

# We move a lot

Our commitment to sustainable development



## THE SUSTAINABLE DEVELOPMENT GOALS





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# Our contribution to sustainability

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The public transport sector and the rail freight transport sector are important sustainable development actors in Germany: Each day about 30 million people use the public transport systems in Germany, which corresponds to more than 10 billion passengers per year and which replaces about 20 million drives in the car each day. The rail freight companies of the Association of German Transport Companies (VDV) transport more than 600 billion tons of freight per year, which reduces the drives in the truck by about 77 000 each day.

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The public transport sector and the rail freight transport sector play a key role by the achievement of the climate targets. Nevertheless, the transport transition can only succeed if their importance is increased even more. It is our goal to have increased public transport by 30 percent and rail freight transport by more than 20 percent by 2030. Such an increase is ambitious and can only be realised if the representatives of public transport and rail freight transport work consequently towards this goal hand in hand with the political decision-makers. Climate protection is a social challenge and a central sustainable development goal.

The focus on sustainable development has increased significantly after the adoption of the 2030 Agenda for Sustainable Development by the United Nations in September 2015 and of Germany's National Sustainable Development Strategy in 2016. The 2030 Agenda defines clear fields of action in the form of 17 sustainable development goals (SDGs).

VDV's about 600 member companies take every effort to achieve the sustainable development goals. They also take social and entrepreneurial responsibility for environmental protection, fair and attractive working conditions as well as sustainable business. Nine of the 17 SDGs are of particular importance to our sector and we contributed much to achieving these goals already long before the adoption of the 2030 Agenda. Thus, not only climate action (SDG 13), but e.g. also gender equality (SDG 5) and responsible consumption and production (SDG 12) are important goals to our sector.

In this publication the VDV gives concrete examples of measures that have been taken by VDV member companies or that are going to be realised by 2030 in Germany to support the sustainable development strategy of the Federal Government. These examples are only a few examples from the broad range of measures that have been or are going to be taken by our member companies.



Ingo Wortmann, President of the VDV

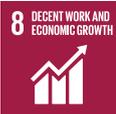


**THE SUSTAINABLE  
DEVELOPMENT GOALS**



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# We move a lot – for good health and well-being

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One of the central concerns of the 2030 Agenda is to ensure healthy lives and promote well-being for all at all ages. Nine targets and four means of implementation detail how this goal, which is partly based on the millennium development goals of the United Nations, is to be achieved. This SDG is of particular importance to the VDV member companies. Three very different examples illustrate the manifoldness of measures taken by the companies to achieve this goal.

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## **Darmstadt: “mobiFit” health management programme for the employees**

HEAG mobilo GmbH, the public transport company in Darmstadt, is convinced that the employees’ motivation and commitment are essential to its success. Therefore, the mobility service provider does not only continuously invest in training of its employees, but also supports the physical and mental well-being of its employees within the scope of its “mobiFit” health management programme, which includes a broad range of offers in the fields of nutrition, sport and health care.

Thus, e.g. the staff restaurant offers a calorie-reduced “mobiFit” meal. Moreover, free water dispensers have been installed at several places. The company also organises action days, at which e.g. fruit is given away to the employees, as well as information events, at which it informs about e.g. “food with shift work”.

The company also subsidizes Weight Watcher courses, which take place in its depot. Moreover, it has set up its own fitness programme, it cooperates with a fitness centre and it offers leasing of a bicycle or an e-bike as a deferred compensation. Free influenza vaccinations, frequent health days as well as extensive stress analyses complete the programme.

The “mobiFit” health management programme is firmly integrated into the corporate culture of HEAG mobilo and is constantly adapted and improved.

**Düsseldorf: "House of fitness for work" – Supporting the work-life balance**

Rheinbahn AG, the public transport company in Düsseldorf, uses its "house of fitness for work" model, which Prof. Juhani Ilmarinen has developed, in its corporate health management programme. Fitness for work means the relationship between a person's personal possibilities and the demands on him/her in his/her job. This balance is right if the person performs well and feels well. Many factors influence a person's fitness for work, e.g. health, fitness, competence, attitude, work environment, management, private environment, society and culture (see below graph). These factors are illustrated as floors in the "house of fitness for work".

