DREES & SOMMER GROUP

ANNUAL REPORT 2020

DREES & SOMMER

GROUP OPERATING RESULT 2020

PROFIT & LOSS STATEMENT

			(in euros)
1.	Revenues	485,394,084	
2.	Change in work in progress	26,084,016	
3.	Other operating income	5,713,136	517,191,236
4.	Expenditure for purchased services	64,276,703	
5.	Personnel expenses	306,846,208	
	a) Wages and salaries	268,398,526	
	b) Social security costs and pension fund	38,447,682	
6.	Depreciation	10,305,895	
7.	Other operating expenses	77,021,617	458,450,424
8.	Income from shareholdings	−929,754	
9.	Income from other securities and from long-term loans	695,872	
10.	Interest and other expenses	1,340,783	−1,574,665
11.	**Operating result**		**57,166,147**
12.	Taxes on income and earnings	19,747,328	
13.	Other taxes	799,249	20,546,577
14.	**Net income**		**36,619,570**
15.	Shares held by other shareholders		−132,800
16.	Profit brought forward less dividends		11,090,415
17.	Changes in equity as the result of purchase or sale of own shares		1,993,078
18.	**Group balance sheet profit**		**49,570,262**

BALANCE SHEET

ASSETS			(in euros)
A.	**Fixed assets**		
I.	Intangible assets	21,963,398	
	1. EDP software, licenses	8,091,787	
	2. Good will resulting from capital consolidation	13,871,611	
II.	Tangible assets	43,515,000	
	1. Land, rights equivalent to real property rights, and buildings	8,764,115	
	2. Other assets, operating equipment, fixtures and fittings	16,728,916	
	3. Payments on account and tangible assets under construction	18,021,969	
III.	Financial assets	1,705,305	
	1. Shareholdings	192,305	
	2. Other securities lending	1,512,999	
B.	**Current assets**		
I.	Inventories	0	
	1. Work in progress	700,392,463	
	./. Advances received	−700,392,463	
II.	Receivables and other assets	88,106,328	
	1. Trade receivables	66,680,158	
	2. Receivables from shareholdings	318,310	
	3. Other assets	21,107,860	
III.	Securities	11,029,022	
	1. Other securities	11,029,022	
IV.	Checks, cash on hand, cash in banks	104,410,579	
C.	**Deferred income (other)**	3,082,160	
D.	**Prepaid taxes**	7,745,000	
E.	**Positive difference from asset allocation**	0	
	Balance sheet total	**281,556,791**	

LIABILITIES			(in euros)
A.	**Equity**		
I.	Subscribed capital	13,222,286	
	less nominal value of treasury shares	0	
II.	Capital reserves	25,710,034	
III.	Revenue reserves	3,350,289	
IV.	Net income	49,570,262	
V.	Change in equity due to exchange rate difference	50,439	
VI.	Minority interests	1,556,308	
		93,459,618	
B.	**Accruals**		
	1. Accruals for pensions	3,325,326	
	2. Provisions for taxation	17,910,632	
	3. Other accruals	71,642,458	
		92,878,416	
C.	**Liabilities**		
	1. Bonds	5,171,772	
	2. Liabilities to financial institutions	6,000,000	
	3. Payments received on account of orders	55,272,262	
	4. Trade payables	8,170,216	
	5. Liabilities to shareholdings	3,675	
	6. Other liabilities	20,443,723	
		95,061,647	
D.	**Deferred income (other)**		
		157,110	
	Balance sheet total	**281,556,791**	

PROFIT & LOSS STATEMENT

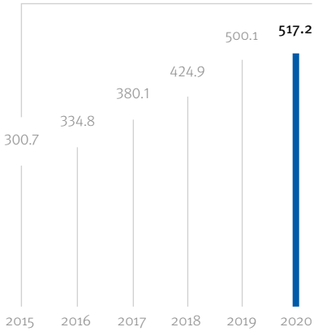
Group sales grew by 17.1 million euros to 517.2 million euros (prior year 500.1 million euros). At 458.5 million euros, expenditure is up 16.2 million euros on the prior year figure of 442.3 million euros. The operating result increased by 0.5 million euros to 57.2 million euros in the period under report. Net income for the year is 36.6 million euros.

BALANCE SHEET

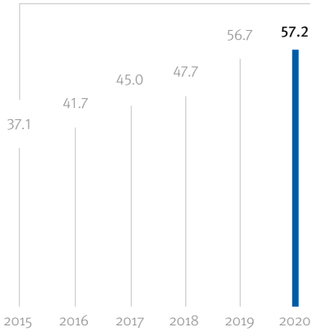
The transfer of the balance sheet profit of 49.6 million euros – together with subscribed capital, capital reserves and revenue reserves – results in equity of 93.5 million euros. Our equity ratio is 33.2 %. Accruals for pensions, taxes and variable remuneration rose by 10.1 million euros to 92.9 million euros. Liabilities such as for trade payables to suppliers and subcontractors and for taxes increased to 28.6 million euros, up 9.7 million euros on prior year. Liabilities to banks increased to 6.0 million euros due to the partial financing of the new office building in Stuttgart. In 2020, the company issued profit participation rights to employees. These are shown as loans totaling 5.2 million euros.

This results in a balance sheet total of 281.6 million euros for fiscal 2020 (prior year 199.7 million euros).

SALES IN MILLION EUROS



OPERATING RESULT IN MILLION EUROS



517.2
MILLION EUROS
SALES

57.2
MILLION EUROS
OPERATING RESULT

33.2 %
EQUITY RATIO

MORE THAN
4,000
EMPLOYEES

46
INTERNATIONAL LOCATIONS

GROUP OPERATING RESULT 2020

517.2
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The centerpiece of Outletcity Metzingen – currently the top German and fifth-best European outlet.

REPORT OF THE EXECUTIVE BOARD

2020 demanded a great deal from us – in both our business and our personal lives. While the huge impact of the pandemic has brought many sectors and companies to their knees, the construction and real estate industry – Drees & Sommer included – has fared comparatively well. We managed to increase our sales by 3.4 percent year on year to EUR 517.2 million, while our operating result was around the same as the previous year, at EUR 57.2 million.

With the onset of the Covid-19 crisis the needs and priorities of our clients changed (in some cases overnight). It made clear the importance of developing solutions rapidly and not giving up in the face of setbacks. With our innovative and dedicated teams, we focus on our clients and new market demand. The kind of change we at Drees & Sommer are progressing was enshrined in our Vision 2025 from an early stage:

Sustainable, digital, innovative and economic – these four aspects are combined in all of our urban, neighborhood, infrastructure, mobility and real estate projects. At the heart of everything is always the question: In what ways do we have to advance as a company to remain successful and make a positive contribution to shaping the future of our sector, our society and our planet?

Steffen Szeidl, Executive Board member and Partner at Drees & Sommer

Ecological and social projects for a livable future

Our employees demonstrated this commitment in a special way in 2020. The dominant theme during the company's 50th anniversary year was social responsibility, so we marked it by initiating 50 ecological and social projects. Urban gardening in a school in Shanghai, a green summer terrace for a café for homeless people in Vienna, and bee colonies established on the Drees & Sommer campus in Stuttgart are just three pieces in the mosaic of a livable future, in which social responsibility, intergenerational equity and sustainability are key elements (see page 74). We have also reduced and compensated for our CO_2 emissions to such an extent that we have been climate positive since last year and are on the right path for decarbonization. These are all steps on the road to becoming a beneficial company, which acts as a role model and gives back, not only to the environment but also to society, more than it consumes.

Special responsibility for imminent transformation

This aspiration is underpinned by a landmark decision of the European Union: the EU Commission's Green Deal has sparked a mood of enthusiasm for making all sectors – and thus the entire continent – climate-neutral by 2050. Strict Environmental, Social and Governance (ESG) criteria will ensure sustainable real estate investments. The New European Bauhaus cultural initiative will increase acceptance across society. We in the construction and real estate sector have a particular responsibility, as we account for a large proportion of resource consumption and around 40 percent of greenhouse gases in the European Union.

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“We think beyond buildings – into the challenges and core processes of our customers. With sustainable and digital solutions, we provide answers to their long-term requirements.”

Dierk Mutschler, Executive Board member
and Partner at Drees & Sommer

In the past, the focus was on energy supply and efficiency, especially for existing buildings – but to meet Environmental, Social and Governance criteria our actions must go far beyond this! A circular economy, biodiversity, resilience, health and fairness are equally part of the future we want to create for our children and grandchildren.

Innovations of tomorrow already in use today

Drees & Sommer is already working on many flagship projects. One of these is our new building at Obere Waldplätze 12 (OWP12) in Stuttgart. As a plus-energy building, it is designed to generate more energy than it consumes when in operation. This will be achieved in part by a highly insulated façade construction, photovoltaic systems on the roof and on the southern façade, geothermal energy via geothermal boreholes, and a green northern façade. To minimize the resources consumed and the waste produced, in many areas we are also applying the Cradle to Cradle® design principle with EPEA – Part of Drees & Sommer. Linked to databases, the building is given a ‘material passport’, which contains all information on the products and materials used. In this way, when the building is altered or demolished, it is possible to plan precisely how valuable resources can be used again or returned to the biological or technical cycle.

As an internal project, this construction project offers us the unique opportunity to try out cutting-edge building industry technologies and gain important knowledge for client projects. We are supported by the valuable expertise of a number of collaborating partners. With one of them, Würth, we have succeeded in devising an innovative module for technical building services. This offers considerable time and cost benefits in the design, production and assembly phases. OWP12 was also the first project in which the modular unitized façade of FKN Group was used. The space-saving and recyclable building shell reduces the energy consumed to a minimum, while meeting the most stringent sound insulation requirements.

Leading ahead with our strong partners

In addition to progressing our own digital and sustainable solutions, it is equally important to forge strong alliances outside the group. We have joined forces with the well-established Dutch consulting and project management firm BOAG to strengthen our international services, especially in the education, healthcare and retail sectors and in residential construction. We have also extended our lead as a pioneer in digital processes and services in the construction and real estate sector by two further equity investments: In conjunction with Proptech Architrave, based in Berlin, we want to develop a digital platform for the entire industry; and with Digitales Bauen, a modularization specialist based in the city of Karlsruhe, we will be able to modularize even the most challenging of architectural designs in the future – with the aim of reducing complexity.

However, it is important also to think beyond the building itself and develop an understanding of our clients’ core processes and the issues that bother them. Our response is to maintain a clear industry focus, and provide expertise in consulting and implementation. For instance, during the past year we have been dealing with hydrogen, energy and electromobility – helping us to develop new solutions for the market.

At Drees & Sommer, we are building the future. This is where our strategic direction is taking us. We are only able to succeed in this with the support of our committed employees. We never take for granted their enthusiastic and complete dedication to their work, or their team spirit, for which we are very grateful.

Stuttgart, May 19, 2021

Steffen Szeidl

Dierk Mutschler

REPORT OF THE SUPERVISORY BOARD

Despite all the difficulties of the 2020 fiscal year, Drees & Sommer was able to provide its clients with the agreed services and achieve mutual success.

The Supervisory Board performed the duties required of it by law, the articles of association and the rules of procedure in 2020 as in other years. In the meetings on March 16, May 14, October and December 8, 2020, we discussed the Executive Board's reports and the company's performance along with strategic matters against the background of the general economic situation. Aside from Supervisory Board meetings, the Chairperson of the Supervisory Board had discussions with the Executive Board every three weeks along with some special meetings. With rigorous cost management and by switching to electronic interfaces wherever possible, we were largely able to maintain the effectiveness of processes. Despite project stoppages and cancellations, sales increased by EUR 17.1 million to EUR 517.2 million, while earnings grew slightly to EUR 57.2 million. Reserves were also built up owing to the critical situation caused by the pandemic and for the future development of the company.

Annual Financial Statements and Consolidated Financial Statements for 2020

The Executive Board prepared the annual financial statements and the consolidated financial statements of Drees & Sommer SE in accordance with the German Commercial Code (Handelsgesetzbuch – HGB).

The annual financial statements and consolidated financial statements for 2020, along with the management reports, were audited by Baker Tilly, the company appointed by the general meeting of shareholders. Baker Tilly conducted the audit in compliance with Section 316ff of the German Commercial Code and the German standards for the audit of financial statements laid down by the German Institute of Auditors (Institut der Wirtschaftsprüfer – IDW). The auditors gave their unqualified approval to the annual financial statements and the consolidated financial statements.

The Supervisory Board of Drees & Sommer:
Chairperson Professor Dr. Hans Sommer (photo),
Deputy Chairperson Dr. Johannes Fritz, Eva Dietl-Lenzner,
Ulrich Dietz, Dr. Bernd Gaiser and Volker Mack

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"If we all pull together, we can overcome even the biggest challenges."

Professor Dr. Hans Sommer,
Partner and Chairperson of the Supervisory Board

The annual financial statements and the management report, the consolidated financial statements and group management report, the audit reports and the Executive Board's proposal for the appropriation of net retained profits of Drees & Sommer SE were submitted to all members of the Supervisory Board in good time.

We reviewed these documents and discussed them in our meeting on May 19, 2021 in the resence of the auditor, following which we approved the auditor's reports. We also approved the annual financial statements and consolidated financial statements and the management reports prepared by the Executive Board in our meeting on May 19, 2021.

We discussed and approved the proposal of the Executive Board to distribute a dividend of €2.24 per share from the net retained profit of Drees & Sommer SE of €56.9 million and to carry forward the remaining amount to new account. This resolution will be proposed at the general meeting of shareholders. In doing so, we have taken into account the financial and earnings position of the company, the medium-term financial and investment plan, and the interests of the shareholders.

Izabela Danner was appointed to the Executive Board with effect from September 1, 2020. There were no changes in the Supervisory Board in the 2020 fiscal year.

Outlook for the coming Fiscal Year

In consultation with the senior management, and with the approval of the Supervisory Board, the Executive Board has taken financial and staffing measures in addition to continuing the weekly reporting from 2020, in order to deal with the impact of the pandemic internally and without having to lay off any staff.

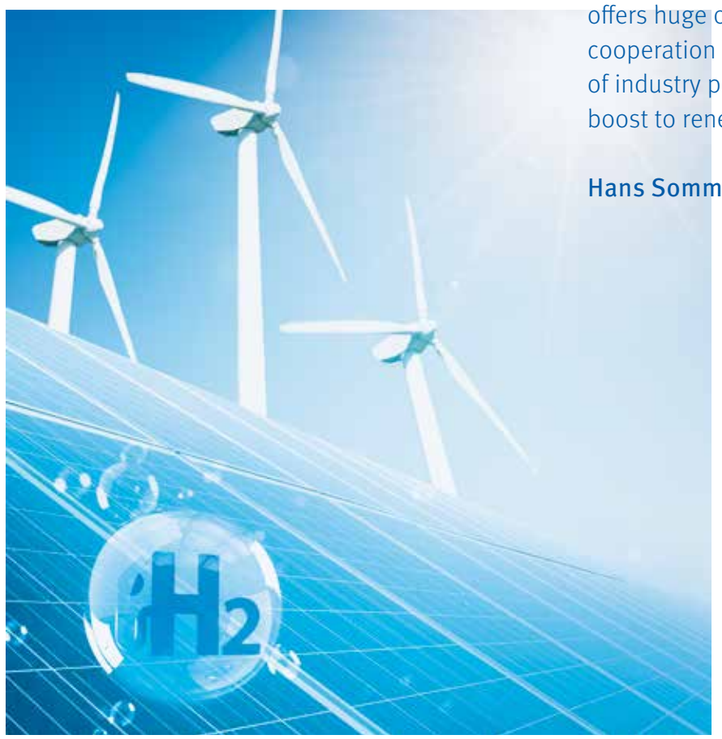
Stuttgart, May 19, 2021

Hans Sommer

BLUE PLANET WITH A FUTURE. DISRUPTION OF THE FOSSIL FUEL SYSTEM

The large quantities of carbon emissions from fossil fuel combustion are causing environmental pollution on a global scale and must stop as soon as possible. However, the alternative offers huge opportunities: global cooperation between a large number of industry players to give a massive boost to renewable energies.

Hans Sommer



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The negative consequences of a business as usual approach to greenhouse gas emissions are known – the main one being catastrophic global warming. We must not let our descendants face the impacts of our failures.

We can still avert the worst effects, but we will not succeed in doing so merely through regulations and bans, or even through targeted assistance. Instead, the world's energy needs should be met from now on by massive annual increases in the supply of renewable energy from sources such as wind and solar, and related secondary energy sources like hydrogen. Global thinking and action is essential to enable this step to be taken. It is crucial to involve as many market participants as possible – including those that have up to now been engaged in extracting or supplying fossil fuels.

In addition to CO_2, a lot of capital is also circling the globe, urgently seeking investments. It should be possible to convince as many companies as possible from the energy sector – and also new players – that they can open up a new business field with a great deal of pioneering spirit and thus contribute to the energy supply of the 21st century. Extensive collaboration and the rapid expansion of renewable energies should be supported by a swift and significant increase in carbon emissions prices. This and complete openness to all technologies will do far more to support the transformation process than the imposition of different limits. The availability of a wide range of renewable energies will quickly make it uneconomic to use energy from fossil fuels.

If we take this approach to saving planet Earth, the global economy will see a huge upturn. Geographers and engineers will explore and develop suitable locations for renewable energies, including many in developing countries. The upturn will be driven by a number of sectors: the solar and wind energy sector; the chemical industry, with production plants for hydrogen and methane gas or e-fuels; and electricity suppliers, with large-scale projects to lay new transmission lines and new infrastructure for the electrification boom. And we could hand over to our descendants in 2050 a blue planet with a globally prosperous economy operating on green energy.

So, taking "*the blue way*" as our approach, let us make the Earth our planet of the future, instead of looking for it somewhere in outer space!

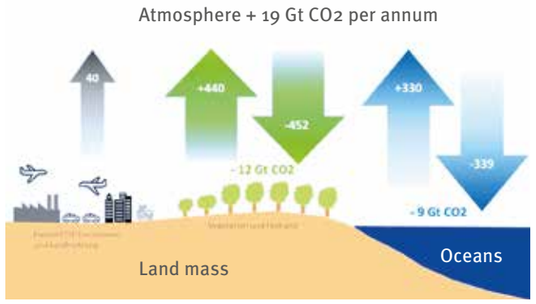
How is carbon dioxide formed, and why has it become a problem?

Carbon dioxide (CO_2) is a natural by-product of cellular respiration by plants. It is released by the decomposition of dead organisms, or from natural sources such as volcanic gases. Without carbon dioxide, there would be no plant growth: plants absorb CO_2 and use it to produce oxygen by photosynthesis. CO_2 is thus not only a natural component of the atmosphere – it is also important for life on Earth.

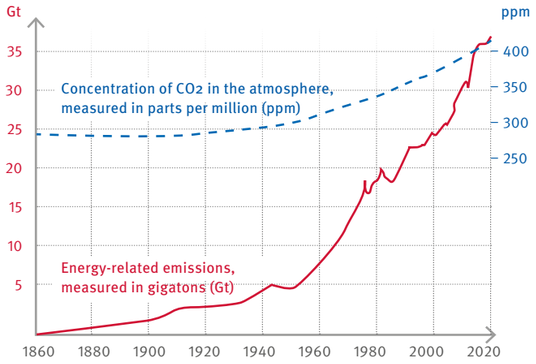
With the Industrial Revolution, around 250 years ago, another emitter of carbon dioxide emerged: humankind. Prior to this, the CO_2 content of the atmosphere had been relatively stable for thousands of years. However, natural CO_2 is not static. It is released by some continual processes and absorbed by others. As the graph of the global carbon cycle shows, carbon from the land and the oceans is roughly in balance – and has been for a long time. In the carbon cycle, carbon is exchanged between carbon sinks and carbon sources. In this way, over the course of the Earth's history a relatively stable dynamic equilibrium became established – until humans intervened.

////// We are disrupting the carbon cycle's balance to an extent no longer tolerable.

Since industrialization began, CO_2 has been released in ever larger quantities through the combustion of fossil fuels. We use these, for instance, for energy production, industry, transport, and air conditioning in buildings.



Schematic illustration of the global CO_2 cycle consisting of emission and reduction processes (per annum).



Trend in CO_2 emissions (after Professor Quaschning)

The current 40 gigatons of carbon dioxide may seem small in comparison to the total amount that flows through the carbon cycle in the course of a year. However, the amount is growing because the land and the oceans cannot absorb the additional carbon. CO_2 is a long-lived greenhouse gas – once it is released into the atmosphere, it does not disappear easily. The graph shows the trend in annual CO_2 emissions and their concentration in the atmosphere since 1860.

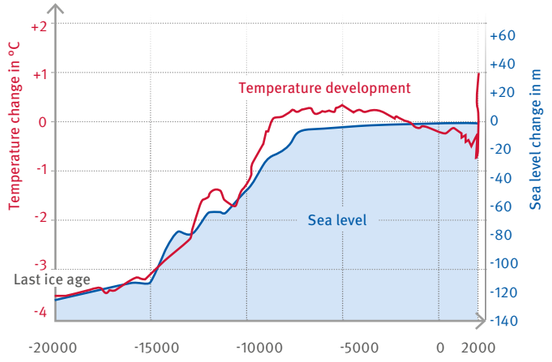
Emissions caused by humans have led to an increase of more than 40 percent in the concentration of CO_2 in the atmosphere today compared with before industrialization began (around 1750). This concentration is leading to continuous global warming. This is basically gaseous waste, which has to be reduced as quickly as possible, and completely avoided in the future.

