible for our customers. Here you see a tool that BASF's Intermediates division will be rolling out to selected customers in the second quarter of 2022.

Customers can see the emissions currently associated with the portfolio of products they purchase from BASF's Intermediates division. On average, industry Scope 3 reduction targets are somewhere between 20 and 30 percent. Where available, customers can select different versions of products from the dropdown menu. The tool shows what impact a switch to a net-zero, low-PCF, biomass-balanced or bio-based product would have on their Scope 3 emissions.

The tool provides a level of transparency to our customers that has not existed until now. For example, it could be that the largest volume product is not necessarily responsible for the largest amount of CO<sub>2</sub> emissions. Additionally, customers get an overview of what products

are available based on alternative feedstocks like biomass. In this way, we enable a structured discussion with our customers about reducing their Scope 3 emissions and increasing their share of alternative feedstocks.

**[Chart 32: BASF and Henkel join forces to substitute fossil feedstock in Henkel's Laundry & Home Care and Beauty Care products]**

A tangible customer example is from our Care Chemicals division, where BASF and Henkel are now joining forces to substitute fossil feedstock in Henkel's Laundry & Home Care and Beauty Care products. Major brand owner Henkel will soon offer consumer products with reduced emissions in multiple product lines and has chosen BASF as the partner that can help them achieve their ambitious sustainability goals.

Over the next four years, Henkel will substitute fossil with renewable carbon feedstock for most of its Laundry & Home Care and Beauty Care ingredients in Europe.

Last year, BASF already supported Henkel with a successful biomass balance pilot for its cleaning and detergent brand Love Nature. We are now going big with Henkel's core brands like Persil, Pril, Schauma and Fa.

Ultimately, around 110,000 tons of ingredients per year will be substituted with renewable carbon sources using BASF's biomass balance approach. The program will ramp up quickly and avoid around 200,000 tons of Henkel's Scope 3 CO<sub>2</sub> emissions over the period of four years.

**[Chart 33: BASF and Henkel are making a significant joint commitment for a sustainable future]**

I am very proud that Carsten Knobel, CEO of Henkel, honors the efforts that BASF is making in providing Henkel with low-PCF products. We are also proud to support such an innovative brand owner that is a first mover in offering end-consumers more sustainable solutions on such a large scale. The project underlines the commitment of both companies to creating a sustainable future!

**[Chart 34: What we need from German and EU politics to stay on track to net zero 2050]**

Ladies and Gentlemen,

In addition to our efforts to deploy new technologies and the positive signals from the market, we need a supportive and enabling regulatory framework if the transformation is to succeed. This is paramount to maintaining international competitiveness and a level playing field.

BASF will gradually build its own renewable energy capacity with a strong focus on offshore wind due to high potential full load hours and competitive production costs. For this strategy, we need a framework that allows own investments in renewable energy generation at economic conditions, but without government support for electricity production.

In terms of storage and grid expansion, we must start making progress, both in Germany and across Europe. We cannot afford not to exploit Europe's potential. In particular, this includes the need to expand cross-border networks so that electricity from high-yield locations can flow between countries. In the future, grid expansion must be derived from long-term climate targets instead of today's bottom-up approach. It is also important that we get the

“green attribute” of the electricity even if the renewable energy is not directly generated at our sites.

New technologies like the electrically heated cracker or electric steam generation also need funding to support the market ramp-up. This requires fast decision-making processes that are as unbureaucratic as possible. The draft Carbon Contracts for Difference must be introduced promptly to kick start the deployment of innovative technologies. However, long-term subsidies for such investments should not be provided.

CO<sub>2</sub>-free hydrogen is a critical raw material to make chemical products emission-free. We encourage policymakers to prioritize the use of green hydrogen as a raw material for industrial consumers rather than incentivizing the inefficient use of hydrogen for electricity generation or residential heating. Those sectors have a broad range of alternative technologies, and valuable hydrogen should not be wasted.

Carbon capture and storage is developing into an important pillar of European climate protection, for example at our Antwerp Verbund site. In this area, we want to see fair market principles that ensure open access infrastructure and competition between different transport and storage providers. We also encourage clear progress in the international framework for CO<sub>2</sub> transport, including the underlying bilateral agreements between the various EU member states involved.

Overall, we require technology openness and openness for all innovative approaches to accelerate and support the energy transformation.

**[Chart 35: We are ready for the next level in our transformation – sustainable growth with products with reduced carbon footprints]**

Ladies and Gentlemen, let me summarize: BASF is making significant progress on its path to achieving its emission reduction targets. And we are ready for the next level in our transformation – achieving sustainable growth through products with reduced carbon footprints.

We are convinced that the market for such products will grow strongly in the coming years. Few companies will be able to provide what we can. This is why we are preparing to offer net-zero products at scale, since we believe that this market will be short by 2030.

As I have shown you today, absolute CO<sub>2</sub> emissions at BASF's integrated sites can be reduced significantly with a limited number of measures. Moreover, the scale of our Verbund sites allows CO<sub>2</sub> reductions with lower specific capex. This will translate into higher numbers of affordable net-zero and low-PCF products to meet increasing customer demand.

As shown by the example with our customer Henkel, BASF aims to fulfil net-zero and low-PCF requirements for both selected products and customer product lines, thus supporting our customers' roadmaps towards net zero.

And with that, I would like to thank you for your attention.

Hans, Lars and Stefanie will now join me on stage. We are looking forward to your questions.