Accordingly, Rheinbahn AG supports its employees' fitness for work in many different ways. Some measures are to hold cooperation in high esteem, whereas other measures are to support the employees' health. Thus, the staff restaurants offer more vegetarian and fresh meals now, and the company has equipped a fitness room. The employees are also offered various preventive medical check-ups. Other measures like the flyer "Accident? And now?" are to improve the information to and the communication with the employees. Finally, the company redesigns its staff portal at present.

**Frankfurt: Preventing accidents by clearing up**

The following always applies: The accident risk is much lower within public transport than within private transport. In 2017 there were more than 3800 accidents in and around Frankfurt on the roads and the rails, which cost 17 lives. The accident statistics of the police say that mobile phoning and crossing the road at a red pedestrian light were the most common accident causes beside drunk driving. Pedestrians and cyclists are often most severely hurt in such accidents because they are the "weakest" traffic participants.

It is a general goal to minimise the number of accidents. Therefore, Verkehrsgesellschaft Frankfurt am Main mbH (VGF) and the road traffic department of the City of Frankfurt initiated a text campaign in 2017, which was to increase all traffic participants' attention. Posters were hung up everywhere in the city, in the metro stations and tram cars and CityCards were distributed in bars and clubs to make people sensitive to the risks in road traffic. Moreover, video clips were shown at the displays of VGF's more than 600 ticket vending machines and on VGF's information screens in the metro stations. Further poster actions followed in 2018 and 2019 to remind people of the message.

Short story No. 17:  
 "I only chatted a little on my phone –  
 and overlooked the tram."  
 Your city traffic



# We move a lot – for quality education

Unlike millennium development goal 2, "Achieve universal primary education", SDG 4 is based on the concept of lifelong learning. It covers the entire spectrum from early childhood education to training of seniors. Especially the digitalisation of nearly all areas of life and the difficult staff recruiting situation are big challenges to the VDV member companies. To master them, they prioritise education and training.



## **Leipzig: Promoting lifelong learning**

Leipziger Verkehrsbetriebe (LVB) GmbH uses digitalisation in its participative project "Mobile work gets digital – Digital work gets mobile". The drivers have been equipped with tablets, have been interconnected and are getting trained so that they can develop joint practical fields of application. In future, the office workers can decide to a higher degree where and when they want to perform digital, mobile work. Within the scope of a collectively agreed training initiative the LVB has e.g. significantly increased the number of annual traineeships and apprenticeships in accordance with the Law for Vocational Training. The so-called "round table for training", at which all interest groups sit, prepare trend-setting solutions for the future staff training. The LVB offers 16 different vocational trainings and guarantees a permanent contract upon successful completion of training.

The demand for qualified staff, their training, inclusive of training of career changers, and lifelong learning are challenges to both employer and employee. It is a fact that the LVB will have to recruit new staff corresponding to its present size of approx. 2500 employees on the labour market by 2030 due its present age structure and due to the fact that Leipzig is growing. Consequently, structured transfer of knowledge is of particular importance.

The LVB is essential to the City of Leipzig if it will remain able to provide its elementary services for the public like transport of pupils. However, focus is not only on the transport services, but also on the safe use of public transport. Therefore, the LVB also arranges days of action, training and mobility support, in which everybody from the pupil to the senior participates.

### **Hamburg: Training of refugees**

Hamburger Hochbahn AG offers refugees new perspectives by training them in bus driving. In February 2017 the company initiated a training project for refugees together with DEKRA e.V., which aims at giving refugees a new perspective as bus drivers in Hamburg. One year later eleven men from Syria, Afghanistan, Cameroon, Iraq and Iran were seated at the wheels as professional bus drivers. In 2018 Hochbahn offered the course anew so that further newcomers will finish their training in 2019.