It is also a fact that three so-called climate toggle switches are already flipped: The destruction of many coral reefs, the collapse of the West Antarctic ice sheet and the melting of the of the Arctic sea ice. Even the major CO_2 sinks such as the oceans, the Amazon rainforests, and the Nordic coniferous forests are in danger of absorbing less and less CO_2.

The individual developments influence each other. The greatest influence on slowing down the negative development will be the consistent acceleration of decarbonization.

The consequences of the increase in carbon dioxide

Climate change is having an impact on all regions of the world. The polar ice caps are melting and the sea level is rising. Some regions are experiencing extreme weather events and higher rainfall with increasingly frequency, while in other areas heatwaves and droughts are occurring more often.



Sea level in relationship to global warming

Between the last ice age and 1750 (start of measurement period), average temperatures globally rose by just 3.5 degrees Celsius, but sea level rose by 140 meters. This spells out the dangers of the current climate change and brings home the fact that one degree of global warming is a very serious matter. It is also worrying that since the year 2000 – a period hardly visible on the scale – there has been a rapid increase of more than one degree Celsius, the impact of which has really not yet been noticed in the sea level.

////// Our global air conditioning system is breaking down!

In addition to the rise in sea level, which will be more noticeable in the long term, there are other changes. It is already apparent that the Gulf Stream no longer functions correctly. This ocean current is extremely important for the climate of western Europe; it is the continent's heating system. Another weather phenomenon, which occurs in the Pacific, is El Niño. This causes unpredictable ocean currents which could become much more frequent in the future through climate change. Flooding, tornadoes, droughts, aridity, wildfires and landslides – the consequences of El Niño are often destructive and devastating. The consequences for the climate could be dramatic, as a pronounced weakening of the Gulf Stream could lead to a stronger El Niño in the Pacific.

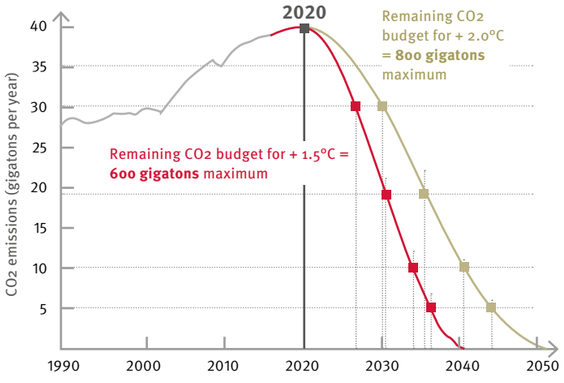
Generally speaking, heavy rains and other extreme weather events such as storms and cold snaps will become increasingly common. Southern and central Europe will also be hit more frequently by heatwaves, wildfires and drought. Aridity is affecting an increasing area of the Mediterranean region, while in northern Europe the climate is becoming wetter, and winter floods may become the norm there. Some urban areas are already affected by heatwaves, flooding or an increase in sea level. They often find it very difficult to adapt to climate change. Some of the most severe impacts are being felt by agriculture and forestry, for which specific temperature and precipitation levels are especially important. Also, climate change is taking place so rapidly that many plant and animal species are having difficulty adapting.

The Paris Agreement of 2015

The developments and issues described have been known for a long time and in December 2015 they resulted in the Paris Agreement. This sets out a global framework for fighting climate change: global warming must be kept well below 2° C, and measures must be pursued to limit it to 1.5° C. Unfortunately, the efforts made in the past five years have not been sufficient, so we have already reached a point where, even if the Agreement is adhered to in the future, global warming of 1.5° C would be significantly exceeded by 2050.

The fact is that if global warming is to be curbed, we must only emit a certain additional amount of CO_2 into the atmosphere. However, it is not possible to put a precise figure on this allowable amount. As we are already at a level of global warming above 1°C, the remaining margin is somewhere between 0.5° and 1°C. Also, there are other greenhouse gases and some uncertainties exist regarding the reaction of the climate system.

It is therefore not surprising that the carbon budget compatible with the Paris Agreement is set at between 150 and 1,050 gigatons (Gt) of CO_2. To validate this figure, we will assume in the following example that, to limit global warming to 1.5°C, the global community still has a carbon credit of 600 Gt, while to meet the limit of 2°C it has 800 Gt. If, to achieve the 1.5°C limit, we began to reduce CO_2 emissions radically now, the annual emissions would have to be reduced to a maximum of 30 Gt per annum as early as 2027 and to 20 Gt per annum by 2030. In 2034 emissions would have to be at a maximum 10 Gt per annum, and zero emissions would have to be achieved by 2040.

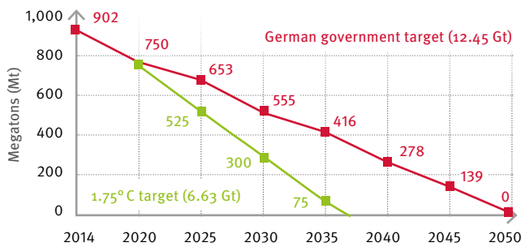


Annual CO_2 budget and necessary decarbonization (after Prof. Quaschning)

It would only be possible to postpone this target further into the future if we began at the same time to remove large quantities of CO_2 from the atmosphere – by offsetting with negative emissions. Unfortunately, the more likely scenario is that we will have to accept global warming of roughly 2° C – leaving a remaining maximum budget of 800 Gt of CO_2, which would give more time for decarbonization. One way or the other, urgent global action is needed.

What the Paris Agreement Means for Germany

According to studies by the climate researcher Stefan Rahmstorf, in 2016 the national carbon emissions budget of Germany – which, as an industrial country, produces higher emissions than the global average – was 9.7 gigatons. By the beginning of 2019, as much as 2.4 gigatons of this had been used up, leaving a remainder of 7.3 gigatons; at the beginning of 2020, the remaining carbon budget was around 6.6 gigatons.

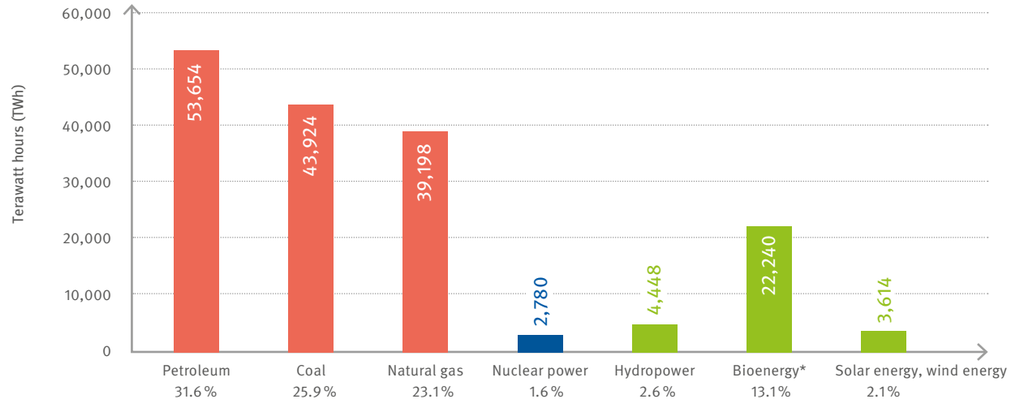


Climate targets for Germany – reduction of CO_2 equivalent

To meet at least the 1.75°C global warming target under the Paris Agreement, there would have to be a linear reduction of six percent every year in Germany's emissions – approximately 6.6 gigatons in total. This would mean zero emissions would be achieved by around 2037. However, the federal government's current road map aims for zero emissions by 2050, with an annual linear reduction of roughly 2.6 to 3.7 percent. This would mean remaining emissions of around 12.5 gigatons.

On April 24, 2021, the Federal Constitutional Court has ruled that the regulations of the Climate Protection Act of December 12, 2019 on national climate protection targets and the annual emission volumes permitted until 2030, which have been in place since then, are incompatible with fundamental rights. An unlimited progress of global warming and climate change would therefore not be in accordance with the Basic Law!

The analysis: fossil fuels are currently the dominant source of primary energy globally

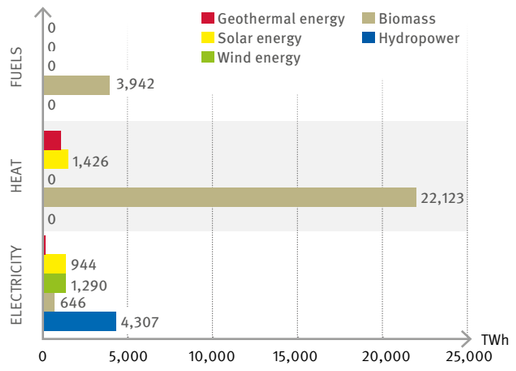


Global primary energy consumption (2019) by source approximately 170 terawatt hours (TWh)

Fossil fuels accounted for around 137,000 TWh, or more than 80 percent, of global energy consumption in 2019. The share of nuclear power is currently in the region of 1.6 percent and will be at most doubled, including all nuclear power plants under construction or planned.

Renewable energies account for altogether 17.4 percent, of which bioenergy, which is used for heat production, contributes the largest share globally. The potential for growth here is also limited, if a further reduction in land carbon sinks – forested areas – is to be avoided. The same applies to hydropower. Further expansion here also has to be limited to avert further damage to the environment. The fact is that only solar and wind energy are left to replace fossil fuels, and they currently only account for 2.1 percent.

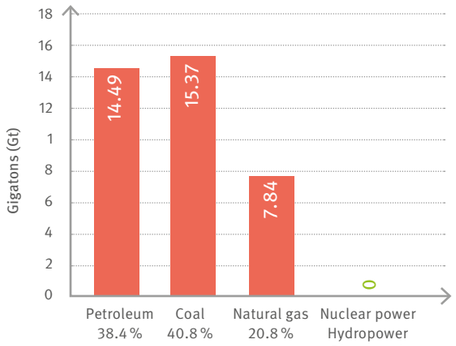
However, this would mean that the energy currently being produced by wind and solar plants would have to be increased 40-fold to replace fully the terawatt hours of energy currently produced in one year from fossil fuels. But even this would not be sufficient by a long way, as only an electricity equivalent would be generated in this way. However, a significant share of primary energy is not used for electricity production. For instance, petroleum products are mainly used as a fuel for vehicles and for heat generation. As these applications can only gradually be replaced by electricity – or in some cases not at all – energy is lost in the transformation process, as in the case of hydrogen production through electrolysis, for which in turn additional energy has to be generated.



Global share of renewable energies by sector

“the blue way” – the way out of the crisis

The CO2 Emissions of Fossil Fuels
As different fossil fuels emit different amounts of carbon dioxide, the emissions weightings differ from the distribution for primary energy. The highest level of pollution comes from coal combustion, followed by petroleum. The emissions from natural gas are significantly lower.



Global CO_2 emissions from fossil fuels: approximately 37.7 gigatons (Gt)

From this analysis it can be concluded that coal has to be replaced most urgently, followed by petroleum products. Natural gas will have to be used as a substitute for a transition period and should therefore be last to be replaced by renewable energies. The main substitute for fossil fuels as a primary energy source will be wind and solar energy, which currently account for barely three percent of renewable sources.

As it may be impossible, in today’s world, to completely replace such large quantities of fossil fuels with renewable energies in the time remaining, there must simultaneously be a massive reduction in global primary energy consumption. It is therefore of great importance to begin by doing everything possible to reduce energy consumption.

Because every kilowatt hour that will not be consumed in the future will no longer have to be produced in the first place. And the more that is saved, the more likely the planned energy turnaround will be successful.

The current problems are clearly caused by human beings, and multiplied by industrialization. A simple and effective step would be to cease or significantly limit many activities that cause an increase in CO_2. Unfortunately, the majority will not act responsibly, although they are aware of the problem.

////// *Cutting down and cutting out are not exactly in homo sapiens’ DNA.*

Based on this knowledge, since the 1980s we at Drees & Sommer have been pursuing “*the blue way*” strategy. It is only when ecology and economy are in balance that sustainable action can be implemented and become a (new) normality. This means climate effectiveness not by means of radical austerity, but by intelligent technological solutions that enable human beings to deal with energy in a sustainable and viable way without causing damage. Of course, part of the solution is also to protect nature, particularly the oceans and the rainforests, rigorously and using all available means. However, this is far from enough, and unfortunately it is difficult politically – although thankfully under President Biden the United States is back on the path to decarbonization.

For this reason, the global community must move swiftly and boldly to usher in an industrial age in which energy is not obtained from fossil fuels. There is no other way to get to grips with decarbonization within the required time frame than by increasing many times over the number of solar and wind energy plants in all suitable locations around the world.

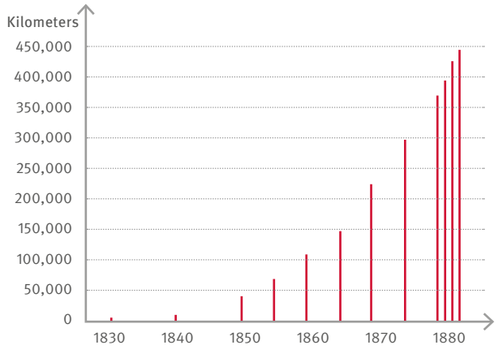
////// *Sun, wind and hydrogen will cause a boom in the global economy – and create the basis for a livable future on earth.*

Generating and trading in these new energies will replace fossil fuel energy rapidly and on a massive scale – if we want it to. This step will be worthwhile. Powerful global players, major investors and industries in all countries can invest in this future with strong prospects for good business in the medium term, while ‘saving the world’ at the same time.

We need pioneers with large amounts of capital – like those in the days of the railroad construction in the 1870s and 1880s, who did not allow any obstacles to get in their way and were convinced their actions would end in success.

One of these was Cornelius Vanderbilt, who opened up the American West with the Hudson River Railroad and the New York Central Railroad and ultimately made USD 150 billion in today‘s money. However, he took risks and recognized that the development of the railroads had to be done on a large scale.

Railroad construction in North America
© Oakland Museum of California



Growth of the railroads, in kilometers

The situation we are in today is similar, with the global potential to implement new technology on a large scale. Because generation of green electricity is only possible intermittently (when the sun is shining or the wind is blowing), it has to incorporate thermal and chemical energy storage. For logical reasons, the best locations for electricity generation will be those places where there is sufficient wind, or strong solar radiation and a large number of sunny days.

However, it also has to be possible to transport the electricity and the chemical storage products to consumers. This requires high-voltage direct current (HVDC) lines including, over long distances, high-voltage direct current (HVDC) transmission lines, the longest of which is currently around 1,700 kilometers long. Alongside this, land and water transport routes are necessary. Finally, to distribute the electricity it will be necessary to expand the infrastructure in the countryside and in metropolitan areas.

A large-scale cooperative project will be needed to achieve this, with the new economy, the big petrochemical companies, investors and the manufacturing industry joining forces. They will evaluate suitable locations around the world and advance the generation of green electricity and green hydrogen on a scarcely conceivable scale.

A significant increase in carbon prices will help to get the project up and running quickly. The net-zero scenario, for instance, is based on a considerably higher carbon price, rising to USD 250 per ton of CO_2 in developed countries and USD 175 per ton in developing countries by 2050.

////// *Added together, a huge number of individual projects will become the biggest global project in the history of humankind.*

Based on this kind of pricing, a target could be set – for instance, to replace 80 percent of the current contributions of coal and petroleum products (including transformation losses of around 100,000 terawatt-hours per annum) in the next 15 years with direct electrification, and to establish a hydrogen economy. That would amount to roughly 6,720 TWh per annum on average. Assuming that solar and wind energy would each generate 50 percent of this, this would mean 3,360 TWh per annum each – necessitating an addition of roughly 1,400 gigawatts of power for both sources, every year.

That may seem utopian, and it would require a lead time and construction period of around three to five years, especially at the start. However, it would definitely be possible, with the same pioneering spirit as mentioned above and the incentive of carbon pricing, as in the net-zero scenario. Then, by 2040 coal and petroleum would largely be replaced and natural gas consumption could be reduced. But where could plants of this kind reasonably be developed on a large scale? A number of organizations, institutes and universities have already given some thought to this.

Solar Power Plants and Photovoltaics

Since 2010 Solargis, a Slovakian company, has been developing and operating an international platform for fast access to data for almost every location on Earth. The database is used to optimize the construction, evaluation and management of solar power plants worldwide. ESMAP is a partnership between the World Bank and 19 partners, which helps low and middle income countries to promote growth through sustainable energy solutions. The aim is to achieve universal access to assistance for decarbonization in the energy sector by 2030 – within the framework of international commitments with regard to climate change.

A search tool at https://globalsolaratlas.info provides information on the solar energy potential of different types of solar installations for sites anywhere in the world. The results show the yield per megawatt (MW) in gigawatt-hours (GWh). For instance, the following values per megawatt-peak (MWp) are given for large photovoltaic power plants:

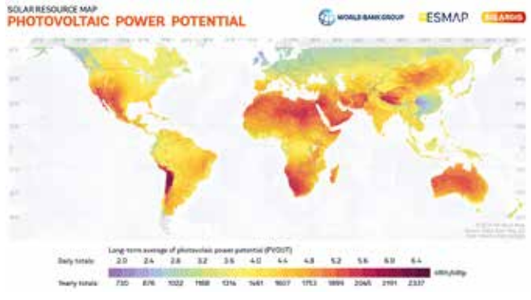
– 1,013 GWh for Templin in the German federal state of Brandenburg, at an average of 5 hours of sunshine per day = 5,060 GWh per day
– 1,713 GWh for Rabat in Morocco, at an average of 9.5 hours of sunshine per day = 16,273 GWh per day
– 1,941 GWh for Hagl on the Red Sea in Saudi Arabia, at an average of 10.2 hours of sunshine per day = 19,800 GWh per day

Looking at these figures it is clear that at a similar cost in terms of technology, the output that can be achieved in the right places in the world is more than four times that at our latitude.

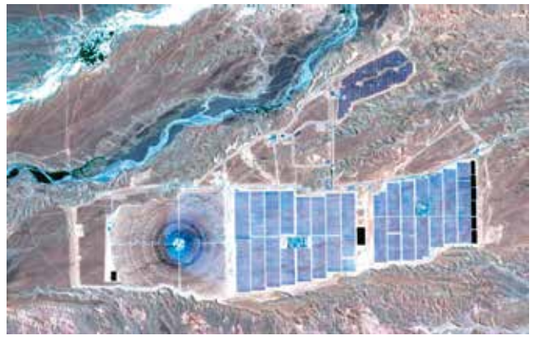
Perhaps the most interesting are solar thermal power plants, for instance with relatively inexpensive parabolic troughs. Plants of this kind are already in operation in Spain, Saudi Arabia and the United States. The advantage of these is that they can be combined with a heat storage medium (for instance, molten salt), which enables them to deliver electricity up to ten hours after sunset. Large solar plant modules are currently in the order of 150 to 200 megawatts, but they are combined into even larger plants. For instance, Noor solar power plant in Quarzazate, Morocco, has an output of 580 MW (0.58 GW) in an area of 18.3 square kilometers. It also has a salt storage capacity of up to seven hours.

As mentioned above, an annual contribution of 1,400 gigawatts would be needed from solar power to decarbonize coal and petroleum-fired power stations within 15 years (after start-up). To generate this would require around 2,400 plants similar to Quarzazate on an area of 45,000 square kilometers. This could be split between solar heat and photovoltaics – for instance 400,000 megawatts from solar thermal power plants and 1,000,000 megawatts from photovoltaic power plants. Overall, this would require an investment of roughly EUR 2.9 trillion per year. That figure is around 3.4 percent of global gross domestic product.

But is it even possible to calculate in this way? There would be a lot to gain, and countless new jobs would be created. Poorer countries with a lot of sun or wind could benefit. Therefore, the question should instead be as follows: Could industry deliver, with the appropriate lead time? As mentioned earlier, this would be the biggest project in the history of humankind.



Map with global solar potentials from Solargis
Source: www.globalsolaratlas.info



Thermodynamic Solar Power Plant Noor, Ouarzazate, Morocco

Worldwide areas with particularly high wind
Source: Cristina Archer/Mark Jacobson of Stanford University 2005,
see https://web.stanford.edu/group/efmh/winds/global_winds.html for details)

Wind Power Plants

According to a 2005 study conducted at Stanford University, the world's energy demand could theoretically be fully met by wind power. The researchers calculated wind speeds at 80 meters – the hub height of then state-of-the-art 1.5-megawatt wind turbines. They used their data to develop a global wind map to help in the selection of locations for wind power plants. The wind speeds specified were very conventional, as the hub height of state-of-the-art plants now is between 140 and 160 meters and their output ranges from 8 to 12 megawatts offshore and 4 to 5 megawatts onshore.