The project includes car driving school, a car driving test, a German course, six months of bus driving school, a bus driving test and several months of practical training in a bus depot to get familiar with the routines. The newcomers are supported by experienced employees, who help them in every possible way to manage life in the depots. Many other German public transport companies have initiated similar projects to train refugees and integrate them into working life.

### **Bremen: Promoting training**

Many employees want to progress professionally beside the corporate training and skills development. Thus, a workman often wishes to participate in courses enabling him to pass the master craftsman's qualifying examination although the company has no actual and probably no future demand for a new master. In this case the company offers comprehensive advice about the possible further training and the possible financial aid.

Professional advanced training can be officially funded in several ways. If governmental funding is not possible, the employees of the Bremer Straßenbahn AG (BSAG) can apply for internal financial aid to external training on the basis of specified criteria. Concretely, the company can take over training costs and the examination fee, if any.





## We move a lot – for gender equality

In the past, the transport sector mainly employed men due to its technical orientation. However, gender equality implies that women take over tasks in e.g. workshops, that they also drive buses and rail vehicles, and that they are integrated adequately and in a non-discriminatory way into the management of the companies. Numerous companies have already successfully realised this goal, which is illustrated by the following examples.

### **Bremen: Systematic vocational support for women**

For many years Bremer Straßenbahn AG (BSAG) has successfully followed a stringent plan to increase the share of women in the company. By the end of 2017 32.3 percent of the employees of the BSAG were women and 25.2 percent of the executives were women. This corporate goal explicitly considers the requirements of the public service contract, which e.g. specifies that the share of women shall amount to at least 30 percent, that the share of female managers shall be increased and that the companies shall prepare and realise plans for the support of women.

Thus, the BSAG e.g. endeavours to increase the share of women in skilled occupations by specifically supporting women as tram drivers, the “mobile working” agreement, which is a company agreement between the management and the workers, and further measures intended to balance work and family life. The BSAG also participates in the annual Girl’s Day event to make girls at secondary schools familiar with so-called male-dominated professions.

Photo, left: Female managers of HEAG mobilo in Darmstadt (from left to right): Vera Amato, Astrid Tschann, Silke Rautenberg and Ann-Kristina Natus

### Darmstadt: Women in management positions

HEAG mobilo GmbH, the public transport company in Darmstadt, has already realised the goal that gives managements of DAX companies a headache: More women in management positions. And what's more: This goal has been achieved completely without a requirement for a certain share of women in the management. Generally, the German transport companies employ relatively few women in management functions, but the Darmstadt public transport company is an exception. It employs more than 700 persons, and four of eleven managers at departmental level are women. It is striking that the women also manage many technical departments, e.g. the tramway operation, the tramway workshop and the infrastructure. Merely the transport management department and the bus workshop are in the hands of men.

HEAG mobilo's operating manager according to BOStrab, the German Federal Regulations on the Construction and Operation of Tramways, is also a woman. She was the first – and is still the only – female operating manager, who is responsible for the safety and correct performance of tramway operation, in the more than 50 public transport companies in Germany that perform tramway operation.

Thus, more than one third of HEAG mobilo's departments are headed by women today, which is the result of a transparent selection practice: These four women simply had the best qualifications for the positions to be filled.

### Berlin: Supporting compatibility of work and family life

Supported by the European Centre of Employers and Enterprises providing Public Services and Services of General Interest (CEEP), Berliner Verkehrsbetriebe (BVG) has more than once demonstrated that its corporate policy is based on the goal of sustainability, which includes e.g. compatibility of work and family life. One of the targets of SDG 5 is promotion, acceptance and esteem of shared responsibility within the household and the family. The BVG considers itself socially responsible for its employees' families. Therefore, it realises a broad range of offers to support the compatibility of work and family life.

Family event days and arrangements informing about family subjects like first aid of children, care of elderly family members and assessment training for the employees' children take place at regular intervals. These events are only a few examples of the broad range of BVG's social offers. Another example is the possibility of flexible working hours, which is very popular. To ensure that the various programme offers reach even more employees on the spot, the BVG has now realised new family-specific offers at further BVG locations.