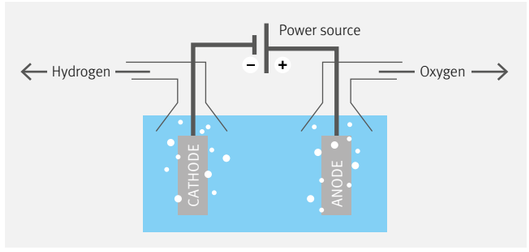
In North America there are several regions suitable for cost-effective wind power generation, likewise in Central America. In South America, the areas of strongest wind are in Chile and Tierra del Fuego. One of the stormiest regions in the world is the North Sea. In Africa there are fewer places with high wind capacity, but the best are in Western Sahara and Morocco. In the southern hemisphere, there are individual sites in South Africa and Mozambique, and in the Indian Ocean on the island of La Réunion. In Asia, the greatest potential is in Japan and China. Australia has four large windy regions on the northern and southern coasts of Western Australia, in addition to Queensland, South Australia, Victoria and Tasmania. It is important always to assess whether a wind power plant would be compatible with nature and civilization at any particular site.

An addition of 1,440 gigawatts every year would mean, for example, 200,000 five-megawatt onshore wind power plants and 40,000 ten-megawatt offshore wind power plants – an overall investment of around EUR 1.1 billion per year. Wind energy is thus relatively cost-effective as an investment, but lacks the storage capacity of solar thermal power plants, and maintenance is more costly than with photovoltaic power plants.

Windparks
offshore
and onshore

Hydrogen Production

As a universal storage medium, green hydrogen is an indispensable adjunct to solar and wind power generation. During electrolysis, electricity is used to split water (H_2O) into hydrogen (H_2) and oxygen (O_2) in an electrochemical process.



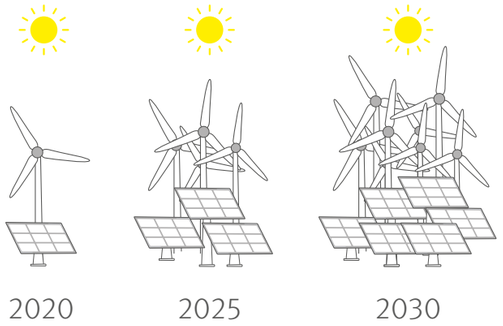
Construction of a water electrolysis

Therefore, the production of hydrogen requires electricity – preferably generated at low cost in regions where more electricity is produced than consumed. Ideally, to avoid the use of drinking water for electrolysis, sea water should be used. This is desalinated beforehand. Additional electricity is needed for this process, but the amount used is acceptable in comparison to the electricity required for electrolysis.

Electrolysis is more than 80 percent efficient under continuous operation. Intermittent operation – for instance to process surplus electricity produced from wind – is possible and also useful, but efficiency declines with the number of hours of operation.

Therefore, from an economic point of view, it makes sense to produce the hydrogen primarily by using electricity from large solar plants in regions with high solar potential and access to seawater. For our region, this means North Africa, the Arabian Peninsula or Iran. In addition to the necessary conditions for production, this would require a transport structure for hydrogen or hydrogen-based products, which would have to be constructed if it is not already in place.

Decarbonization in the individual sectors



Growth in renewable energies

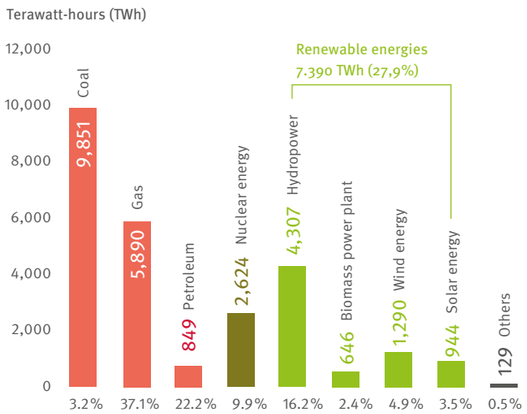
Decarbonization will undoubtedly be based on a rapid increase in renewable energy from wind and solar sources. Ultimately it is a matter of common sense to take all possible steps to achieve the climate targets mentioned above. The possibilities differ from sector to sector. Climate targets cannot be achieved in a national context alone – international, even global, cooperation is needed. Also, short-term – and short-sighted – profit-based thinking cannot take priority, at least for a transition period. After all, this is about taking an intelligent approach to creating the basis for a livable future environment for our children and grandchildren.

Energy that is not consumed will not create any more CO_2. This means the carbon footprint of as many sectors as possible must be reduced so that today's huge gap in the supply of green energy can be closed more quickly. For this reason it is imperative that we use every means available to improve energy efficiency, especially as energy-saving improvements pay for themselves in the medium and long term in the vast majority of cases.

The following sections will consider electricity generation itself, as well as discussing the opportunities in three sectors: industry; transport and travel; and buildings and construction. All the proposals are based on the availability of sufficient electricity from renewable sources globally, with the balance between solar and wind power being dependent on regional conditions.

Electricity Generation Sector

The energy shares from the electricity supply are included in the three sectors discussed. Nevertheless, electricity generation also needs to be considered separately, as it lends itself very well to rapid decarbonization through conversion to renewable energies.



Global electricity generation by energy source (2018)

The share of renewable energies in electricity generation is already almost 30 percent. Hydrogen currently accounts for a large proportion of this, at almost 60 percent – but it cannot be increased indefinitely. The situation is similar for biofuels. Therefore, any growth in energy generation will mainly come from solar and wind sources.

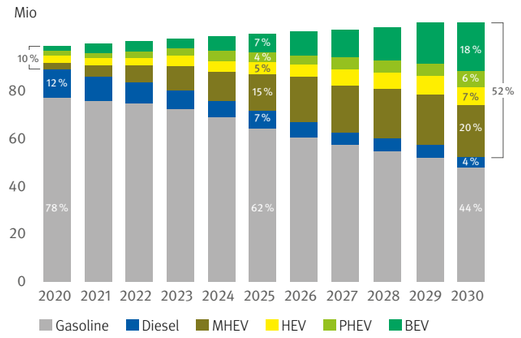
However, for a secure 24-hour electricity supply, storage is needed. This will mostly be provided by batteries, but large salt storage tanks will also be used for solar thermal power plants, and hydrogen storage might be provided via hydrogenation of CO_2.

The biggest challenge of all will be to generate the considerably larger quantities of electricity that will be needed in the future and provide the necessary distribution networks (for instance, for electric vehicles and heat supply).

Electrification will require additional cross-regional and transnational high-voltage direct current (HVDC) and high-voltage alternating current (HVAC) transmissions lines. In metropolitan areas the electricity infrastructure will have to undergo massive upgrading while in operation.

Transport and Travel Sector

With a share of around 98 percent of the total consumption, the most important sources of energy for passenger and freight transport are fuels; of these, around 94 percent are based on petroleum or gas. Biofuels accounted for roughly 4 percent in 2019. Electricity currently accounts for roughly 2 percent only.



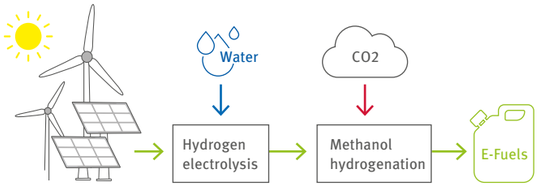
Forecast for annual global vehicle sales up to 2030 (Source: BCG)

According to a market assessment by Boston Consulting Group, manufacturing overall will continue to increase. According to this forecast, fully electric vehicles will only account for around 18 percent of global car sales in 2030. Including the various hybrids, electric vehicles will account for more than 50 percent of new vehicles, but vehicles using fossil fuels will still make up 44 percent. Even if the trend towards electric vehicles accelerated considerably in some countries, in 2030 there would still be more than two billion end-of-life vehicles with combustion engines on roads around the world. A significant reduction in the CO_2 caused by fossil fuels would thus only be possible if two complementary measures were taken:

– For new vehicles, quickly changing the propulsion technology from combustion engines to electric or fuel-cell.
– For the huge number of existing combustion engine vehicles, and especially for airplanes, replacing fossil fuels with hydrogen and/or e-fuels. This would not challenge the intended electrification of transport, but has to be seen as a sheer necessity in order to reduce CO_2.

However, as mentioned earlier, both of these measures will require a quantum leap in the generation of green electricity and green hydrogen, as well as power-to-X plants (plants with technologies for the storage or alternative use of temporary electricity surpluses).

Therefore, it makes sense to locate both hydrogen production and e-fuel production plants in places where the potential capacity for generating electricity from renewable sources is significantly higher than the local energy consumption. Possible such locations would be in the Middle East or in North Africa, but of course also in other places in the world – ideally where all the logistics systems are already in place for the transport of petroleum products. This means intelligent selection of locations in terms of both qualitative and quantitative factors.



Production of e-fuels with green electricity

It would be sensible to involve the current producers of fossil fuels in the process of conversion to solar and wind-powered electricity, and in the production of hydrogen and e-fuels. The necessary CO_2 can, where available, be diverted from industrial emissions. Of course, for the climate it would be most effective if the necessary CO_2 could be extracted from the atmosphere in less industrialized regions using new technologies.

Via the QR code you get access to further information and a video on DirectAir capture systems (ETH Zurich).

Further reductions in CO_2 emissions are possible through optimized traffic management and congestion control, for instance by encouraging the use of local public transport or increasing the number of people working from home. The transition could be supported by subsidized tickets for local public transport, and weatherproof, secure bicycle shelters. For business trips, rail must become the alternative to road or air travel, especially as the travel time can be used effectively.

Industry Sector

Industry uses a third of the world's energy (partly electricity and partly fuels), in addition to large quantities of petroleum as a raw material for the chemical industry. Industrial energy consumption could be reduced by 20 to 30 percent through the use of efficient technologies.

In the global effort to combat climate change, energy efficiency in industry has become very important in terms of environmental policy. For instance, up to 40 percent of energy used in industry is lost as waste heat. In the industrial manufacturing process, the best way to improve energy efficiency is using electric power, which creates a large amount of industrial process heat. This thermal energy can be recovered, for example from the plant's extracted air.

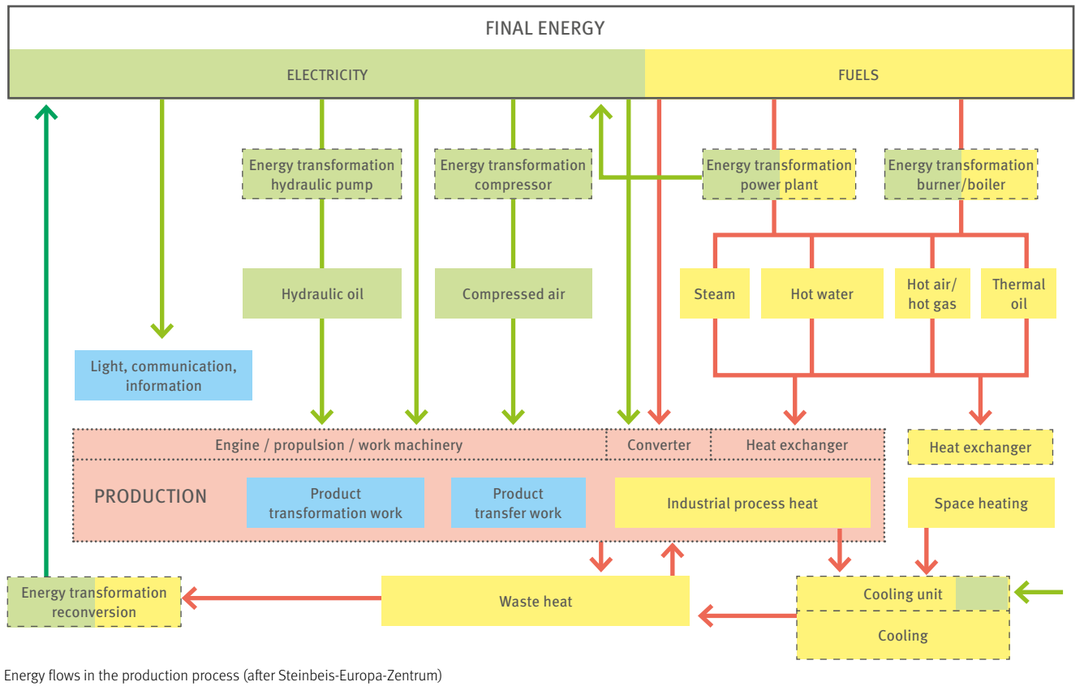
Combined heat and power (CHP) is also an important energy-saving technology. It uses mechanical power to generate electricity while simultaneously using the waste heat formed by this process as process heat or thermal heat. Intelligent control concepts enable machines to be switched off in off-peak hours, minimizing standby losses and cutting the annual electricity consumption by as much as half.

Another energy-saving measure is to replace old energy-guzzling pumps with high-efficiency pumps, as almost a quarter of industrial energy is consumed by pumps alone.

The use of hydrogen is also of great interest in industrial manufacturing. For example, it is an important raw material in the chemical industry for manufacturing ammonia (for fertilizers, fibers, plastics, cellulose paper etc.) and methanol (solvents, cleaning agents, softeners etc.), and is also a component of polymers (plastics).

A further important use for hydrogen as a replacement for carbon is being tested in the steel industry. This involves using hydrogen in the place of pulverized coal, which produces only water vapor instead of CO_2. In direct reduction (DR) plants, hydrogen is expected to replace natural gas.

Blast furnace gas, which contains carbon, will also be converted into fertilizers, plastics or fuels in the future in order to reduce CO_2 emissions further. However, this all requires significant modifications to manufacturing equipment. Overall, industrial processes offer great potential for CO_2 savings. However, a large quantity of green electricity is also needed to take advantage of this potential.



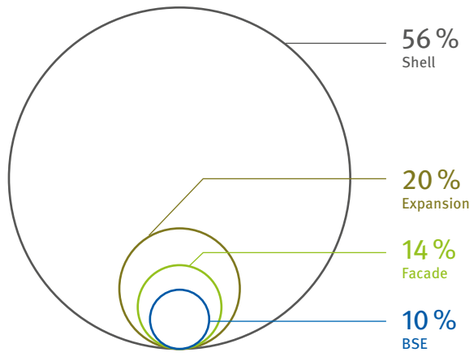
Energy flows in the production process (after Steinbeis-Europa-Zentrum)

Building and Construction Sector

With regard to both energy consumption and CO_2 emissions, in the building and construction sector it is necessary to consider both the construction phase and the operating phase. The amount of gray energy used in the construction process is, roughly speaking, around the same as the energy needed for 50 years of operation and for demolition. Recent studies assume that the primary energy consumed in the different phases is as follows:

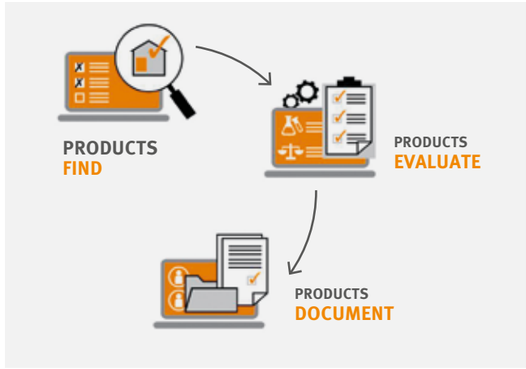
– Gray energy: 55 percent
– Operating energy: 40 percent
– Energy for demolition and reuse: 5 percent

However, this means that the main concern should not, as is currently the norm, be the operating energy – i. e. mainly the use of heating, cooling and electricity – instead, much more attention should be given to the construction method and the sourcing of materials.



Distribution of gray energy when erecting a building (Hegger, Manfred, et al., Energie Atlas, 2007)

The most important considerations for reducing gray energy are made during the design and planning phase. This is because building size and compactness influence the total amount of gray energy, as does the choice of materials used in construction. For this reason, the design, in particular, has to take into account not just aesthetics but also construction methods – following the example of the automobile industry. This change can only be achieved through modularization, which also involves integral planning and conception. This includes defining the carbon footprint of the construction materials used. For this reason, a responsible circular economy (Cradle to Cradle®) is unavoidable in the construction industry. It is very important to understand that, before it is even used, every new building has already consumed a huge amount of primary energy that can no longer be saved. With current construction methods, this energy is around 1.7 times the primary energy consumed over 50 years of operation.



Platform Building Material Scout

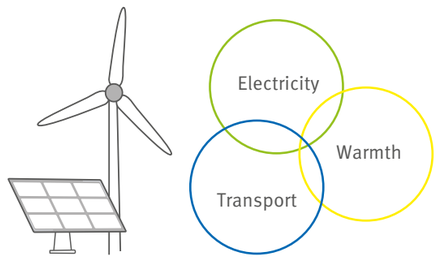
The energy needed to operate the building is different, as this can be influenced in time. The amount of energy required differs greatly depending on where the building is located in the world. Most of the operating energy is for heating and cooling and depends on the design and structure of the building. For an energy-saving and electrified future, we will need very energy-efficient heating, ventilation and air conditioning technology, in addition to intelligent insulation. This must be backed up by AI-controlled building automation systems that can react rapidly to the relevant climatic conditions. Building air conditioning systems must be complemented by energy-efficient domestic appliances and the increased use of photovoltaic and solar thermal systems, which must be supported in the short term by major incentive programs, and networked in city quarters. A lot of money can be saved in this way through solutions that can be implemented quickly. As mentioned above, CO_2 pricing can also give great impetus to such plans.

////// Imposing requirements and providing assistance are better than prohibiting.

In principle, imposing requirements and providing assistance are preferable to prohibiting – although not in all cases. Future houses should all have to be built to passive house standards where possible. These would require minimal, if any, active heating, cooling and ventilation. The average potential CO_2 saving compared with the initial value is estimated at 20 to 45 percent for new buildings, while for general renovations of older buildings, the possible energy saving is estimated at as much as 50 to 70 percent.

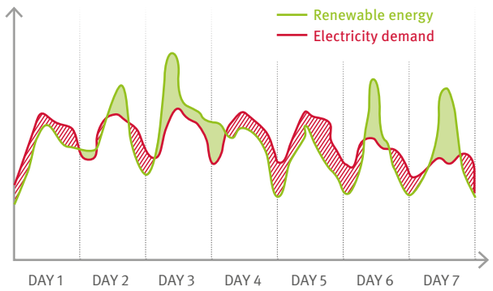
Sector coupling

Energy is more than just electricity. It also includes the energy consumed for heating or transport. Unlike the electricity sector, the transport sector and heating and cooling systems for households and enterprises are still quite dependent on fossil fuels.



The networking of all sectors – referred to as sector coupling – helps to achieve the climate goals

To ensure that the energy transition is also a long-term success, we have to convert not only the electricity sector to renewable energies, but we must also place more emphasis on renewables in the heating and transport sectors. There is one problem with renewable energies: the amount of electricity generated is not constant – as, for instance, with a nuclear power station. In addition to a storage medium such as hydrogen, the electricity needs consumers that can be connected flexibly according to demand and availability. The term sector coupling describes the integration of the different energy sectors: electricity, heating and transport (mobility).



Green electricity and electricity demand are different

Heat Supply
The energy demand for heat supply in Germany is around twice as high as the electricity demand. Fossil fuels continue to play a major role in this sector. Power-to-heat technologies such as heat pumps are being introduced to remedy this and to encourage the use of renewable energies. In the boiler room, these work by using electricity to absorb heat from the ground and compress it. The heat extracted is then used for the heating system. This effect can be enhanced further by cost-effective heat reservoirs. This type of heating is particularly beneficial for well-insulated buildings. All in all, therefore, there is a range of alternatives for heat supply, and technologies to replace methods that use fossil fuel have already been tested.

Intelligent solutions for supplying districts with locally produced, renewable energy by means of comprehensive system integration and consistent focus on users' needs will make a considerable and sustainable contribution to the energy transition.

Transport
There is great potential for electrification in many areas of the transport sector, but this sector actually has the lowest use of renewable energies (5.6 percent in 2019). Electromobility connects the electricity sector to the transport sector. In rail transport, electrification has for the most part already taken place. Unlike liquid or gas fuels, electricity has to be stored in chemical form in batteries or in a modified form. Electricity can also be used as output energy in power-to-X technology and converted into hydrogen or e-fuels.

However, storage or conversion always involves some loss of energy. Energy integration facilitates the decarbonization of all sectors through the use of renewable energies. This means that fossil fuels will gradually be replaced by renewable energy sources. Linking different sectors with the aid of intelligent technologies will be of crucial importance here. Additionally, energy integration creates greater flexibility in the demand for electricity. In this way, the fluctuations associated with the use of renewable energies can be balanced out without the need for investment in energy storage.

Summary

Emissions of carbon dioxide as a cause of environmental pollution should become a thing of the past – as soon as possible. This will not happen without money – which is available, and people are looking for places to invest it. To trigger change, however, we have to think and act globally. Regional and national target definition, procedures and regulations will be replaced by a global approach.

It will be possible, more quickly than one might think, to link up the energy systems of the different regions of the world and especially the key industry players. The latter will become the pioneers of the energy transition, and will tackle the solar, wind and hydrogen project pragmatically on a global basis. The pioneers will also include the companies that currently continue to extract and market fossil fuels, as the majority of the people working for these companies also have children and grandchildren whose future they are concerned about.

But what does this mean for Germany? As an industrial and exporting nation, we will benefit on a large scale from the overall advances. However, we have to realize that, even after the disruption of the fossil fuel system as a primary energy source, we still cannot be fully self-sufficient in energy.

The objective of meeting regular electricity demand by generation from regional renewable sources seems achievable. However, as an exporting nation, Germany will continue to import energy – but in the form of hydrogen, e-gas or e-fuels, for example. Electricity will also be imported to balance out the fluctuations in the supply of renewable energy. However, this is perfectly alright, if all the countries in the world together end carbon emissions, thus stopping global warming.

Note: The figures in the graphs have been carefully researched. However, due to the different data basis, they should be regarded as orders of magnitude in order to make the correlations plausible and comprehensible.

THE FIRST C2C RESIDENTIAL HIGH-RISE IN GERMANY

Living in harmony with nature: Moringa, Hamburg's healthiest and most sustainable residential complex is being built in the HafenCity quarter.

Moringa is green and sustainable: It does not consume resources, but simply uses them.

Named after the miracle medicinal plant moringa oleifera, the cutting-edge Moringa residential high-rise sets new standards in sustainability and innovation. Substantially more than 50 percent of the building is constructed using recyclable materials. All materials and components are designed to be reused in either the biological or technical cycle. So instead of incurring disposal costs at the end of a lifecycle, the reused materials generate added value while conserving resources – in keeping with the Cradle to Cradle® (C2C) design principle. In this way, the project delivers innovative answers to the current challenges facing the city of Hamburg – population growth, land use, housing shortage, air quality, and raw material consumption – and (over) fulfills the requirements for the award of the HafenCity Ecolabel Platinum label.

Client: MORINGA GmbH by Landmarken, Aachen | **Project duration:** April 2020 – December 2024 | **Architect:** kadawittfeldarchitektur, Aachen | **Drees & Sommer services:** Building services equipment, facade planning, energy design, certification by HafenCity Ecolabel, Circular Engineering, building physics, technical project coordination, FM Quick Check | **Key project data:** GFA: Approx. 19,000 m² (above-ground), Total approx. 24,000 m²

Scan the QR code to find out more about building-material-scout.com/en, the platform for sustainable building products

“Joint planning based on regenerative construction – from a single source!”

Moringa is being developed by MORINGA GmbH by Landmarken in cooperation with kadawittfeldarchitektur. For this special project, the client has relied on Drees & Sommer’s technical experience and the C2C expertise of EPEA – Part of Drees & Sommer. The experts are supporting the sustainable project with Cradle to Cradle mentoring and Circular Engineering, and providing building physics, energy design, facade planning, building services engineering, facility management and Green Building management services. The interdisciplinary project team works hand in hand on all issues.

With a complex green facade and extensive rooftop planting, the development creates more green space than the footprint of its buildings. This will have a positive impact on residents, the microclimate and air quality, retention behavior, and biodiversity. In this context, the facade planners came up with some ingenious solutions. Rainwater and gray water are collected and processed for irrigation and toilet flushing, and microplastics are filtered out.

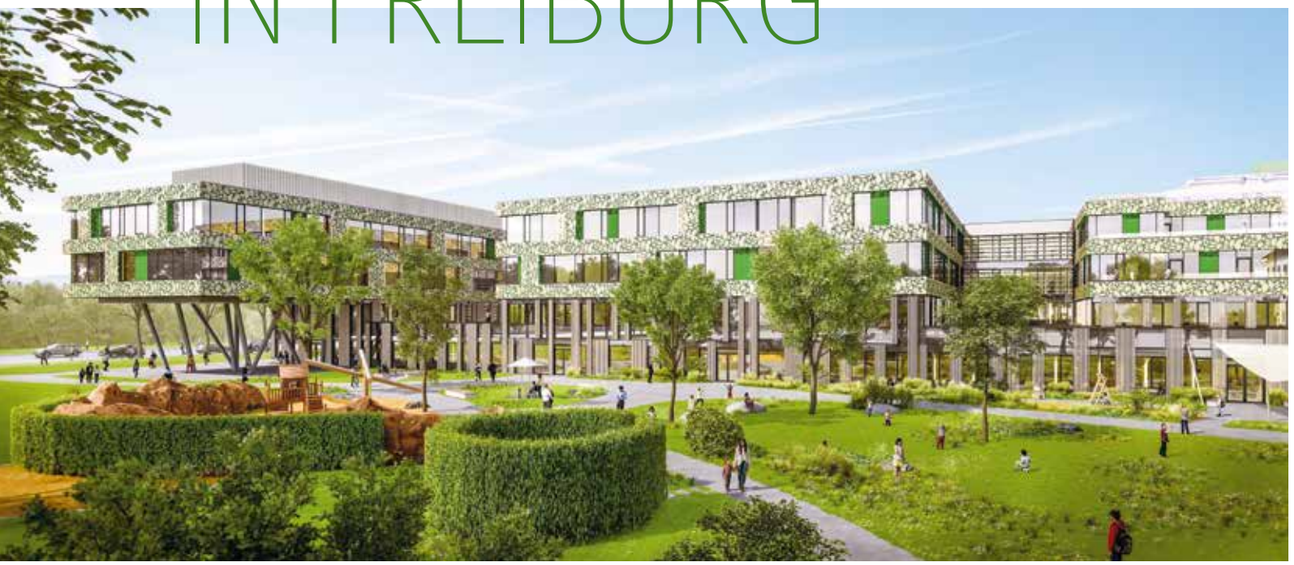
EPEA uses a positive list to ensure that all materials used are healthy and recyclable. Building Material Scout serves as a valuable tool for material selection and documentation. C2C ensures that only ecological materials, such as clay building board, solid wooden walls and RC concrete are selected, and that any products with problematic ingredients are strictly excluded. Components must be easily removable, and all materials used must be removable, separable by material type, and reusable. The building thus becomes a valuable raw material repository, as documented by the Building Circularity Passport®.

In addition to ecology, social aspects play a key role in the project, as some 30 percent of the apartments will be publicly subsidized housing. The diverse mix of apartments is supplemented by coworking and food and beverage retail areas. In total, the building has a gross floor area of more than 24,000 square meters. The application for planning approval was submitted in early 2021, with project completion scheduled for the mid-2024.

Moringa project team from Drees & Sommer and EPEA – Part of Drees & Sommer: Ragnar Horn, Daniel Hof and Dr. Tanja Scheelhaase

Green oasis: Moringa combines the principles of sustainable construction and affordable housing.

NEW HOSPITAL FOR THE YOUNG IN FREIBURG



The grounds of the pediatric and adolescent hospital also cater to the needs of patients and visitors.

Client: Baden-Württemberg State Office of Property and Construction, Freiburg office | **Project duration:** January 2017 – April 2023 | **Architect:** HEALTH TEAM VIENNA, Vienna | **Drees & Sommer services:** Tender process and contract award, Integrated Construction Management, 3D building scan, LCM Digital | **Key project data:** GFA: 13,000 m², Construction costs: Approx. €125 million gross

Scheduled for completion by 2023, a new pediatric and adolescent hospital is being built on the grounds of the University Medical Center Freiburg. The Drees & Sommer project managers are providing practical professional support during construction.

The new hospital that is gradually taking shape – with 13,000 square meters of usable floor area – is directly connected to the University Women's Hospital. It will promote the treatment and wellbeing of children and adolescents, preserve the health of parents and employees, and respect future generations through the responsible use of resources. A special feature: Three underground passages connect the new building to the surrounding hospitals.

"A proactive, solution-oriented approach better moves a construction project forward than backward-looking troubleshooting."

Torsten Erbstösser,
Project Team Leader at Drees & Sommer

The transport systems for medication and medical supplies are especially innovative, as is the underground cold water storage tank, which doubles as a component of the hospital's central cooling system. Energy efficiency is a key factor in the project, and the new building will be certified DGNB Gold. Construction is proceeding with the campus hospitals in full operation, with some work being undertaken on the surrounding established buildings.

The Drees & Sommer experts supported the project throughout the tendering and award process and are now undertaking site supervision for cost groups 300 and 400 using the seamless Integrated Construction Management approach. Achievements in 2020 included the sealing of 90 percent of the facade and of all roof surfaces. Following successful completion of the hospital's underground connections, fitout was already in progress for some 60 percent of the floor area in spring 2021. About 20 percent of building services equipment (BSE) has been installed – with deliveries of several major items of equipment expected soon.

Despite the difficult situation due to the coronavirus pandemic and a relatively severe winter, Drees & Sommer and the other project participants managed to meet milestones. The team also successfully managed the numerous interfaces resulting from the many specialist departments such as MRI, X-ray, dialysis, and emergency admissions. The key success factors here were seamless Integrated Construction Management – which enabled coordination of all services from a single source using Lean methodology – and positive team spirit.

Drees & Sommer completed all work to the full satisfaction of the principal. A proactive and forward-thinking approach laid the foundation for success. The team was supported by state-of-the-art digital tools, such as construction site scheduling using a special program based on the LCM Digital approach.

HERITAGE BUILDING TAKES ON A NEW LEASE OF LIFE

Wittelsbach Castle in Friedberg, Bavaria, has long been a great attraction for people in the region. In 2020, following many years of renovation and conversion of the building, the completion of the building was celebrated as part of the Bavarian State Exhibition.

The attractive castle courtyard with a view of the museum wing.

In 2007, the town of Friedberg, located east of Augsburg, acquired Wittelsbach Castle from the Free State of Bavaria. The aim was to make the historic building, which dates back to the 13th century, accessible to visitors as a community cultural hub and event center. This required the complete renovation and partial rebuilding of the castle. Drees & Sommer supported the refurbishment with a wide range of project management services, including ensuring that all work remained on schedule and within budget.

The specialists also ensured that all possible sources of subsidies were exploited. It was also very important to involve local residents, and to ensure that protected bats were unharmed. These measures resulted in the project being very positively viewed by the general public over time.

Client: Construction Department of the City of Friedberg (Department 34) | **Project duration:** May 2009 – May 2020 | **Architect:** Braun Architekten, Munich | **Drees & Sommer services:** Project management, Project Communication System (PCS), anti-claim management, construction logistics | **Key project data:** GFA: Approx. 7,700 m², Gross volume: Approx. 33,200 m³ for the museum, Cost: Approx. €24 million gross, including the museum

The museum with its characteristic suite of rooms shortly before completion.

Museum staff welcome visitors in the ticketing area.

“The commitment of all parties involved and excellent cooperation within the team enabled us to work with the principal to achieve the long-term success of the project.”

Michael Schropp,
Senior Team Leader at Drees & Sommer

Drees & Sommer used systematic cost management to keep the cost of the project under control. The design-to-cost approach was used, which involved several workshops. Drees & Sommer also prevented construction costs being incurred as the result of delays by holding intensive optimization sessions during the planning and execution phases.

The project participants succeeded in consolidating the heritage-listed structure into a unified whole. Following several years during which the castle exhibition had been closed, the museum collection was relocated to the south wing. Taking a modern approach, the museum now offers various attractions including activity stations, interactive media, and a museum café. May 2019 saw the official opening of the museum at Wittelsbach Castle.

The castle was also selected to host the 2020 Bavarian State Exhibition, resulting in nationwide recognition. Drees & Sommer integrated the construction measures necessary for the national exhibition into the project.

The old carriage house was converted into a spacious events area.

BERLIN AUTOBAHN INTERCHANGE FUTURE-PROOFED

The modernization of transport infrastructure is one of Germany's most important development initiatives. Drees & Sommer has successfully supported its public sector client with a massive project of this type – the Berlin Funkturm (radio tower) autobahn interchange.

Berlin's autobahn ring – and, in particular, the Funkturm motorway interchange A 100/A 115 (ADF) in Charlottenburg-Wilmersdorf – plays crucial role for the nation's capital. It connects the transregional A 115 and Berlin's outer autobahn ring road A 100. Used by some 200,000 vehicles each day, it is one of Germany's busiest stretches of autobahn.

Client: DEGES Deutsche Einheit Fernstraßenplanungs- und -bau GmbH, Berlin | **Project duration:** July 2017 – December 2022 | **Planner for transport infrastructure/civil engineering works:** Schüßlerplan/Arcadis consortium, Berlin | **Drees & Sommer services:** Project management, risk management, stakeholder analysis, technical planning audits, technical consulting for transport infrastructure/civil engineering works, schedule and document management, public relations support, management coordination and transport organization support, strategic contract award consulting, supplementary claims management, support with construction logistics concept | **Key project data:** Length of route: approx. 2 km, number of bridge structures: 25, Construction cost: approx. €400 million gross

A bird's-eye view reveals the true extent and complexity of the Funktturm autobahn interchange.

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"Continuity, reliability and professional competence: Our team responded to the client's needs and wishes, thus contributing to the success of the project."

Frank Reschke,
Team Leader at Drees & Sommer

The Funkturm autobahn interchange is characterized by a large number of structures that can currently, or will in the near future, only be utilized to a limited degree because of their poor condition. At roughly two kilometers long, the stretch has 25 bridges and crosses three railway lines, pipelines, and other civil engineering structures. It also has features such as noise barriers, retaining walls, traffic sign gantries, and drainage systems.

Safety is currently compromised by the road's condition, and comprehensive modernization is essential. The principal is DEGES (German Unity Motorway Planning and Construction Company). The priority during the early phase of the project was to find the optimal implementation variant as quickly as possible to proceed quickly with initiation of the planning approval process. This is expected to take place from the end of 2021. Drees & Sommer experts are already reducing the client's workload by providing professional advice and organizational support. Building Information Modeling (BIM) is not yet widely used for infrastructure projects, but – due to the complexity of the work and the range of disciplines involved – has made an important contribution to overall understanding of the project. One of the reasons for the lack of BIM take-up is that there is currently no BIM standard for the exchange of infrastructure project data.

The company's infrastructure specialists also had to take the interests of the many stakeholders into account. For example, several workshops were held to convince residents of the advantages of the planned variant. This is basically a project that needs to be safe, effective, and cost-efficient, while at the same time maintaining traffic flow.

The Drees & Sommer team impressed the client with its technical support and professional advice on transport infrastructure and the planning of civil engineering works. The client also benefits from the strategic approach to key decisions and from project progress – as well as from the flexible deployment of personnel from disciplines outside the originally commissioned range of services.

Clear and simple: The light-colored fair-faced concrete emphasizes the character of the modern building.

JOHN CRANKO SCHOOL FOR WORLD-CLASS BALLET

Client: Baden-Württemberg State Office of Property and Construction | **Project duration:** December 2012 – December 2020 | Architect: Burger Rudacs Architekten, Munich | **Drees & Sommer services:** Contract and supplementary claims management, data management, project management, feasibility study, 360° analysis, project management, technical supervision of BSE installation | **Key project data:** GFA: Approx. 12,000 m², Construction cost: Approx. €60 million, BSE manufacturing costs: approx. €13.4 million, cost of user installations: approx. €7 million (all costs gross)

The construction of the first new ballet school building in Germany is a special event – especially in a city renowned for practicing this art at the highest level. Experienced Drees & Sommer project management and engineering experts supported the construction of the John Cranko School in Stuttgart.

The John Cranko School was completed in September 2020 following a construction period of several years. Set on the side of a hill, the elongated building is not only visually striking – but more importantly, the first new ballet school building to be built in Germany.

The students, who formerly attended school in cramped conditions in an old building, can now join the dancers of the Stuttgart Ballet to study, train and rehearse in the new 6,100 square meter facility. The new John Cranko School includes a boarding school for 80 international ballet students, a stage for rehearsals, eight ballet halls, physiotherapy and administration rooms, and a canteen.

The minimalist architectural style gives the building a distinctive look.

The characteristic design concept continues in the interior.

The school offers plenty of space for rehearsals and performances – while offering a panoramic view of Stuttgart.

The sheltered courtyard features an interplay of light and form.

“Close contact with the client, users and operators enabled us to jointly master this ambitious project.”

Alfred Wegmann, Project Leader
and Daniel Volk, Project Team Leader
at Drees & Sommer

The design by the architectural firm Burger Rudacs skilfully exploited the urban planning parameters. Measuring 90 meters by 36, the long concrete and glass building ascends the steeply sloping plot like a stairway. The 21-meter difference in height is elegantly harmonized with the design of space, with the usable floor space spread over ten floors.

The new building is also exemplary in terms of energy. An underground ice storage tank provides regenerative cooling for the building in summer, while district heating warms the building in winter. The optimized building envelope and highly efficient heat recovery by the ventilation system round out the energy concept.

The responsibilities of the Drees & Sommer project managers and specialists included the coordination of the individual construction management teams, the complex task of coordinating the various contractors, organization of scheduling workshops, and defining the duration of the project. The prestigious building’s principal benefited from the team’s flexible on-site deployment, close personal communication, and numerous proposals for improvements to details – for example, using LCM to streamline the schedule control of building services equipment companies, allowing material delivery and assembly times to be scheduled and controlled down to the day.

PORTFOLIO WITH 120 PROPERTIES: TRANSPARENCY FOR MAJOR TRANSACTION

Client: x+bricks Group, Frankfurt am Main | **Project duration:** June 2020 – September 2020 | **Drees & Sommer services:** Asset Check, Technical Due Diligence (Red Flag and TDD reports), Environmental Due Diligence | **Key project data**: Approx. 290,000 m² of leasable space

Drees & Sommer helped x+bricks by quickly providing an overview of a portfolio of food-related properties that were on the market.

x+bricks invests in food-related properties, such as supermarkets or discount stores, throughout Germany. In just three years, the company has built up a property portfolio with a value of about one billion euros, including acquisitions signed in 2020.

Drees & Sommer supported x+bricks with the analysis and valuation of a portfolio that was on the market, by undertaking Technical and Environmental Due Diligence. The goal was to calculate the likely investment costs for the transaction.

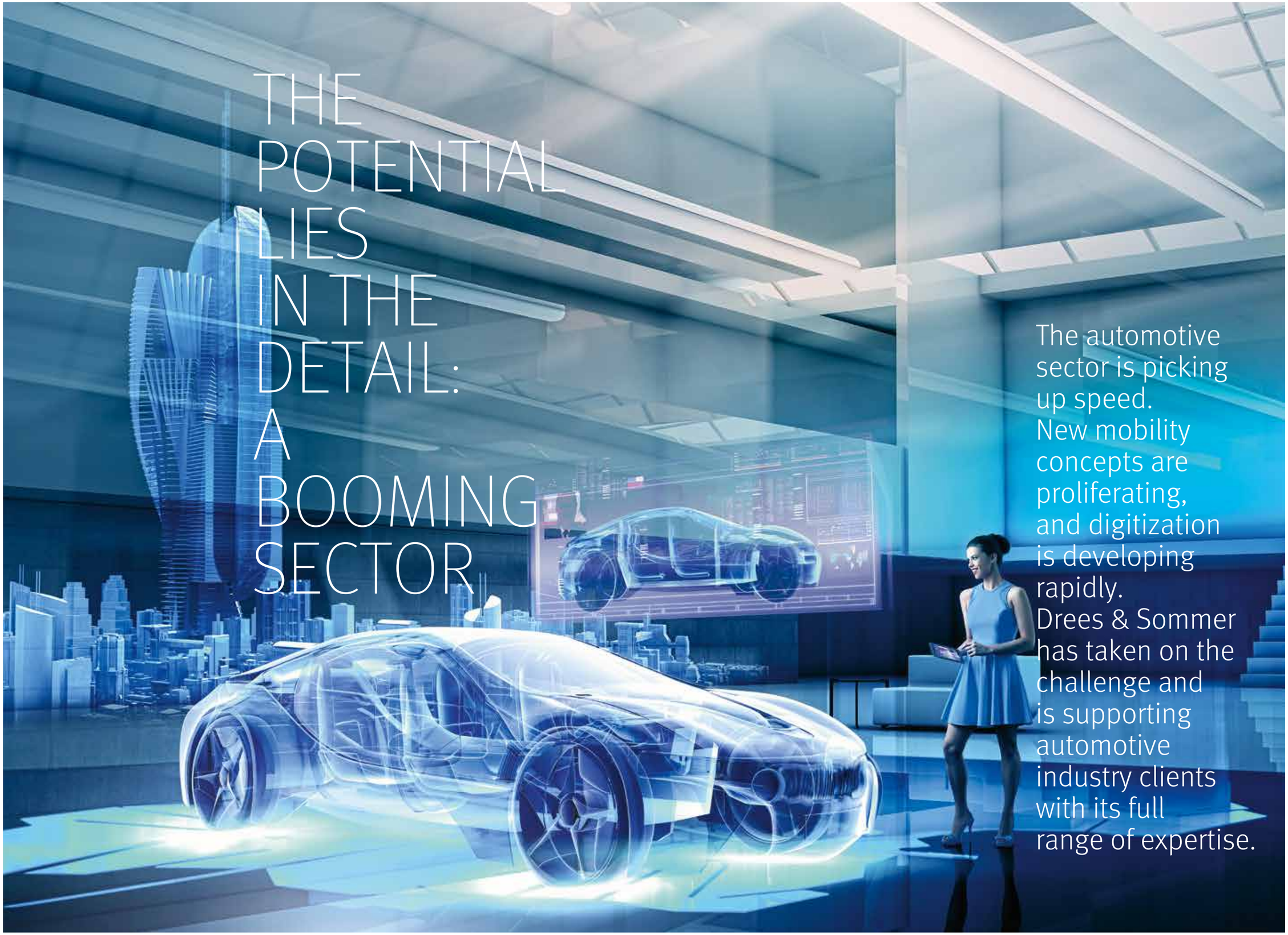
Drees & Sommer real estate experts started work on the project in June 2020. The team was able to provide an initial estimate after just one week, and the so-called Red Flag report was already completed after a further five weeks. This provided a comprehensive overview and identified any possible deal-breakers and other potentially critical issues, enabling x+bricks to make an informed purchase decision at an early stage. The project was concluded in September 2020 with the presentation of the final Technical Due Diligence report, including the relevant analyses.