Families are comprehensively supported by the BVG by the planning of the working hours, by the financing and by the childcare



## 7 AFFORDABLE AND CLEAN ENERGY



# We move a lot – for affordable and clean energy

The SDG 7 of the 2030 Agenda has three targets, e.g. substantial increase in the share of renewable energy in the global energy mix by 2030. In the end, the VDV member companies are only purchasers or consumers of energy, but thanks to the technical nature of their systems (e.g. lighting and heating) and their vehicles (e.g. alternative kinds of driving technology) they are able to gradually reduce their consumption of energy generated on the basis of fossil fuel by increasing their consumption of renewable energy in an economically sustainable manner.

### **Hamburg: Powerbank – Depot exclusively for electric buses**

A green belt outside the site, green noise barriers and grass-green carport roofs – that's the look of Hamburg's first depot exclusively for electric buses in the Alsterdorf district. From the middle of 2019 240 electric buses will be charged, cleaned and maintained in this depot and about 600 bus drivers will depart with their "climate protectors" from this depot. Right from the beginning the electric buses will be supplied with fully green electricity, just as the other depots of the company.

To be accepted as green electricity, specific requirements of the Hamburg Authority for Environment and Energy have to be fulfilled. Thus, the electricity e.g. has to be generated by renewable energy systems that are younger than six years. Zero-emission requires full charging power. Therefore, Hamburger Hochbahn AG is going to adapt its entire infrastructure to the charging technology to ensure sufficient power supply. Its depot in the Hummelsbüttel district makes the start with the first green charging stations. Hochbahn's premises in the Langenfelde, Wandsbek, Billbrook and Harburg districts will be retrofitted soon.

**Hanover: Zero-emission vision**

ÜSTRA Hannoversche Verkehrsbetriebe AG takes every effort to reduce its CO<sub>2</sub> emissions and its total energy consumption as much as at all possible. Thus, its light rail vehicles have been powered by zero-emission electricity generated from renewable energy sources by enercity AG since the beginning of 2015. Moreover, the ÜSTRA plans to introduce fully electric buses powered by CO<sub>2</sub>-free electricity in the inner city of Hanover within the next five years. For this purpose, the company is going to procure 48 new electric buses, of which 18 will be articulated buses, and re-equip its depots for these new electric buses by 2023.

With this plan for the future the ÜSTRA intends to further develop the public transport in the region of Hanover and to contribute considerably to the region's climate protection targets. Thus, the company professes its belief in its corporate target of zero-emission mobility. It also realises this target for its own real estates, which are energy-efficiently supplied with either natural gas or district heating from a district block heat and power plant and two biogas block heat and power plants. Finally, the ÜSTRA has installed three photovoltaic plants, the electricity yield of which corresponds to the energy demand of about 110 detached houses.

**Berlin: Mobility with clean and affordable energy**

Berliner Verkehrsbetriebe (BVG) has prepared an unambiguous environmental guideline for energy efficiency and clean energy, which is updated at regular intervals and which leads to concrete, energy-relevant actions concerning the use of renewable energy and the development of electric mobility. Moreover, it clearly explains how the public transport company meets the challenge of designing the "smart city" and how it fulfils the requirements for saving resources and protecting the environment and the climate by way of intelligent design and control of the future energetic infrastructure together with the other city stakeholders.

Affordable and clean energy is already an important aspect of BVG's mobility services, but it will get even more fundamental for its future services. Moreover, it is important to the BVG to ensure environment-friendly and affordable public transport in the city. The consequent transition from the conventional sources of energy to renewable energy sources and the development of the mobility infrastructure in consideration of energetic aspects are some of BVG's most effective measures for realising the SDGs in the growing Berlin metropolis.





**8** DECENT WORK AND ECONOMIC GROWTH

# We move a lot – for decent work and economic growth

The German public transport companies and rail freight companies are significant economic factors in their respective regions of activity and they are important customers on the market in the fields of procurement, construction and building as well as services. Moreover, they safeguard the employment of nearly 400 000 persons within and beyond their direct sphere of action. Of course, these jobs fulfil the requirements of the collective agreements and the conditions of the job descriptions. The modern and effective public transport and rail freight transport systems also ensure that the development of important centres of commerce and industry is not obstructed by a lack of transport capacity.