The total number of properties for sale – and other related parameters and objectives – varied throughout the project. The make-up of the project team was flexible and agile in response. In order to deliver the results of the Technical and Environmental Due Diligence on schedule and at approximately the same time for all properties, at times up to 60 experts were involved. Agile organizational management and cooperative partnership with the customer were key success factors.

As a result, our client successfully completed one of Germany's largest transactions in food-related real estate, acquiring a portfolio of 120 properties throughout the country.

“In retrospect, it was a really dynamic project. But thanks to our agility and reliability, we were able to provide optimum support to x+bricks – a win-win project and a fun partnership.”

Vanessa Opel, Associate Partner at Drees & Sommer



THE POTENTIAL LIES IN THE DETAIL: A BOOMING SECTOR

The automotive sector is picking up speed. New mobility concepts are proliferating, and digitization is developing rapidly. Drees & Sommer has taken on the challenge and is supporting automotive industry clients with its full range of expertise.

Featuring 14 simulators and usability laboratories, the state-of-the-art driving simulation center developed in Munich for the **BMW Group** is the most versatile in the automotive industry. The facility is pioneering new trends in vehicle development and research by allowing changes in product requirements to be realistically tested and simulated at every stage of development. And as an added bonus, use of the test center means that fewer real-world test drives will be required in future, resulting in a reduction in polluting exhaust gases. Simulation also allows the testing of innovative developments, such as autonomous driving, before the technology is ever used on the road.

Drees & Sommer not only controlled the construction of the production building, but also the development and construction of the simulator. Concept development played a key role in ensuring efficient building planning. In order to review, develop and implement the planned driving simulation center and satisfy all the client's requirements, the experts first carried out a comprehensive feasibility study. This, in addition to change management during construction, was a key reason for the success of the project.

Room for improvement: The driving simulation center allows products to be tested realistically at any stage of development.

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"The top priority is optimizing the interfaces between the individual disciplines. To this end, we initiate communication between planners, engineers and tradespeople on site at an early stage, and set up the overall process analysis and process plan together."

Marc Peter Thunig,
Senior Project Leader at Drees & Sommer

Another main driver in the automotive industry is the energy transition and the resulting change in vehicle drives and mobility behavior. Mobility must continue to change to achieve climate neutrality by 2050. And that includes the **BMW Group**. The Drees & Sommer team was commissioned to implement the overarching vision for employee mobility in a comprehensive concept for advancing the company's mobility strategy.

Following analysis of the current status and potential, a vision for the implementation of a parking space concept at the Munich site was developed with the relevant stakeholders. The focus was on devising versatile mobility solutions to meet employees' individual needs – whether walking or traveling by car, bicycle, or public transport. The development of the parking management concept was a multistage process. The findings ultimately led to the development of an action plan that included a comprehensive mobility catalog, a mobility platform, and a mobility map that allows employees to see at a glance which mobility solutions are available at each site.

Drees & Sommer was also supporting the BMW Group with the design of their charging infrastructure, which is available to employees and external employees. The details for all charging clusters throughout Germany were cataloged as part of the project, allowing targeted measures to be developed to ensure compliant charging. A management support dashboard was created with a virtual map providing information on the location and anticipated investment volume for the charging infrastructure.

Meeting rooms of contemporary design featuring glass walls reflect the character of the stylish new headquarters in Bratislava.

Warm colors, a welcoming atmosphere, and state-of-the-art technology: The multifunctional ‘town hall’ with LED screen is the perfect space for productive discussion and cooperation.

“We are delighted with the successful completion of our new headquarters. Drees & Sommer supported the project with design, technical planning and execution services to realize a modern office concept that is compliant with our global corporate standards.”

Florian Wedler,
CFO Mercedes-Benz Slovakia

The company’s newly expanded leased space in the Slovak capital, Bratislava, was created in close cooperation with **Mercedes-Benz Slovakia**. Following the termination of the existing lease agreement, the contract included identification of suitable premises. Drees & Sommer was involved in the planning and fitout of the office space from the outset, and once again proved to be a trustworthy client representative on site. As a ‘temporary construction department’, the specialists undertook the principal’s role in Bratislava and acted as the interface between planners and the lessor for all technical issues. As a result, the team also secured a follow-up order and supported relocation management following completion of the fitout.

Thanks to intensive coordination, customized planning and experienced construction management, the new offices were completed within budget and opened on schedule despite the difficult conditions and delivery problems resulting from the coronavirus pandemic.

The modern office concept is also expressed in the reception area. Generous open spaces and quality materials make an attractive impression on employees and customers alike.

The stylish ambiance of the new food court invites patrons to linger and offers plenty of space for stimulating lunch breaks.

Open, light-flooded areas form the basis for an inspiring work environment.

Both in Germany and abroad, Drees & Sommer experts are helping Daimler AG make its office buildings fit for the future and adapting them to the requirements of new work environments. The latest standards are being applied in the Stuttgart-Vaihingen and Leinfelden-Echterdingen sites to create an inspiring work environment for employees. The benchmarks set included a networked work environment that enables digital working, flexible spaces, and integration into the urban environment.

In Vaihingen, Drees & Sommer is supporting the customer with its ‘Project Office V’ by providing project management and technical and economic controlling services and coordinating occupational health and safety measures. The aim of the project was to build a new office campus – with features ranging from office space and a conference area to food and beverage services and a company doctor’s office. Following the identification of priorities, a clear implementation strategy was established. Intensive proactive preparation and the systematic use of digital tools, such as the Contrace database, led to the successful realization of the project.

A similar office complex was also built in Leinfelden-Echterdingen.
The Project ‘Office LE’ site was designed to offer state-of-the-art workplaces in offices that blend architecturally into the urban landscape.

Attractive and practical: Generously dimensioned office spaces enable digital working thanks to state-of-the-art equipment.

The architectural flair of the new building is impressive, blending into the urban environment.

MODEL BERLIN URBAN DISTRICT TAKES SHAPE

Based on an integrated development approach, a multigenerational urban district aimed at achieving diversified living with a range of target groups is being developed in Berlin-Spandau. It is characterized by a mix of different residential styles and a range of services and community facilities.

The Carossa Quarter is a ‘green’ urban district offering its residents high quality of life.

Investment company KAURI CAB, which specializes in the development and management of urban districts, is developing a future-oriented residential quarter on the 100,000 square meter historic Hertlein site in the Hakenfelde district of Berlin-Spandau. The project is called the ‘Carossa Quarter’ and comprises approximately 1,800 apartments. The project aims to achieve a holistic approach and interregional appeal, combining the advantages of an urban environment with closeness to nature and good neighborliness. The key element of the district concept is an intergenerational approach aimed at multiple target groups. At the start of the project, Drees & Sommer worked with the client to develop typical user groups using a diverse range of avatars, and then transferred the group requirements to the ‘future of living’. A product design process provided the framework for this process.

Apartments of modular design and construction are being built in the heritage-protected ‘shed-roof hall’.

The former officers’ mess is being transformed into a clubhouse and a lovingly designed daycare center.

Client: KAURI CAB Development Berlin GmbH | **Project duration:** February 2019 – December 2023 **Architects:** Jan Wiese Architekten, Dierks & Cramer Architekten, C.F. Møller Architects, Mayer Lorenzen (urban development), Bollinger + Fehlig Architekten, gbp Architekte and baukind Architekten, all based in Berlin | **Drees & Sommer services:** Product design based on a user-oriented concept, project management, infrastructure consulting, energy supply and infrastructure provision, district certification to DGNB Gold, support for two-stage architectural competition, digitization consulting | **Key characteristics:** Plot size: approx. 107,000 m², Floor area: 126,000 m², Residential units: approx. 1,900, potential investment volume: approx. €400 million

“At the beginning of the project, Drees & Sommer established the approach and the user-oriented concept with the client.”

Moritz Schöbel,
Project Leader at Drees & Sommer

The principal has built its marketing and leasing concept around this approach. It enables a mix of residents in the district that is optimized for the quarter: By bringing together different types of housing and features – from traditional housing, coliving and microliving to rent-controlled and age-appropriate community living – the development caters to many different contemporary lifestyles with a range of appropriate floor plans. The apartments meet occupant’s needs with a range of digital services and smart, flexible add-on features. The central district management takes care of the implementation in operation.

For example, the client has plans for conference and workshop facilities in the commercial space of some 30,000 square meters. A central community hub is also planned, with facilities for sport, courses, study groups, and workplaces. There, residents will be able to retreat to the neighborhood shared office, for example. Leisure activities will include the district’s own jogging track and kayaking on the Havel River, with reservations and payments being made using the district app.

Drees & Sommer played a key role in the concept for digital components. These form the backbone for an efficient infrastructure, networked district management and the smart home equipment installed in the apartments. The team of housing experts impressed the client with a lean and structured approach as well as with its broad range of expertise. The integrated approach was particularly important. It was based, among other things, on the 17 United Nations Sustainable Development Goals (SDGs). The standout among the numerous challenges is the implementation of the project based on the Integrated Product Delivery model. This required a number of multiparty contracts to be concluded between the principal, general contractor, architects and specialist planners. Coordination with the authorities with regard to heritage protection and approvals was also needed. Thanks to constant monitoring of quality levels and the close involvement of all key project participants, Drees & Sommer has so far achieved all cost and quality goals. And the active involvement of the specialists in planning and project preparation as part of a fixed team led to a significant reduction in risks during execution. The integrated energy concept and the media infrastructure in the district ensure that supply to the district will keep pace with construction.

The apartments have different floor plans and styles, and are designed for a highly diverse range of lifestyles.

CONSTRUCTION PROJECT WITH A FUN FACTOR

Dream Island in Moscow is the largest indoor amusement park in Europe, featuring kids' favorites such as Smurfs, Ninja Turtles and Hello Kitty. Drees & Sommer managed work on "the Russian Disneyland", which opened its doors in February 2020 after a construction period of some three years.

Client: REGIONS Group of Companies | **Project duration:** December 2017 – March 2020 | **Architects:** Cuningham Group Architecture Inc., Chapman Taylor Land Milano | **Services:** Independent technical and financial supervision, Cost and contract control, Project monitoring | **Key project data:** Development site area: 57 hectare, Buildings area: 292 000 square meters, Cost (net): Cost groups 2 – 7: €560 million

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"The project has a unique combination of indoor entertainment solutions. It sets up a new standard of city leisure activities."

Julia Riabtseva,
Team Leader at Drees & Sommer in Russia

Dream Island has a wide variety of the most modern and safe attractions for an unforgettable vacation with the whole family.

The bank providing finance for the project required the customer to ensure independent technical and financial supervision by third parties. The Drees & Sommer team secured the contract for these services thanks to its extensive project management expertise.

The 56-hectare amusement park is located close to the city center on the banks of the Moskva River. In addition to the indoor theme park with 27 rides in four zones, the complex also features a large park with footpaths and cycleways, and barbecue and sports facilities. The commercial area is represented by the fairytale castle – which is enclosed by a huge glass dome – also includes a concert hall, a cinema, restaurants, shops, and a multistorey visitor car park. There are plans for future development of a hotel and a sailing school for children as a part of unique area.

A further attraction is that the interiors of the shopping area are formed by facades of more than 100 buildings and reflect the architectural style of various major cities around the world. Visitors can stroll along the base of the Colosseum or immerse themselves in the atmosphere of Spain.

The project was implemented by the Russian REGIONS Group of Companies. Drees & Sommer undertook independent technical and financial supervision, assisted the customer with analysis of the project budget and finance planning.

The architectural concept for the theme park and landscapes was developed by team of international planning companies Cuningham Group Architecture, Chapman Taylor and Land Milano. Dream Island is a project that is impressive in every respect and one that – despite the coronavirus pandemic – has brought smiles to many children's faces.

SBB ON TRACK FOR THE FUTURE

Swiss Federal Railways is investing in efficient and climate-friendly public rail transport facilities at Zurich Stadelhofen station. The first phase of the project is now in its final stages thanks to technical support provided by Drees & Sommer as project controller and consultant.

Passengers reach the completely remodeled station via the forecourt.

The Swiss Federal Railways (SBB) rail infrastructure development program will see a significant increase in the capacity of Zurich Stadelhofen station by 2035. The necessary construction work is highly complex, particularly with regard to technical feasibility and the construction process, as work has to be undertaken in the city without interrupting rail operations. Essentially, the project involves the expansion of the station, the remodeling of existing facilities and the construction of new tunnel sections.

“Our comprehensive support is flexible and goal-oriented, and benefits the client’s operational and strategic business.”

Johannes Vogel,
Project Leader at Drees & Sommer
in Switzerland

Drees & Sommer rail infrastructure experts undertook a comprehensive analysis of the project during the pre-project phase. Based on their findings, the team introduced a project handbook and established a mandatory document filing structure. These basic tools were supplemented by a clear project structure plan and a project management schedule combined with strict document management. Drees & Sommer established regular project control meetings and training on key PM topics. This helped the many project participants maintain and comply with the developed standards and specifications. The team also supported the principal’s representatives at key meetings.

The entire project is based on SBB’s sustainability strategy and is in keeping with the principle of ecologically and socially sustainable development of both the economy and society. A resilient future-proof railway infrastructure not only protects the climate, but also benefits the towns and cities it connects. More stringent safety standards and barrier-free design of the station are also stated objectives of the project. Synergy effects will make many construction processes cheaper and more efficient. Sustainable consumption and production concepts are firmly anchored in the strategy for the planned sales areas in the station.

By establishing basic organizational structures and providing intensive and proactive scheduling support for the principal, Drees & Sommer succeeded in meeting all deadlines and establishing high quality standards. As a result, the SSB project is ideally positioned for the actual execution phase.

The wide railway platform ensures barrier-free access.

© SBB | Status of the 2020 project competition

Client: Schweizerische Bundesbahnen SBB AG, Bern | **Project duration:** October 2017 – March 2022 (pre-project phase), planned commissioning of the overall project: December 2035 | **Architect:** Giuliani Hönger Architekten, Zurich | **Drees & Sommer services:** Project control, infrastructure consulting, risk management, BIM consulting, cost estimate, preparation of planner invitations to tender for following phase | **Key project data:** Tunnel section: approx. 4 km, construction costs: Approx. CHF 900 million

The bright and attractive retail area features a clear design vocabulary.


© SBB | Status of the 2020 project competition

NATURALLY SUSTAINABLE

Eco-friendly, energy-efficient and highly productive: WALA's new sales and logistics center meets the highest standards. Drees & Sommer supported the project from the early stages through to commissioning and beyond.

Client: WALA Heilmittel GmbH, Bad Boll/Eckwälden | **Project duration:** November 2014 – March 2020 | **Architects and planners:** io-consultants, IP-Planung, Röwaplan | **Drees & Sommer services**: Project management, commissioning management | Key project data: GFA: approx. 36,000 m², Project cost: approx. €45 million

Natural cosmetics is the fastest growing segment of the German cosmetics market, and WALA Heilmittel GmbH is benefiting from this trend. The Swabian manufacturer of natural remedies and natural cosmetics supplies its products to 40 countries worldwide. To keep pace with continued growth, the company has invested in a new sales and logistics center in the Wängen industrial park in Zell unter Aichelberg.

WALA and Drees & Sommer had already established a trusting relationship working together on the successful construction of a new laboratory building, providing a sound basis for cooperation on this, WALA's largest construction project to date. As a first step, the Life Sciences team reviewed the concept and cost estimate. After a comparative cost analysis, the experts coordinated savings measures with the client and planners.

During the project, the Life Sciences and project management professionals worked hand in hand and coordinated closely with the client. If performance was not up to scratch, they initiated countermeasures via the planners – thus keeping the extensive project on track. The engineering experts ensured all disciplines successfully completed their work on the WALA sales and logistics center and supported commissioning management.

WALA's sales and logistics center combines state-of-the-art logistics technology with sustainability.

/////

“Thanks to the trusting cooperation, we were able to ensure that all conditions for ‘go live’ were met. As a result, WALA was able to achieve its ambitious efficiency and sustainability goals for its largest construction project to date.”

Axel Heueis,
Associate Partner at Drees & Sommer

The high level of complexity was challenging for all involved. The sales and logistics center has several different functions and includes different types of packaging and storage. The Good Distribution Practice (GDP) rules governing pharmaceutical logistics also had to be adhered to. The successful integration of the warehousing and logistics supplier software required special early preparation, including emulation.

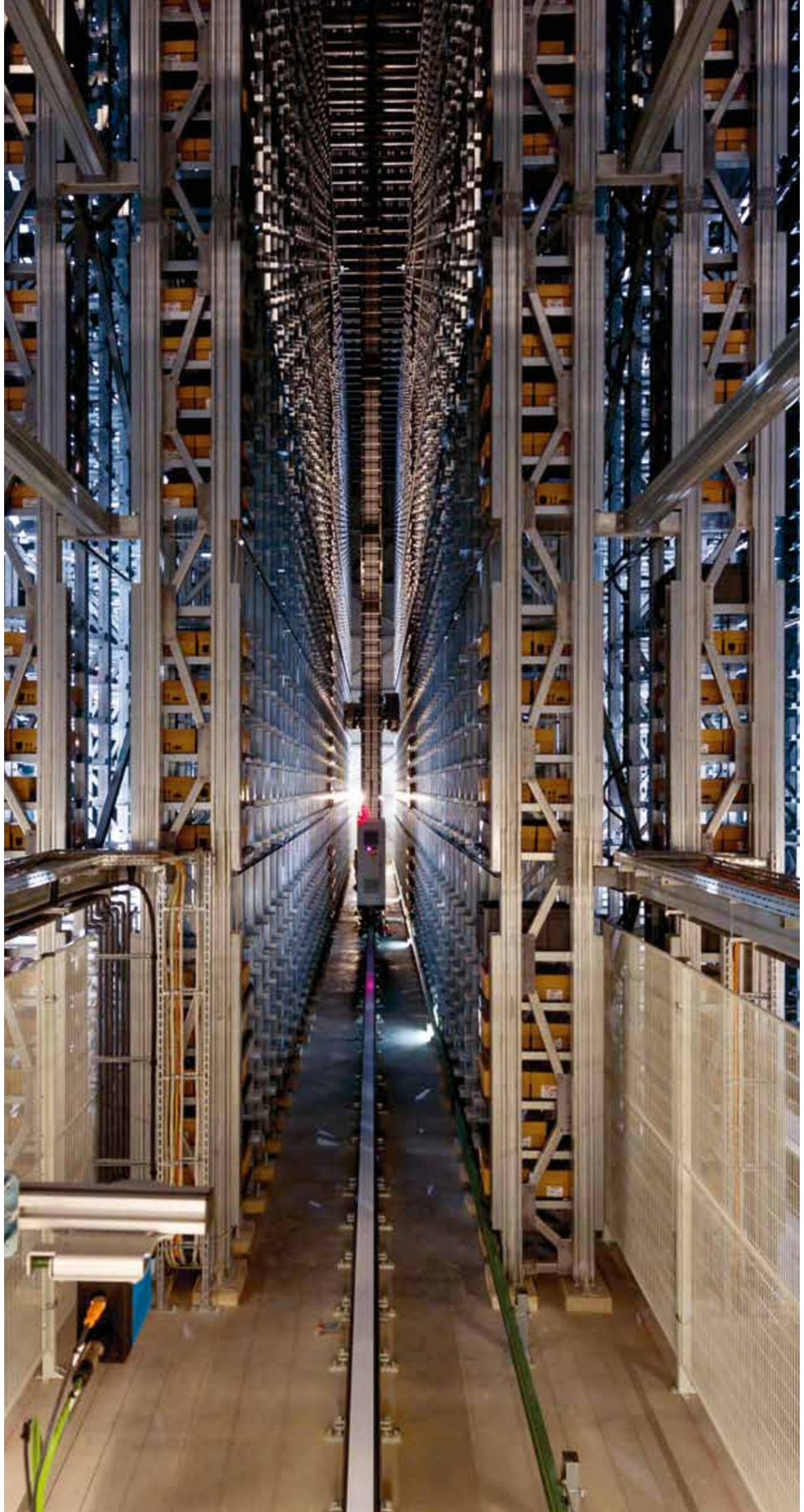
Sustainability was a theme running throughout the entire project. The grounds feature wildflower meadows, native shrubs, and traditional varieties of fruit trees. The building itself makes exclusive use of green electricity and LED lights, and uses logistics technology with energy recovery. The building’s own combined cooling, heat and power plant and a carbon-neutral pellet heating system supply it with heat. Power is supplemented by a photovoltaic system.

The company makes best use of the hillside location to save as much energy as possible: For example, a large part of the temperature-controlled pharmaceutical storage area is located underground, which provides natural cooling. The combination of all these measures pays off: At the time of planning, WALA’s projected consumption was 30 percent below that prescribed by the then valid Energy Conservation Ordinance (EnEV).

Automated logistics solutions in the warehouse ensure maximum efficiency to reach the target of 600,000 packages per year. The SAP Extended Warehouse Management system (EWM) ensures maximum goods flow and the highest possible utilization of the warehouses. Digital tools reduce the workload for employees, for example, by providing containers and pallets via conveyor systems just in time and at the ergonomically ideal height.