**Bremen: Solutions for job seekers**  
Not all jobs offered by Bremer Straßenbahn AG (BSAG) have to be filled by highly qualified experts. Therefore, the BSAG also offers semi- and non-skilled workers as well as long-term unemployed persons a chance, provided they fulfil certain physical conditions, have sufficient knowledge of the German language and show customer-orientated conduct. Together with the Bremen job centre the company offers them one-year training courses in the fields of passenger service, ticket inspection and bus driving. Thus, 72 job seekers/unemployed persons participated in the qualifying training in 2017. After successful completion of the training 38 persons started working with the BSAG.

### **Nuremberg: Macroeconomic benefit by public transport**

Many economic facts concerning public transport companies can be found in their financial statements, but many other economic facts only become obvious on closer inspection. A complete comparison of the costs and benefits shows that public transport is highly profitable from a macroeconomic point of view. In 2007 VAG Verkehrs-Aktiengesellschaft, the public transport company in Nuremberg, presented a study\*, which concludes that the macroeconomic benefit of one euro allotted to the public transport company by the city amounts to about five euros and that the city would have to increase its expenditure for private transport, e.g. for road maintenance and erection of further car parks, to a considerable degree if it decided to reduce its public transport services.

The costs would also rise to the road users because of the higher costs for private cars. Moreover, increased private transport would lead to higher environmental costs and higher accident costs. Public transport also influences the region considerably: Thanks to VAG's purchase of goods and services as well as its payment of wages and salaries its suppliers and employees are able to buy more goods and services. Thus, each employee of the VAG indirectly safeguards another job in the city and about half a job in the region.

\* Study: "Gesamtwirtschaftlicher Nutzen der VAG-Verkehrsleistungen im Jahr 2007", published in the German language by Intraplan Consult GmbH in cooperation with ISP Eduard Pestel Institut für Systemforschung e.V. and VWI Verkehrswissenschaftliches Institut Stuttgart GmbH (translation of the title: Macroeconomic Benefit of VAG's Transport Services in 2007).

### **DB: Training and qualification open up perspectives**

The human resource strategy of Deutsche Bahn AG (DB) focusses on recruitment of young people and on professional internal staff training. Thus, the DB offers both apprenticeships and dual courses of study to ensure that it will have sufficient qualified staff in future. For this purpose, the DB Group has one of Germany's biggest company training centres. More than 94 % of the apprentices are offered a job after completion of their training. In 2018 about 3 800 young people began their vocational training with the DB and about 360 young people began their career with dual courses of study in the DB Group.

The DB offers more than 20 different dual courses of study to train its young academic employees. Moreover, the DB Group continuously improves the framework for its in-service training. DB's training guideline ("Weiterbildungskompass") provides good overview of the possible training and study courses from certificate courses to bachelor and master studies through master craftsman studies offered by the Chamber of Commerce and Industry (IHK). The DB Academy is responsible for the qualification of about 7 900 executives, individually salaried employees and managers. Qualification is also prioritised abroad: DB Schenker has opened up its own educational institute in Beijing, the DB Schenker Logistics Academy China.



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# We move a lot – for industry, innovation and infrastructure

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Both public transport and rail freight transport is essential to economic development and human well-being, but efficient and environment-friendly public transport and rail freight transport can only function with suitable economic and regulatory frameworks. Intelligent and interconnected offers are the response to the customers' requirement for on-demand mobility and logistics. Mobility platforms like "ioki" make it possible to use modular offers to facilitate daily mobility in cities and communities. The VDV member companies are innovation drivers for technical products, which are then developed together with industry.