The new pallet and small parts warehouses feature an oxygen reduction system, making design or compartmentalization in accordance with fire prevention regulations unnecessary. An inertization process ensures that the oxygen is kept at such a low level that no fire can occur.

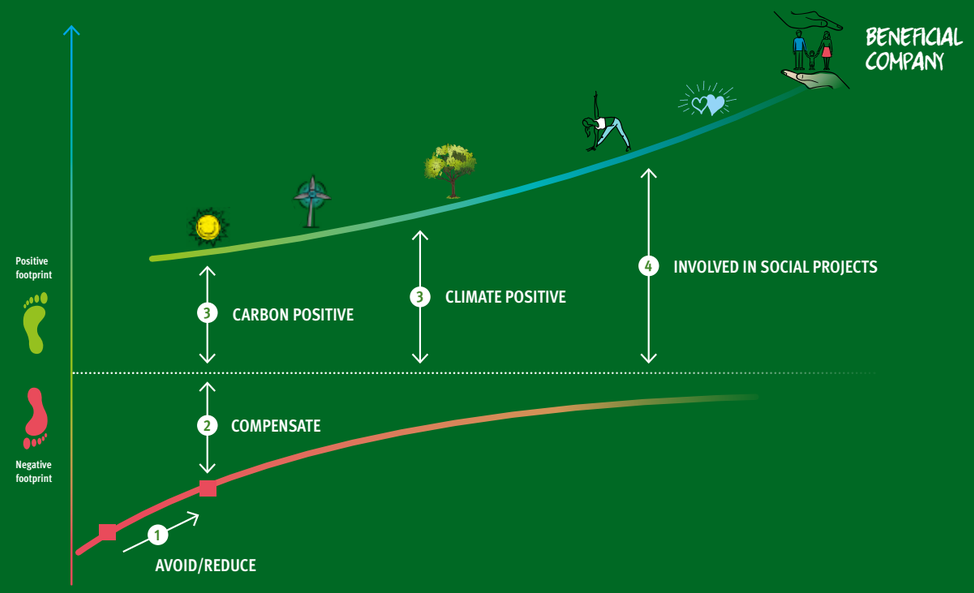
The building is divided into several separate parts, which are adjacent to each other or connected by bridges. These individual modules can be extended separately, if required, ensuring future flexibility for WALA.



Automated logistics solutions ensure maximum efficiency in the warehouse.

BECOMING A BENEFICIAL COMPANY

Drees & Sommer follows international sustainability standards



1 AVOID/REDUCE
- Business travel (flights)
- Single-use products

2 COMPENSATE
- Offsetting of CO_2 emissions by carbon credits

3 GET INVOLVED: CARBON POSITIVE AND CLIMATE POSITIVE
- Buying green electricity
- Using Cradle to Cradle® products
- Encouraging biodiversity
- Planting trees

4 INVOLVED IN SOCIAL PROJECTS
- Fitness and health facilities for staff
- Supporting aid organizations and social institutions

The way to become a beneficial company is not only to compensate for negative impacts, but to go beyond this to leave a positive footprint.

Sustainability has always played a major role in shaping Drees & Sommer's development. Accordingly, our primary objective remains to reconcile the long-term commercial success of the company with ecological and social objectives.

Our sustainability issues are based on the Global Reporting Initiative (GRI) standards. These have become established as the most widely used international standards for sustainability reporting and are constantly being updated. The annual report for 2020 has been prepared in accordance with the Global Reporting Initiative (GRI) Standards for 2016: core option.

With its commitment to sustainable corporate development, Drees & Sommer has also embraced the Sustainable Development Goals (SDGs) at the heart of the United Nations 2030 Agenda for Sustainable Development.

Many of the Drees & Sommer projects in this annual report are based on one or more of the SDGs:

3, 6, 7, 9, 11, 12, 15	Cradle to Cradle high-rise residential building Moringa (page 24)
3, 7, 13	New hospital for the young in Freiburg, Germany (page 28)
4, 8, 10, 11, 16	Wittelsbach Castle, Germany (page 30)
3, 8, 9, 11	Highway junction 'Berliner Funkturm' (page 34)
9	Automotive Special (page 44)
3, 9, 10, 11	Carossa district, Berlin, Germany (page 53)
9, 11, 12, 13	Train station Zurich-Stadelhofen, Switzerland (page 58)
13	WALA distribution and logistics center (page 62)
11	High-rise building at Alexanderplatz, Berlin, Germany (page 78)
11	Expansion of district administration offices, Göppingen, Germany (page 86)
11	Interxion data center (page 90)
11	Roche high-rise building 'Bau 2' (page 94)
9	Trumpf multifunctional building (page 98)
9, 11	District Special (page 104)
7, 8, 9	Sustainability certification Siemensstadt² (page 116)
11, 13	Hugo Boss outlet center, Metzingen, Germany (page 120)

GLOBAL REPORTING INITIATIVE
This report, along with the related online information, is based on the standards for sustainability reporting developed by the Global Reporting Initiative (GRI). It has been prepared in accordance with the GRI Standards: core option.

GRI

GRI XXX-XX

To highlight relevant sustainability issues in the following text, they have been marked with a green speech bubble. Scan the QR code below to see the detailed version of our GRI report:

SUSTAINABLE DEVELOPMENT GOALS
The 17 Global Goals agreed by the United Nations came into force on January 1, 2016. They serve as a blueprint for economic, social and environmentally-sustainable transformation toward a sustainable global community.

SUSTAINABLE DEVELOPMENT GOALS

Selection of significant sustainability measures

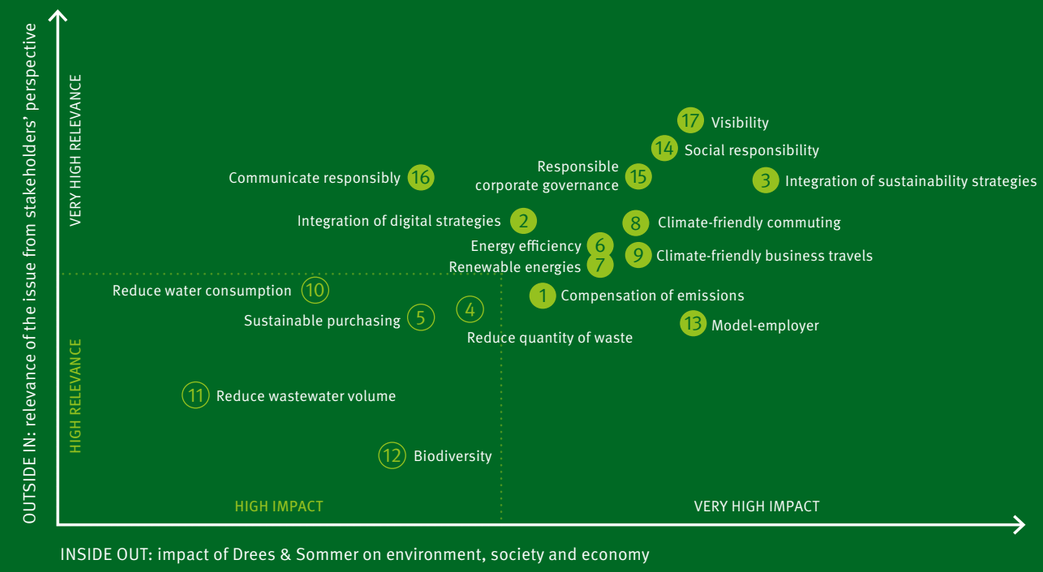
GRI 102-40

As a planning and consulting company, Drees & Sommer is in constant contact with clients, staff, and representatives of associations, the media, and the public. The company believes in transparent dialogue with these stakeholder groups. Some of these are people and organizations with a commercial interest in the company, or with direct or indirect involvement in Drees & Sommer projects. We create the basis for constructive cooperation through wide-ranging discussions and varied communication formats with the various stakeholder groups.

GRI 102-43

The materiality analysis involved in the GRI reporting process serves to identify the material spheres of activity in which sustainability should be promoted. In close consultation with internal and external stakeholders, Drees & Sommer has defined central issues such as compensation that goes beyond the offsetting of unavoidable carbon emissions, low-carbon business travel and commuting, and responsible corporate governance. The importance of the issues was ascertained in a materiality matrix using value added and impact as parameters.

Drees & Sommer's beneficial company approach also addresses issues that are not featured in the strategy and the reporting system. These include sustainable purchasing and reducing water consumption. Another aim is to increase biodiversity at Drees & Sommer's various locations.



The materiality matrix gives an overview of the impact and the added value of the individual issues, thus en abling relevant measures to be prioritized.

The materiality matrix identifies important issues and topics

GRI 102-44

The tool used for the analysis is the materiality matrix. It depicts the outcome of the stakeholder groups' engagement. Important sustainability issues are those that are ranked highest, both from the perspective of the shareholder groups and in relation to their impact on the environment, society and economy. They are covered by thorough reporting in line with the international standards for sustainability reporting developed by the Global Reporting Initiative (GRI), based on the core option. Further sustainability issues are also important to Drees & Sommer. These are also echoed in this report and are addressed in the beneficial company strategy by relevant measures. However, there is no comprehensive reporting in accordance with the Global Reporting Initiative.

GRI 102-46

The measures were assessed in an online survey according to their ecological and social impacts. The sustainability issues concern the entire Drees & Sommer group. Their impacts on the environment and on society are shown along the horizontal axis. An issue has a significant impact if it has a strong environmental or social effect and if many divisions of Drees & Sommer have an influence on this issue. The online survey also asked which issues were highly relevant to Drees & Sommer from the point of view of the stakeholder groups, and therefore also the areas in which the highest expectations were placed on Drees & Sommer

GRI 102-42

The company's carbon footprint

As part of its sustainability strategy, Drees & Sommer reports on the carbon emissions arising from supplying energy to its locations, and on business travel volumes. The non-profit organization myclimate provided support with this.

In 2020, Drees & Sommer reduced and offset its carbon emissions to such an extent that we are now climate-positive. While climate protection certificates are a significant part of this, the carbon offsets are gradually being reduced. We are currently offsetting greenhouse gases equivalent to 15,000 tonnes of carbon dioxide. For a positive climate footprint and to stabilize global biodiversity, we also fund the planting of 75,000 trees every year.

myclimate
shape our future

'The international initiative with Swiss roots is a global quality leader in voluntary carbon offsetting measures. Through projects of the highest quality, myclimate promotes quantifiable climate protection and sustainable development worldwide. Emissions are reduced by replacing fossil fuel sources with renewable energy, implementing local reforestation together with smallholders and by applying energy-efficient technologies.'

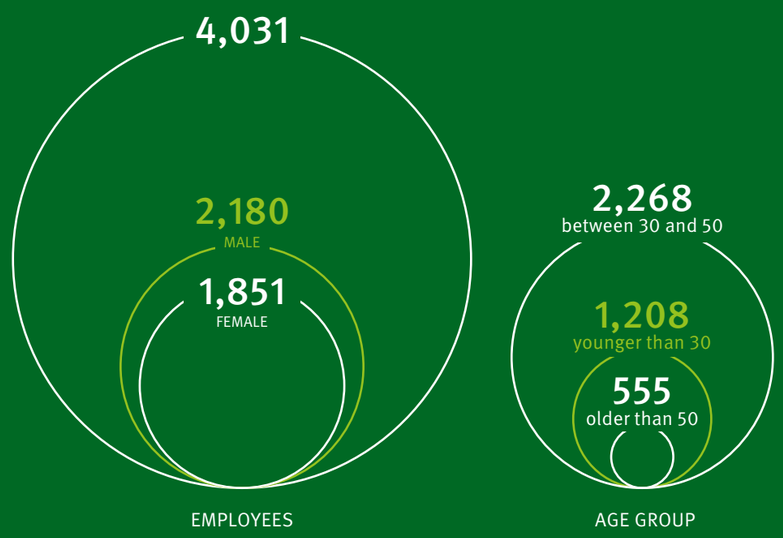
Website: myclimate.org

2.94
TONS of annual CO_2 emissions of the company per employee

Social indicators

GRI 102-8

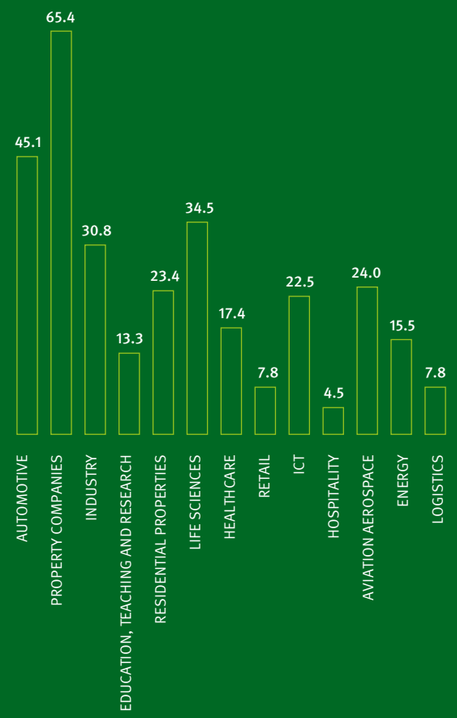
The following overview of staff at Drees & Sommer shows clearly, on the basis of age and gender, that the company not only provides secure jobs, but also values diversity. What applies to Drees & Sommer's projects also applies to the people who carry them out. Our teams therefore consist of a broad mix of people who work with great personal commitment and technical expertise.



Economic indicators

An important element of our management control system is developing our services relating to the core sectors of our clients – the industries served. This enables us to respond to changes and trends in the sectors in a more targeted way. Diversification also enables Drees & Sommer to spread its risks to a certain extent. This makes the company more resilient and increases job security, especially in times of crisis. This function is reinforced by Drees & Sommer's focused support for those sectors of greatest relevance to the future and to the sustainability transformation – for instance ICT and energy.

GRI 102-6



Industries served by / sector diversification at Drees & Sommer (in EUR million, figures as of spring 2021)

More than just climate protection

In addition to climate protection, we are continuing to strengthen our social and whole-of-society engagement. For instance, to mark our 50th anniversary in 2020, we supported 50 social and sustainable projects (see summary on pages 74 – 77). Our long-term objective is to become a beneficial company. The climate-positive footprint is just the first step.

Drees & Sommer's blue way now has clearly-defined measures for further CO_2 reductions, in addition to social responsibilities to make a positive contribution in this area also. To do this, simply getting started is of fundamental importance. Only when companies from all sectors have successfully taken care of these responsibilities – and thus are also on the way to being beneficial companies – will the world be prepared for the next generation.

OUR TARGET: BENEFICIAL COMPANY
As a **beneficial company**, we give more back to the environment than we consume from it through our business activities. In this regard, we make longlasting positive contributions to the environment and society while bringing about maximum benefit in these areas. Examples of this include:

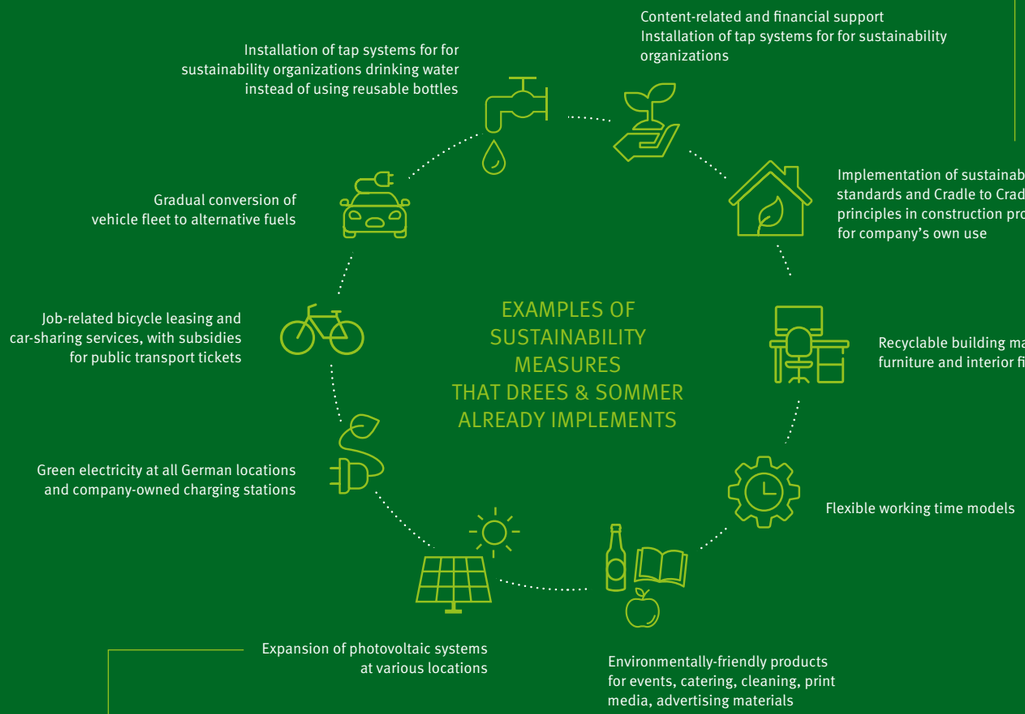
› planting trees;
› reducing CO_2 emissions following the Sustainable Development Goals (SDGs);
› future-oriented approaches such as Cradle to Cradle® or Blue City.

ESG	BENEFICIAL COMPANY **TARGET 2030**	SPHERES OF **ACTIVITY**	**IMPLEMENTATION** STRATEGY
ENVIRONMENT	Climate positive	1. MATERIAL RESSOURCES	– Reduce quantity of waste and close nutrient cycles – Sustainable purchasing
		2. ENERGY AND CLIMATE	– Compensation over and above offsetting unavoidable emissions – Reduce energy consumption – Increase share of renewable energy – Put CO_2 to use
		3. TRANSPORT	– Low-carbon commuting – Low-carbon business travel
		4. WATER	– Reduce water consumption – Reduce volume of sewage into public network
		5. BIODIVERSITY	– Increase biodiversity at Drees & Sommer locations
SOCIAL	Model-employer	6. EMPLOYEES	– Diversity – Flexibility – Preventive healthcare – Further training and education
	Social role model function	7. SOCIETY	– Social sustainability in the value chain – Implementation of social projects for community and environment – Engagement in social projects and strategically focused continuation – External service providers' compliance with collectively agreed and minimum wage laws
GOVERNANCE	Responsible and transparent corporate governance as part of the way we see ourselves	8. LEADERSHIP	– Responsible corporate governance – Honest and transparent communication – Increase visibility in the market
	Sustainable, leading and innovative business	9. PROFITABILITY	– 100 percent of projects start with a digital strategy – 100 percent of projects start with a sustainability strategy – Sustainable innovations – Sustainable finance

Targets, spheres of activity and strategic foundations of Drees & Sommer in company approach (clustered according to ESG criteria)

Lots of different measures make a whole

The road to becoming a climate-positive company consists of several small steps – but, as it turns out, these steps are also positive in economic terms.
The following overview covers only a selection of the measures we have taken.



ENERGY PROCUREMENT IN THE COMPANY

All of the electricity that we procure for our German locations comes from hydroelectric power and wind energy, and most of it is fed into the electricity grid at the same time. This guarantees that the share of green electricity is also increased there.

ECO-FRIENDLY MATERIALS AND PRODUCTS

At events, in the staff restaurant and for catering, for cleaning, print media or advertising materials, we use organic and environmentally-friendly products where possible. For rebuild or new buildings, as well as for trade fair booths, we rely on recyclable building materials, furniture and interior design.

JOINT VENTURE WITH EPEA

Drees & Sommer and the former EPEA Internationale Umweltforschung GmbH have been working together since the beginning of 2019. After years working in close partnership to provide advice to building contractors and investors, Drees & Sommer and Professor Michael Braungart merged to form a new company, EPEA GmbH – Part of Drees & Sommer. The aim is to establish Cradle to Cradle® design principles for the circular economy in all sectors of industry.

EPEA
PART OF DREES & SOMMER

GRI 417-1

COLLABORATION WITH MADASTER

Madaster provides a global online materials directory which not only contains information about the origins and quality of building products, it also offers a basis for calculating the key value data for specific buildings and materials.
This makes the value of the raw materials transparent so that buildings become veritable storehouses of raw materials. The partnership with Madaster and the support of the platform as a 'Kennedy' is an important step which will help us to promote the circular economy in the real estate sector.

MADASTER
KENNEDY

Advancing the Beneficial Company in partnership

As shareholders in Drees & Sommer SE, the partners support the company's clear approach to sustainability. This basically involves measures that take into account both economic and ecological considerations, including in the long term. This requires not only a capacity for innovation, but also consistency of thought and action – a mindset that is reflected in the steady long-term development of the company.