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## **Berlin: Saving energy within rail freight transport by way of novel products**

Until now, rail freight transport without double heading usually meant operation of six-axle diesel locomotives, but Havelländische Eisenbahn AG (HVLE), a private railway undertaking with its headquarters in Berlin, is just about to revolutionise the market. In the last three years the company has developed a new hybrid locomotive, the EURO-DUAL locomotive, together with Stadler Bussnang AG, a Swiss rail vehicle manufacturer, which is likely to set the future standard within the heavy-load rail transport. This locomotive is a six-axle electric locomotive with a power of 6 MW that has been equipped with a diesel engine with a power of 3 MW so that full availability is also ensured on non-electrified route sections.

It is possible to shift between the two kinds of drive at full speed within 15 seconds. The problem with the last mile, which is often far more than one mile within rail freight transport, is solved efficiently in that way. Nevertheless, at least 90 percent of the rail freight transport will probably be performed electrically with these novel locomotives. Thus, each time one of them is operated over a distance of 1000 km about 17 tons of CO<sub>2</sub> is saved in comparison with the operation of a conventional diesel locomotive, provided that it is supplied with green electricity. The HVLE intends to certify that its customers save energy due to the reorientation from diesel-powered locomotives to hybrid locomotives.

### Berlin: Using trend-setting technologies – from online to autonomous

The increasing and varied digitalisation of everyday processes, the novel developments on the mobility market and the changing requirements for mobility in the growing cities and the rural areas offer unique opportunities for the development of new mobility offers. The introduction of on-demand offers like the dial-a-ride bus "BerlKönig" of the Berliner Verkehrsbetriebe (BVG) is an example of innovative cooperation between industry, start-ups and providers of transport services.

The public transport companies are preparing sustainable business models. The sector intends to make new, customised mobility offers available to its customers. Environment-friendly and inexpensive ride-sharing offers have already been integrated into their mobility offers. Ever easier and often intuitive access to multimodal mobility offers and interconnection of these offers are being dynamically developed, above all in conurbations like Berlin.

In future, BVG's mobility hubs will connect bike- and car-sharing offers with bus and rail transport offers in the metropolis to meet the clear trend towards multimobility and intermodality. To achieve a common mobility alliance, the BVG bundles and interconnects its offers on a mobility platform in the form of an app, which is useful to its present customers and which is going to make the access to attractive mobility in the city easier for new customers.

Within the scope of the STIMULATE pilot project, which has been initiated by the BVG, the Charité university hospital and the regional government of Berlin, four autonomous shuttles are being operated on the premises of the Charité. Unmanned driving is intended as from 2019.



### Frankfurt: Expanding performance with innovations

The requirements for flexible, modern and fast mobility constantly increase. Moreover, the growing online trade increases the requirements for transport logistics. Consequently, the traffic volume increases and the air quality falls off. Verkehrsgesellschaft Frankfurt am Main mbH (VGF) has prepared a concept, which includes modules to solving this problem and increasing the efficiency of the present system at acceptable costs.

Thus, the VGF intends to introduce longer trains. Each tramcar and metro vehicle are to be extended by a trailer car in its middle to be able to cope with the increasing passenger volume.

Moreover, the VGF is interested in autonomous buses. In April 2018 it tested an autonomous electric bus together with Continental AG, an international technology company, EasyMile, a French company, and the Frankfurt University of Applied Sciences (UAS) for the students and customers on the premises of this university.

A further innovation that the VGF tests in Frankfurt is the "Logistiktram" (see photo). It is to deliver goods to so-called micro-depots in the city at the times of the day in which relatively few tramcars are operated. The goods, which are mainly online trade goods, will be transported from the micro-depots to the customers by bike couriers.



## 11 SUSTAINABLE CITIES AND COMMUNITIES



# We move a lot – for sustainable cities and communities

Especially traffic with its noise and dust emissions is increasingly regarded as a stress factor for the quality of life in urban areas. The reorientation from diesel-powered vehicles to electric vehicles is only one module of the master plan of a sustainable community in the sense of SDG 11. Other modules are short ways, traffic-calmed residential areas and sufficient green spaces. Due to its bundling effect public transport is of particular importance for the achievement of this goal. The local politicians can achieve much with suitable traffic management and measures prioritising public transport, especially in the field of private transport.