GRI 102-18

Prof. Dr. Michael Bauer
Martin Becker
Mirco Beutelspacher
Jürgen Brandstetter
Frank Bornmann (from 1.7.21)
Claus Bürkle
Michel de Haan
Klaus Dederichs
Simon Dietzfelbinger
Jörg Ewald-Lincke
Prof. Phillip W. Goltermann
Prof. Dr. Thomas Harlfinger
Thomas Häusser
Sascha Hempel
Stefan Heselschwerdt
Klaus Hirt
Thomas Hofbauer
Thomas Jaißle
Björn Jesse
Sascha Kilb
Hon.-Prof. Dr. Markus Koch (from 1.7.21)
Boris Matisic
Dr. Peter Mösle
Dierk Mutschler
Norbert Otten
Rainer Preisshofen (from 1.7.21)
Frank Reuther
Ralph Scheer
Andreas Schele
Marc Schömbs
Daniel Seibert
Prof. Dr. Hans Sommer
Philipp Späth
Steffen Szeidl
Patrick Theis
Veit Thurm
Gabriele Walker-Rudolf
Markus Weigold
Jörg Wohlfarth
Rino Woyczyk

#50 YEARS DRESO READY FOR FUTURE

Last year was a great one for our future: We embraced sustainability and our social responsibilities with great passion and energy. So we're well on the way to becoming a Beneficial Company.

Drees & Sommer presents: THE BLUE WAY next exit
Instead of looking back on our successful past, we look into the future: To jointly create a world we want to live in.

GRI 413-1

Drees & Sommer celebrated its 50th anniversary in 2020. Instead of holding an expensive anniversary celebration we lived according to our sustainable attitude and gave something back to the people and society. Over 50 weeks all employees undertook initiatives across all our company locations.

www.50years.dreso.com

BERLIN/POTSDAM
Mobility offers a little normality

Dresos got into the saddle for a day to take disabled people on a daylong bike tour through the city and environs.

SWITZERLAND
From lightship to cultural hub

A unique event space has been created in the hull of the historic lightship 'Gannet 1954'. Some 70 Drees & Sommer colleagues helped strip the interior.

COLOGNE Trishaw rides bring generations together

Cruising along at a comfortable pace in the fresh air with the wind in your hair. That's the experience the team at the Drees & Sommer Cologne regional office wanted to give to seniors by supporting Cycling Without Age, an organization that offers them trishaw rides.

LONDON Littered beaches? Not on our watch

Some of our best-loved marine wildlife is under threat from the waste in our seas. Drees & Sommer UK will join forces with the Marine Conservation Society to turn the tide on litter.

SHANGHAI Urban Gardening with Cradle to Cradle®

Can you have urban gardening that is not only good for the environment, but is also in keeping with Cradle to Cradle principles? Our colleagues at the Drees & Sommer regional office in Shanghai tried it out in collaboration with the local German School.

LEIPZIG Black alders for the wilderness

More than 300,000 hectares of German forest have died during the drought years 2018 to 2020. In October 2020, Drees & Sommer joined forces with local action group Bergwaldprojekt to plant indigenous tree species state forests in Lower Saxony. The aim was to promote near-natural forest development in the hardest-hit areas managed by the Lauterberg Forestry Commission Office in Lower Saxony.

#50 YEARS | **DRESO** READY FOR FUTURE

STUTTGART Busy bees

Drees & Sommer has established two bee colonies on its campus in Stuttgart. This not only supports the local ecosystem, but also draws attention to the immense importance of these small insects and promotes opportunities for private beekeeping.

The Drees & Sommer Innovation Center took the startup company BeeOdiversity under its wings with a pilot project in Germany. BeeOdiversity has set itself the goals of environmental monitoring and preservation of biodiversity. In addition to digital technology, the company is making use of honeybees' zeal for collecting nectar and pollen.

VIENNA Beautiful summer in the Grätzloase

The Drees & Sommer team in Austria built a 25-square-meter terrace in front of the Neunerhaus Café in Vienna. Behind this name is a social organization that helps the homeless regardless of their circumstances.

Special effect: A vertical gap in the facade makes the building look like two separate towers.

NEW LANDMARK AT ALEXANDER-PLATZ

Berlin, Alexanderplatz. By 2025, this prestigious address will feature a further striking new building complex. Drees & Sommer is supporting Covivio with planning and realizing the vision of a vibrant vertical city in the heart of the German capital.

A high-rise tower and plinth will provide space for offices, residential units, retail, and food and beverage outlets. There will also be a kindergarten and a club floor with a roof terrace.

The development is the first high-rise building to be built under the new town-planning scheme for Alexanderplatz. It will also be the first high-rise building in Berlin to make use of geothermal energy. An area network will supply the new building with power. The project's sustainability goals are reflected by the aspiration to achieve LEED Gold and Wired Score Platinum certification.

Client: Covivio Office Holding GmbH, Berlin | **Project duration:** December 2018 – mid-2025 | **Architecture:** sauerbruch hutton, Berlin | **Drees & Sommer services:** BIM management, energy design, building physics, building ecology, facade technology, Green Building certification, Digital Ready Check, technical & economic construction consulting, technical & economic controlling | **Key project data:** GFA: Approx. 90,200 m², Floors: 33 above ground, 3 underground | **ESG goals:** Affordable, clean energy; sustainable cities/communities

A vertical city taking shape in the heart of Berlin is based on a design by sauerbruch hutton.

© sauerbruch hutton

“The energy contractor competition saved the principal €8.5 million in investment costs. It’s great to create such measurable added value in a project of this magnitude and appeal.”

Kay Promehl,
Senior Manager at Drees & Sommer

Drees & Sommer’s main contributions to the Covivio project are in the areas of technical and economic expertise – including acting as the client representative for building services equipment (BSE). The aim of the project team is to provide comprehensive consulting, thus laying a firm foundation to ensure the smooth progress of the project right from the outset.

The inner-city location, which increases the complexity of construction logistics, is a particular challenge. In addition, the plinth around the Park Inn hotel had to be partially demolished to clear the construction site. Here, too, Drees & Sommer experts contributed to the successful completion of the task, allowing construction work to start as planned in May 2021.

The experts also covered many other aspects of the project, for example, by conducting a Digital Ready Check, advising Covivio on an indoor climate concept for the offices and facade, as well as on BIM management and facade planning. Even during the planning phase, technical & economic controlling services added value for the client and planners – and thus for the entire project.

When Covivio was looking for a contractor for energy engineering, Drees & Sommer supported the developer by managing a competition with the goal of getting bidders to propose innovative, cost-efficient energy concepts. The parties involved achieved this with flying colors, saving Covivio some €8.5 million in investment costs.

TELEKOM REALIZES A RANGE OF REAL ESTATE PROJECTS

Each year, Deutsche Telekom AG upgrades about 100 of its retail outlets to the new corporate design and refurbishes its data centers and offices throughout Germany. Drees & Sommer provides professional support for their wide-ranging real estate projects.

The 600-odd Telekom Shops in Germany are gradually being upgraded to the new corporate design.

Deutsche Telekom has around 600 Telekom shops nationwide, which are gradually being upgraded to the new Telekom Shop design. This requires far-sighted coordination of the construction work throughout Germany. To make the rollout as efficient and stable as possible, the Drees & Sommer team worked with Deutsche Telekom to ensure the greatest possible standardization of the processes involved. A digital dashboard allows the client to view the current status of its projects at any time and compare and classify them using various benchmarks.

Client: Deutsche Telekom AG, Bonn | **Project duration:** Ongoing since 2018 | **Drees & Sommer services:** Project Management Office (PMO), multiproject control, strategic consulting, feasibility studies, project management as per AHO (Fee Structure Committee of the Associations and Chambers of Engineers and Architects), invitation to tender and contract award for construction services, engineering, construction controlling, user management, space allocation management, relocation management

“Close and trusting cooperation between Deutsche Telekom AG and Drees & Sommer is essential for the successful completion of the many complex projects.”

Jan Philipp Wolcke,
Senior Team Leader at
Drees & Sommer

But it is not only for Telekom Shop projects that the telecommunications provider relies on Drees & Sommer consulting expertise: It was also called on for the cost-efficient construction or upgrade of the company’s data centers and offices.

The range and number of challenging projects required the cooperation of a strong and reliable partner to ensure efficient and stable management. Deutsche Telekom and Drees & Sommer have a long-standing and trusting business relationship. This, in addition our experience with multiprojects and retail projects, provides an excellent basis for successful cooperation. For example, the telecommunications company commissioned Drees & Sommer some years ago with project management at various sites. More and more tasks were added over time. In recent months, experts at 14 Drees & Sommer regional offices in Germany have been working on these projects, contributing their expertise in the areas of project management, user experience, real estate consulting, and engineering.

At the start of the projects, experts carried out a stakeholder analysis. They coordinated the necessary processes and worked with Deutsche Telekom to establish an organizational structure and develop a reporting and management tool that meets the client’s specific requirements. Deutsche Telekom has since adopted this tool and now uses it in many of its construction projects. The New Work – User Experience & Design Consulting team develops the space allocation concepts with the various Telekom departments.

Fitting out an office with several hundred workplaces without interrupting operations was one of the special challenges faced by the team. The Relocation Management team supports the client with the reassignment of workplaces. And the cooperation has been successful: Deutsche Telekom achieved its ambitious schedules for all these real estate projects.

The Project Management Office (PMO) undertakes higher-level coordination of all projects and ensures that quality specifications are met. In particular, the close cooperation between the PMO and the client’s strategic projects management team contributes to the success.

Drees & Sommer and Deutsche Telekom AG look forward to further close cooperation over the coming years.

Combining functionality and diversity – the Göppingen District Council offices have been given a new lease of life.

CONSOLIDATED EXPERTISE ACHIEVES DGNB GOLD

It was a great outcome for a challenging construction project when the annex of the Göppingen District Council offices was opened in spring 2020. A team of experts from Drees & Sommer provided a high level of support to the principal throughout all phases of the project, making a key contribution to its successful conclusion.

In the first decade of the new millennium, the Göppingen District Council faced a growing need for office space. The situation was compounded by the fact that the existing canteen, meeting and committee rooms, and the chamber for public meetings, no longer met requirements. The council needed a future-proof building that would meet a range of needs – and, of course, at the same time be a building that served the 'local community'.

Even the anteroom of the assembly hall offers plenty of space.

The district council will hold future meetings in the Great Hall.

Client: Göppingen District Council, Office for Building Construction, Building Management and Roads | **Project duration:** January 2013 – December 2020 | **Architect:** BFK Architekten, Stuttgart | **Drees & Sommer services:** Feasibility study, cost-effectiveness analysis, architectural competition according to the Guidelines for Planning Competitions (RPW), EU-wide selection of specialist planners, project communication system (PCS), internal expert consultations based on VOB/C (German Tender Regulations for Construction Work), electrical management, Lean Construction Management (LCM), project management of all project stages (1-5) and areas of activity (A-E) as per AHO (Fee Structure Committee of the Associations and Chambers of Engineers and Architects), project lead function according to AHO for individual services | **Key project data:** GFA: 6,889 m², Construction cost: Approx. €21 million gross

“Customer proximity, transparency and commitment allowed us to highlight potential added value for the principal. And thanks to our wide-ranging in-house solution expertise, we were able to deliver in each case.”

Yvonne Allner,
Senior Project Leader at Drees & Sommer

The entrance area is designed to allow visitors and employees to find their way around quickly.

The result was an extensive construction project that involved demolition of the old building surrounding the district council meeting chamber and the construction of a new four-storey administration building with an underground level. The Drees & Sommer specialists joined the project at an early stage, undertaking both a feasibility study and an economic feasibility study. Two further contracts were subsequently awarded.

The BSE experts were able to support the principal, for example by clarifying technical plausibility, establishing important interfaces, and coordinating electrical replacement planning. At a critical stage in the process, LCM colleagues completely revised the construction schedule, thereby minimizing delays. And Drees & Sommer also worked with the principal during the project planning phase and architectural competition to lay the foundation for Green Building certification.

The intricate demolition of the existing building – including gutting and waste disposal – proved particularly challenging. The complex subsoil also proved difficult, with rubble, contaminants, and underground connections to established buildings. Electrical planning was also delayed – and last, but not least, the coronavirus pandemic resulted in bottlenecks in the delivery of materials. Thanks to its many years of project experience, the Drees & Sommer team was able to overcome all these challenges. The ‘reward’ for years of personal commitment on the part of the project participants came when the expanded Göppingen District Office was commissioned in April 2020 and the final cost statement showed that – despite all the adverse circumstances – Drees & Sommer had managed to keep the project within the tight budget. But that was not all: In the meantime, the Göppingen District has approached Drees & Sommer with inquiries about other projects.

A MODERN DATA CENTER IN A HERITAGE BUILDING

Client: Interxion Deutschland GmbH, Frankfurt a.M. | **Project duration:** Q2 2019 – Q4 2024 | **Architect:** Drees & Sommer, Integrated Design team | **Drees & Sommer services:** Feasibility studies, Technical Due Diligence, General Construction Management RIBA stages 1-3 / service phases 1-4 + 6-7 | **Key project data:** GFA: 115,121 m², White space (the part of a data center containing server cabinets and data storage devices): Approx. 45,000m², capacity of 84.6 MW

Germany's first heritage-listed data center is taking shape on the former Neckermann campus in Frankfurt. Drees & Sommer is supporting the ambitious project with comprehensive planning and consulting services.

Digital Park Fechenheim is a successful example of the sustainable and future-proof repurposing of an established building.

Interxion, one of the leading colocation providers, is building the Digital Park Fechenheim – a modern data center with a capacity of 200 megawatts – on the former campus of the Neckermann mail order company in Frankfurt.

The main aim of the project is the conversion of the former Neckermann fulfillment center, which is heritage-protected, into several data centers. Many structural elements of the building, which is 300 meters long, 65 meters wide and 25 meters high and dates back to the 1960s, are to be preserved to protect the architectural heritage of Egon Eiermann, who was responsible for creating one of the largest and most innovative buildings of the post-war period in Germany.

The Interxion data center can be experienced virtually before its completion by scanning the QR code.

Drees & Sommer was involved in the planning at an early stage of the project: In an urban-planning competition for the precinct, the company's architects prevailed against established competitors. Their vision now serves as a master plan for the campus, which was acquired in February 2020, and will see approximately 100,000 square meters of IT space developed over the next eight years.

The heritage-protected status of the building proved challenging and required intensive and proactive involvement of the authorities. The project team prepared a feasibility study to define the criteria for the acquisition and renovation of the building. The experts undertook Technical Due Diligence (TDD) to determine the scope and technical quality of the building's systems. The results of the assessment led Drees & Sommer to recommend that Interxion purchase the building. In keeping with the basic principles of integrated design, the planning team examined the legacy building at an early stage and developed a complete BIM model. The planning process is 100 percent virtual using the BIM 360 platform, and all participants work almost exclusively digitally.

Drees & Sommer is undertaking complete management of building planning and building services engineering within the scope of its General Construction Management (GCM) service.

The planning approach agreed with the authorities provides for the preservation of the entire shell of the Eiermann building, including the main building and the facade with some 1,000 windows. The only indication of the building's new use as a data center is a well-designed plant and equipment level based on Eiermann's design principles and whose proportion and design have been coordinated with the heritage protection and urban planning authorities. The building will be gutted, and the architects will plan all modifications and additions with a view to retaining as much as possible of the original appearance.

Conversion work in the southern part of the campus began in the first quarter of 2021. Work on the building shell of the Eiermann building will start in the summer following receipt of all relevant approvals. The first commissioning phase of the data center is planned for the third quarter of 2022.

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“There is increasing social interest in sustainable redevelopment concepts and the revitalization of buildings. The planned repurposing of the Eiermann building is the result of a creative collaboration with the authorities and Interxion, and an example of constructive cooperation between all parties involved.”

Dirk Kahl, Associate Partner at Drees & Sommer

The Eiermann building will retain its look, with space for a modern data center being created in the gutted interior.

BAU 2: THE BIG BROTHER

Lean – and visible from afar. The Roche high-rise Bau 2 (Building 2) soars a proud 205 meters above Basel. In 2020, it surpassed the 178-meter Bau 1 as the highest building in Switzerland.

The twin towers dominate the Basel skyline: the Roche high-rise buildings Bau 1 (left) and Bau 2 (right)

The new F. Hoffmann-La Roche AG office building at its headquarters in Basel will accommodate some 3,500 employees. For Bau 2, the architectural firm Herzog & de Meuron chose an urban design that reflects the client's historically evolved design language, while at the same time allowing development of the building from the inside out.

As part of its commission to undertake general planning, Drees & Sommer requirements planners worked with future users to develop a coherent, innovative usage concept. The focus was on requirements such as flexibility, functionality, and the quality of the work environment.

The project team for Bau 2 was able to leverage experience gained from working on the previous Roche Bau 1 project. The brief was to continue using the concepts developed for Bau 1 and to design all areas to be as efficient and flexible as possible. In addition to overall coordination and project management, Drees & Sommer is handling general planning services for the areas HVAC and plumbing planning, facade planning, energy and sustainability management, building physics, and construction logistics planning. The project team is also responsible for BIM coordination, planning concepts for office space and land use – including the flow of people and goods – and facility management during planning.

Attractive open design elements and needs-based control of lighting ensure a healthy interior and work areas.

All selected materials and fabrics not only harmonize visually, but are safe for both humans and nature!

Client: F. Hoffmann-La Roche AG, Basel | **Project duration:** December 2015 – Second quarter 2022 | **Architect:** Herzog & de Meuron, Basel | **Drees & Sommer services:** Architectural/construction planning coordination, facade technology, building physics, BSE coordination, HVAC and plumbing planning, energy design, construction logistics planning, user management, cost and schedule management, document control, BIM coordination, preparation of invitations to tender and contract award support, sustainability project support | **Key project data:** GFA: 85,460 m², Construction cost: Approx. CHF 550 million

The brief was to design all areas to be as efficient and flexible as possible.

“In a large-scale project, digitization and BIM are key success factors: BIM facilitated almost entirely error-free, quality-assured planning. This allowed the contractors to significantly increase prefabrication levels and their productivity on the construction site. This approach also minimizes disruption of the construction process. The use of Power BI in controlling also meant that any deviations could be detected at an early stage, allowing appropriate corrective action to be taken.”

Claus Herrmann,
Project Director at F. Hoffmann-La Roche AG

In contrast to Bau 1, which was built using 3D planning, Bau 2 was developed with BIM. A ‘digital twin’ of the planned building is realized, a virtual three-dimensional copy. This not only shows the geometry of the planned building, but, at the click of a mouse, also provides information on the materials to be used. The BIM model helps planners to communicate better and coordinate all the requirements of the individual trades, thus helping to avoid mistakes. Sole responsibility for managing BIM coordination rests with Drees & Sommer, including the creation of the overall as-built model.

The 50-storey office tower also has impressive sustainability credentials: Energy demand is minimized thanks to a glass content of 50 percent, with solar protection integrated into the Closed Cavity facade and excellent thermal insulation. Secondly, waste heat from the campus is used for heating, groundwater for cooling, and heat recovery for the ventilation system. In addition, needs-based control of the air conditioning and lighting systems and precise energy monitoring ensure highly efficient building operation.

Special attention was paid to material selection and the minimization of indoor air pollutants, with the aim of avoiding the use of materials and substances potentially harmful to people and the environment. The ingredients and emissions of some 900 building products are being audited before their use in construction. The creation of healthy interiors is a top priority for Bau 2.

Thanks to the use of Lean Construction Management (LCM) the project is being completed in excellent quality, on time and within budget. The improvements in communication and processes ensure a stable, efficient construction process. Despite the coronavirus pandemic, the building shell was completed six weeks ahead of schedule in December 2020. Move-in is planned for mid 2022 following a phase of user-specific modifications.

NEW ADMINISTRATION BUILDING – TRUMPF EXPANDS IN SCHRAMBERG

Client: TRUMPF Laser GmbH, Schramberg | **Project duration:** July 2018 – December 2022 | **Architect:** Barkow Leibinger, Berlin | **Drees & Sommer services:** Cost estimation, cost calculation, cost tracking, invitation to tender and contract award, site supervision for cost group 300 | **Key project data:** Construction cost: €43 million, GFA: 14,000 square meters

The Drees & Sommer construction management team has been working successfully with TRUMPF for more than 20 years – a partnership that has grown stronger with each successive project. Since 2018, the team in Schramberg has been on site supporting the Ditzingen-based mechanical engineering company's latest project.

An eye-catcher from any angle: The north facade reveals the spacious main entrance area with its glazed front.


© Barkow Leibinger, Berlin

The main staircase featuring seamless cast-in-place concrete met the strictest requirements for fair-faced concrete.

“TRUMPF is synonymous with quality, efficiency and outstanding results. We also pursue these values and can, for this reason, can look back with pride on many years of cooperation.”

Zeno Gernsheimer,
Project Team Leader
at Drees & Sommer

An impressive new building is taking shape on the extensive TRUMPF campus in the idyllic setting of the Black Forest.

The site expansion encompasses a new four-storey building with office and laboratory areas, and meeting rooms for management and administration. A laser application center and the employee healthcare center will also be accommodated in the 14,000 square meter project. The building’s highlight is a canteen on the upper floor looking out over the Black Forest.

In particular, the sophisticated architecture of the multifunctional building with its high-quality exposed concrete walls and ceilings poses challenges for the Drees & Sommer construction management experts. The building’s impressive features include a timber and glass design using a post and mullion construction, and an elaborate timber roof support structure. As the floors are offset in relation to each other, the building presents an interplay of cantilevers, parapet bands and spacious terrace areas.

A high level of finesse and very close coordination are required for perfect coordination of the disciplines and processes involved. Thanks to its many years of experience with complex TRUMPF structures, the Drees & Sommer Construction Management team is ideally positioned to meet the client’s special requirements. The experts paid particular attention to the site supervision and coordination. As a result of intensive exchange between the architect, structural engineering team and the contractors, work is well advanced and on schedule. Constant quality control is essential to ensure the accuracy of fit of the individual disciplines. Drees & Sommer’s internal quality assurance database – which was already used during the planning phase – is a key success factor.

The canteen features a free-spanning timber roof support structure that lends the space a unique character – and provides a spectacular view.

© Barkow Leibinger, Berlin

HOTEL NHOW AMSTERDAM OPENS ON SCHEDULE WITH QUALITY GUARANTEE

The nhow Amsterdam RAI Hotel at the Exhibition and Convention Center is a new addition to Amsterdam's southern skyline.

Client: COD in cooperation with Being Development | **Site management/main contractor:** Pleijsier Bouw | **Project duration:** 2016 – 2020 | **Architects:** OMA | **Drees & Sommer services:** Stakeholder management, monitoring, quality control, supervision | **Key project data:** GFA: 43,000 square meters, Height: 91 meters, 25 floors, 650 hotel rooms, BREEAM-NL Excellent

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"Together, we have delivered a product of extremely high quality. From the start of construction in 2016, all parties involved shared a common goal. That was palpable throughout the entire project."

André Leeuwis, Managing Director at Drees & Sommer in the Netherlands

Triangular volumes and clear lines: At 91 meters, the hotel is the highest new hotel building in the Benelux region and a real eye-catcher.

Designed by OMA, the four-star hotel features 650 rooms on 25 floors and a public restaurant on the top floor. The hotel also includes a TV studio, a gallery with a sculpture garden, and a spa center. A parking garage, Sky Bar and meeting and conference rooms round out the facilities.

Apart from its size and location, it is the unique architecture that makes the iconic building so impressive: Comprising a stack of three offset triangular volumes inspired by the well-known 'Het Signaal' RAI advertising column, the building blends seamlessly into the existing RAI complex, giving it a fresh, contemporary look.

The Dutch company BOAG, which has been part of Drees & Sommer Netherlands since July 2020, supported the client, COD, with project management services. The team also coordinated and monitored the progress, quality and safety of the main contractor Pleijsier Bouw on behalf of COD.

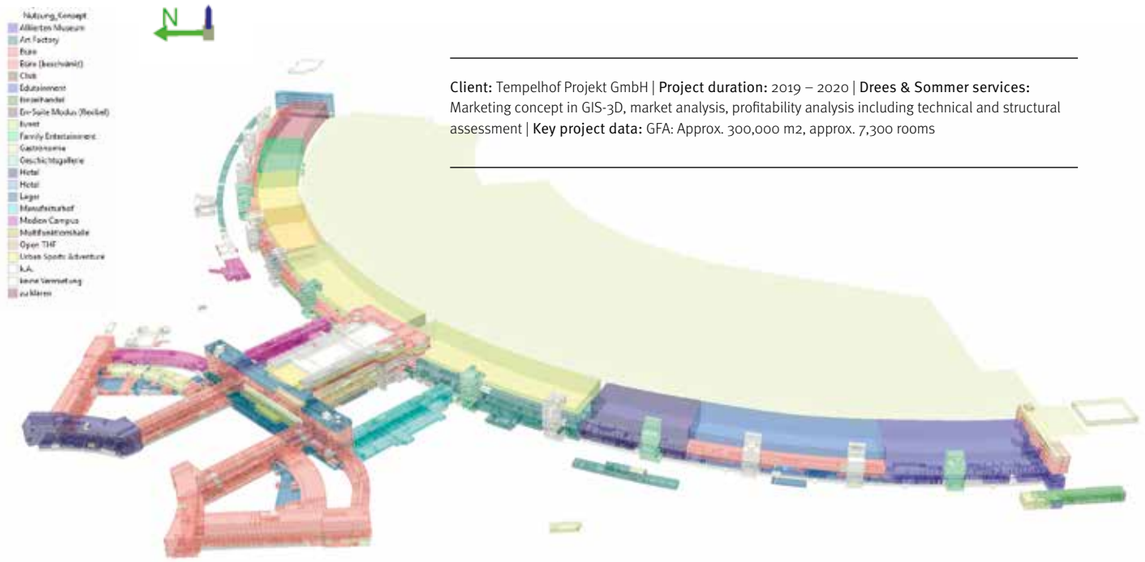
The experts' tasks included decisive stakeholder management to ensure that the interests of all parties were taken into account. The extensive construction project also required intensive quality control with regular quality reports, whereby the focus was on writing and assessing the test reports. Clear structuring and review of the construction costs over the various construction phases and planning changes ultimately guaranteed the project's smooth progress.

The hotel, which at 91 meters tall and with a gross floor area of some 43,000 square meters is the largest new hotel to be built in the Benelux region, was handed over to AXA IM on January 8, 2020. The first hotel guests were shown to their rooms just two days later.

OPTIMIZATION OF URBAN DISTRICTS: IT'S ALL ABOUT FINDING THE RIGHT MIX!

Whether you consider development consulting for Europe's largest architectural monument, the repurposing and modernization of industrial sites, or an innovative mix of uses on the outskirts of a large city: What happens today on urban and industrial development sites shapes the future.

Investors, developers and local authorities face a wide range of challenges when developing a district. The main ones include creating a good mix of types of use, residential styles, and mobility options. Digitization requirements and ecological aspects also have to be taken into account. It is a complex task for which there are no one-size-fits-all solutions. Drees & Sommer is currently undertaking a number of urban district projects that show how these challenges can be met.



Project status 01/2020

Client: Tempelhof Projekt GmbH | **Project duration:** 2019 – 2020 | **Drees & Sommer services:** Marketing concept in GIS-3D, market analysis, profitability analysis including technical and structural assessment | **Key project data:** GFA: Approx. 300,000 m2, approx. 7,300 rooms

“A digital model serves as the basis for marketing. This, together with a dashboard, helps to assess the economic viability.”

Lili Schäfer,
Senior Consultant at Drees & Sommer

The successful development of public spaces and urban districts requires the expertise of a range of construction and real estate disciplines: Marketing, financing, management and engineering expertise all come together. Thanks to its extensive project experience, Drees & Sommer can provide effective support to a wide range of customers in this area.

The **Tempelhof Airport** is Europe’s largest heritage building. Since the airport’s closure in 2008, a range of companies and events have used the vast complex. Adjacent to the airport building is the Tempelhof Field, one of the largest inner-city open spaces in the world. In 2014, a referendum was held in which the people of Berlin voted in favor of preserving most of the Field.

A Drees & Sommer expert team of project managers and engineering specialists has been supporting the redevelopment of the airport since 2019. Their role includes creating operating concepts and models for tourism, and advancing the related projects. The team is using a GIS-based 2D and 3D model of the huge site and the roughly 300,000 square meters of gross floor area.

The aim is to develop Tempelhof over the next few years into a diverse and vibrant community hub – a city within a city – featuring art, culture, creative industry and public facilities, and venues for major events.

Client: Entwicklungsträger Potsdam GmbH | **Project duration:** January 2020 – December 2020 | **Drees & Sommer services:** Marketing concept, client representation for infrastructure provision during construction phase 1 | **Key project data:** Size of the district: 870,000 m2 gross floor area, 10,000 residents, 4,900 residential units, 9 district parking garages, 7 kindergartens, 2 schools

“Following agreement with the client on a marketing concept, the first construction sites will be sold very quickly.”

Franziska Vogelsang,
Senior Project Leader at Drees & Sommer

Like many major cities, Potsdam continues to grow outwards. Over the next 10 to 20 years, a new district with housing and commercial space, daycare centers and schools will be built on a former military site in the north of the Brandenburg state capital. Some 10,000 people will find a new home on a site of about 140 hectares in **Krampnitz**.

The principal’s plans for the new district include making it a low-traffic neighborhood and providing a sustainable energy supply. With its intended mix of uses, the district is to be developed to cater to stages of life.

Drees & Sommer specialists for Real Estate Consulting (REC) and infrastructure are supporting the client as consultant and client representative during the first construction phase. The complex policy requirements for social housing construction and the many different institutions that need to be integrated into the project will ensure that the team has its hands full.

Drees & Sommer was already able to support the client by involving the project stakeholders at an early stage of the goal definition process, as well as in the development of a sustainable marketing concept.

The new Potsdam district of Krampnitz with green corridors: Around 10,000 people will one day call this home.

Client: Paul Wurth S.A., Luxembourg | **Project duration:** January 2016 – December 2020 | **Urban planners:** Albert Speer und Partner, Frankfurt / Architectes Paczowski et Fritsch, Luxembourg | **Landscape planners:** Elyps, Nijmegen, AREAL Landscape Architecture, Niederanven | **Transport planner:** TR-Engineering, Luxembourg | **Project management:** PW GEPROLUX, Landimmo | **Drees & Sommer services:** Feasibility study, continuous updating of profitability analysis calculations, valuation, and advice on the development of individual plots | **Key project data:** Total project development area: Approx. 21 ha, GFA: approx. 400,000 m2, of which client share approx. 50%

By 2030, the **'Nei Hollerich' site in Luxembourg**, currently primarily zoned industrial, is to be developed into a mixed quarter for living and working based on a master plan. The former center of the Luxembourg steel and cigarette industry has particularly high potential as it is located directly next to the city of Luxembourg's main station. This means that the area has excellent transport links, particularly to local public transport.

"Our close customer ties allowed profitable application of our real estate expertise."

Mustafa Kösebay,
Associate Partner at Drees & Sommer

The client wanted a sound validation of the economic viability of the properties within the overall project, a valuation, and a reliable assessment of their potential and marketability. The Drees & Sommer Development Management specialists constantly update the profitability analyses. Their task also involved making a reliable valuation. The team mastered the challenge of comparing and examining the various realization options in detail with regard to their viability, as well as undertaking the necessary in-depth planning.

'Nei Hollerich' is a new urban district with good transport links.

“We bring our comprehensive expertise to bear to achieve successful controlling for the customer.”

Markus Lampe,Senior Manager at Drees & Sommer

Over the next few years, the development of the new urban district of Dietenbach in the west of Freiburg will provide more than 6,800 affordable apartments to accommodate some 16,000 people. Dietenbach is to be a vibrant, climate-neutral urban district. Easy accessibility, open spaces, schools, sports facilities, daycare centers and shops are planned. The Dietenbach development plan has been in preparation since 2020, refining earlier plans and specifying the future use of land.

The Drees & Sommer team of experts is supporting the project by undertaking ‘financial controlling of urban development’. The team draws up and continually updates the overview of costs and financing. The specialists also undertake budget control, preparation of data for the opening balance sheets and annual accounts, as well as grant and subsidy management. They are also involved in contract award procedures and provide support in negotiations. Planning and preparations for the new district are in full swing, with many issues still unresolved: Which subsection will be the first to be developed? How will networking be achieved? Who is to build what for whom? How will Dietenbach be used in the future? The project team is examining these questions in detail and gradually drawing up the concrete development plan. The draft of the first partial development plan is scheduled to be finished by the end of 2021.

Client: City of Freiburg im Breisgau | **Project duration:** November 2020 – December 2025 | **Master plan:** K9 Architekten, Freiburg, Latz + Partner, Kranzberg, StetePlanung, Darmstadt | **Drees & Sommer services:** Financial controlling, budget monitoring, cost and financing overview, support for annual financial statements, funding and financial resources management, support for tender processes, contract negotiations | **Key project data:** Development area: 107 ha, apartments: approx. 6,800, financing volume: approx. €850 million

Client: PHOENIX CONTACT GmbH & Co. KG, Blomberg | **Project duration:** July 2019 – December 2021 | **Drees & Sommer services:** Goal definition, determination of basic design data, site/market analysis, space requirement analysis and calculation, criteria development, and realization scenarios

“Our team offers everything from a single source, so the client benefits fully when developing new and existing locations.“

Matthias Dammann,
Senior Consultant at Drees & Sommer

Another Drees & Sommer Development Management team is currently supporting **Phoenix Contact** sites in Ostwestfalen-Lippe. This project involves the medium- to long-term use of the company’s main production sites, taking into account the necessary repurposing and refurbishment scenarios, including the sustainable use by the Blomberg-based electrical engineering and automation specialist.

The goal is to develop a reliable space requirement analysis for each of the company’s locations. This required the specialists to work closely with the client’s business units to undertake growth planning for different scenarios and thus enable timely organizational and economical implementation.

The biggest challenge results from short-term changes in the client’s space requirements because some space capacity will no longer be available in future. Drees & Sommer’s response to this is to hold regular consultations with the client and to access comprehensive in-house expertise from the entire company – including, for example, development consulting, work environment planning, and cost, production and logistics planning.

Site development
Phoenix Contact in
Schieder-Schwalenberg,
Ostwestfalen-Lippe.

A HOME FOR NEW WORK

Drees & Sommer is consolidating its expertise in new work environments – from conception to implementation – at its New Work Hub in Munich. Following remodeling in April 2021, the company's own regional office is also ready for the future of work.

The market square on the 3rd floor of Geisenhausener Strasse 17 in Munich is a central hub that is open to all guests – and can quickly be converted into an auditorium with a stage.

A team of Drees & Sommer specialists for New Work – User-Centric Consulting & Design – got down to work in December 2019. Their mission was to give the New Work Hub a home base by creating an attractive future-proof work environment for their 250-odd colleagues at the Munich regional office. It also served as a further pilot project to trial the design guidelines for Drees & Sommer offices, following completion in 2018 of the award-winning DS HUB in Dreso City in Stuttgart.

Guided tours of the New Work Hub start in the Pocket Park, where employees sometimes do yoga or hold stand-up meetings.

The concept's underlying values of sustainability, well-being and diversity go hand in hand in the reception area.

Client: Drees & Sommer Munich regional office | **Project duration:** December 2019 – April 2021 | **Architecture:** Drees & Sommer | **Drees & Sommer services:** Project management, HVAC and plumbing, acoustic planning, workplace consulting, change management, interior design | **Key project data:** GFA: 3,200 m²

"Anyone who wants to introduce the concept of New Work to their company can come and see a tried and tested showcase – and meet the people who can design and implement the whole thing."

Alexander Strub, Creative Director and Annette Schorr, Senior Planner at Drees & Sommer

'Every user needs a small town.' That's the principle on which the experts base the workplace concept when redesigning office space. Like in a town, a range of people with different qualifications and identities come together for mutual inspiration and to learn from each other. And, just as in a real town, relationships should develop naturally. Ensuring comprehensive networking of people and places requires the strategic planning of neighboring communities and skillful design of traffic routes. The focus is on mixed use and promoting diversity.

If you walk around the 'town' at Geisenhauser Strasse 17, you will discover areas with different designs. The approach focuses above all on the added value of shared spaces – common areas for collaboration and communication – with a market square and numerous conference and meeting rooms. But there are also places for concentrated work, such as the library and a range of different focus rooms – plus the Pocket Park, the kiosks, the studio, and the garage. These can all be booked for different functions depending on the time of day – and serve to promote team spirit.

The overall concept thrives on the interplay of strong contrasts and the choice of workplaces. That's why the connecting areas between the rooms are not simply corridors, but also accommodate such features as the material library, lockers, and communication areas.

Day-to-day work is simplified by digital tools and technologies. Rooms can be booked by app, and the utilization of workplaces can be digitally tracked and evaluated. The lighting is equipped with sensor beacons and each zone can be individually controlled.

Every module defined in the Drees & Sommer Office Design Guideline has been realized at least once in the Bavarian regional office. Throughout the four construction stages, experts for New Work were supported by colleagues from Construction Management, Engineering, and IT, making the remodeling a true One Company project.

No two meeting rooms are alike – each has its own custom fitout.

AWARD-WINNING PEARL OF URBAN RENEWAL

Client: Siemens Real Estate, Munich | **Project duration:** August 2019 – approx. 2030 | **Architect:** Robertneun Architekten, Berlin | **Drees & Sommer services:** Sustainability planning, Blue City Development district certification | **Key project data:** GFA: Approx. 1 million m², Building area: 430,000 m², of which heritage-protected: 230,000 m², Construction cost: €600 million gross

Siemensstadt² is taking shape on a historic industrial site in Berlin. Drees & Sommer is acting as consultant and supporting the certification of the flagship district by two different sustainability systems.

The model gives an idea of the immense size of Siemensstadt², which covers an area of more than 70 hectares.

At the end of 2020, Siemensstadt² achieved Platinum status in the new LEED for Cities and Communities rating system with what may be a record-breaking score of 93 out of 110. The result of the DGNB Quartiere (Quarters) 2020 assessment had arrived a few weeks earlier, awarding Platinum with an equally excellent score of 84.1 percent. This first-ever double award marked the end of a very successful year for the Berlin district project.

Drees & Sommer has been supporting the project since 2019. So far, the urban district and sustainability experts have advised the principal on all questions of sustainability, codeveloped the main sustainability guidelines and KPIs for the overall project with the client, and subsequently provided qualified certification consulting and organized the subsequent DGNB and LEED precertification. The team is now all set to arrange certification of individual buildings in the first construction stage.

Landscaped outdoor areas enhance the amenity of the district.

The revitalized Siemens rail line is an important element of the sustainable mobility strategy.

The historic industrial architecture is being brought into the 21st century both esthetically and in terms of energy efficiency.

Future users will enjoy buildings that are transparent and filled with natural light.

“The project is the first in Germany – and one of the first in Europe – to apply the LEED for Cities and Communities rating system. Thanks to our extensive certification experience, we were able to adapt to the new system quickly.”

Alyssa Weskamp,
Senior Consultant at Drees & Sommer

With a total area of more than 70 hectares, of which around 45 hectares are to be redeveloped, Siemensstadt² is one of the major urban development projects in Berlin’s northwest. The development is being undertaken in stages, and Siemens is taking an international approach to finding future partners. To review planning and raise the project to the next level of quality, it was decided early on not to rely solely on the German DGNB rating system, but to also certify the district using the LEED for Cities and Communities rating system, which has been in place since 2018.

The principal’s basic idea is to transform the company’s historic industrial site into a carbon-neutral smart urban district. Features will include over 2,500 new apartments, thousands of workplaces, and around one million square meters of gross floor area. The revitalized Siemens rail line and low-traffic internal infrastructure will form the backbone of the district‘s sustainable mobility strategy.

The district is also designed for energy efficiency, with solar panels on roofs and facades, a low-ex grid fed by geothermal energy and, of course, the coupling of elements such as mobility, energy generation, and buildings. The master plan also aims to achieve zero stormwater discharge for the district to further enhance climate resilience. Roofs and facades will be planted, and exterior surfaces upgraded to minimize the heat island effect. And of course, as one of Berlin’s ‘districts of the future’, Siemensstadt² will be smart, with Siemens IoT, various Digital Twin solutions for use in planning and operation, and many other innovations.

COMBINING ESTHETICS AND SUSTAINABILITY

The HUGO BOSS flagship store is the centerpiece of Outletcity Metzingen – currently the top German and fifth-best European outlet according to the Outlet Centre Performance Report 2020.

Client: HUGO BOSS AG, Metzingen | **Project duration:** September 2017 – June 2020 | **Architect:** blocher partners, Stuttgart | **Drees & Sommer services:** Project management, risk management, lean site management, site logistics concept | **Key project data:** GFA: 12,300 m², Sales area: Approx. 6,000 m² Certification: DGNB Platinum

The new HUGO BOSS flagship building in Outletcity Metzingen sets a new standard in terms of design and sustainability.

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“We knew from the outset that the schedule was tight. And then we faced a series of challenges during project execution. But team spirit and experience enabled us to get the job done.”

Jürgen Müller,
Project Leader at Drees & Sommer

Quality can be achieved quickly, as demonstrated by the prestigious HUGO BOSS flagship store.

At more than 6,000 square meters, the sales area on which HUGO BOSS presents its current factory sales range makes the store the world’s largest single-brand outlet. The new building not only impresses with its design excellence, but also stands out for its high standard of sustainability. Among other things, the building – which is certified DGNB Platinum – has an energy concept featuring geothermal probes and a sprinkler tank that doubles as buffer storage.

The famous brand’s flagship store is located on a former industrial site in the center of Metzingen. In addition to the sales area, the new centerpiece of Outletcity includes warehouse and logistics areas, a customer café, locker rooms, an employee canteen, and offices.

The Drees & Sommer project management team contributed to making the process smooth and efficient from the very start of the project. Demolition work on the existing building began in October 2017, followed by excavation of the building pit. Construction of the building shell started in April 2018 – and HUGO BOSS was able to celebrate the opening of the new store just a year and a half later. Great teamwork was one of the reasons the tight schedule could be maintained.

Particularly in its role as the interface for the sophisticated interior fitout and when responding to change requests, Drees & Sommer always took a solution-oriented approach, allowing all of the client’s individual requirements to be met. Thanks to their professional confidence and experience, the team was even able to overcome unexpected obstacles during the course of the project.

The Drees & Sommer team reduced the workload on HUGO BOSS project management by facilitating construction meetings and systematically supervising agreed measures and tracking deadlines, and by providing sound professional advice on difficult and important decisions. They also undertook systematic cost tracking, ensuring that the HUGO BOSS project managers always had a sound and stable cost forecast at their disposal.

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www.dreso.com/locations

Drees & Sommer SE
Obere Waldplätze 13
70569 Stuttgart
Telephone +49 711 1317-0
Telefax +49 711 1317-101
info@dreso.com
www.dreso.com

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