### **Dresden: Sustainable Johannstadt by 2025**

How can a densely populated district near the inner city get more environmentally friendly and liveable by 2025? The Dresden politicians gain experience in their "Sustainable Johannstadt by 2025" project, which is promoted by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). The 25 000 residents of the Johannstadt district are being motivated to act in a more climate-friendly way in their everyday life, e.g. to shift to green electricity, to reduce food waste, not to cover avoidable distances, to keep unavoidable distances as short as possible and to cover them in an environment-friendly way. For this purpose, the project has been divided into several fields of action, i.e. living, consumption/ food and mobility. Being an expert in local mobility, Dresdner Verkehrsbetriebe AG (DVB) participates in this project.

To reach as many residents as possible, e.g. several participation formats are being planned. Moreover, a multilingual website is being prepared, which is of great importance as the Johannstadt district is very intercultural. The first project milestone was a so-called world café event, at which some suggestions for measures were made, which are now being bundled to an action plan. In the mobility field e.g. slow speed (30 km/h), safer footpaths and pedestrian crossings, more room for cycling and parked bicycles as well as proper ways to school to avoid "parent taxis" were suggested. Of course, it was also intensively and controversially discussed whether the many buses operated in the district can be replaced by a tram line (see the above visualisation). In the second project phase, which begins in October 2019 and ends in 2022, the various parts of the action plan are to be realised in the form of examples.

**Fribourg: Integrating development of public transport into urban development**

The Vauban district, which is now an attractive, family-friendly district with about 5 500 residents, has emerged on an about 41 ha big area, on which the barracks of the French army used to be. Low-energy construction is obligatory, and passive/plus-energy building designs as well as use of solar technology are standard. Most old trees were saved. Green areas between the house rows ensure good climate and offer playing areas for children.

In parallel to the private development, public infrastructure was developed in the form of a school, kindergartens, youth centres, a meeting place for the residents, a market place as well as leisure and playing areas. Green grass roofs store rain water, which is collected and retained.

The Vauban district is traffic-calmed. The traffic concept distinguishes between the surrounding superior roads (50 km/h), the main streets to and from the district with parking-space management (30 km/h), the traffic-calmed residential streets without public parking space (walking pace), the complementary footpath and cycle path system and the areas reserved for pedestrians.

Many households are car-free, private cars are parked in the two car parks of the district. Many residents exclusively go by bike or use the good public transport offer, which was an integral part of the concept right from the beginning.

**Hamburg: Zero-emission electric buses are coming**

The switching from diesel-powered buses to electric buses begins now. It is the big revolution for Hamburg's public transport and is going to change the city strongly. The Government of Hamburg has decided that only zero-emission and quiet buses may be purchased by 2020 and that exclusively zero-emission and quiet buses may be operated in the streets of Hamburg by 2030. Little by little the about 1000 diesel-powered buses will be replaced – at first by battery-electric buses and later also by fuel cell buses, which are to be tested in line service as soon they have been developed for series production.

In November 2018 the first electric bus, which is ready for series production, reached Hamburg; by the end of 2019 there should be 30 electric buses.

The big movement: In 2016 Hamburg and Berlin set up a procurement initiative, in which seven public transport companies from big German cities soon participated. This initiative determined vehicle technology standards, e.g. for the charging, which were to encourage the bus manufacturers to bring electric standard buses on the market under competitive conditions as it is important to the public transport companies that they can compete with diesel-powered buses in respect of reliability, availability and purchase costs.



# We move a lot – for responsible consumption and production

How are our supply chains for goods? Are we sure that the goods that we use in our sector do not comprise raw materials harmful to health, which people living 8 000 km away have dug out with their bare hands? The VDV member companies are very aware of their roles as customers, purchasers and consumers and see themselves as examples of companies acting in a resource-saving and responsible way in the sense of SDG 12 and especially target 12.2 (“By 2030, achieve the sustainable management and efficient use of natural resources”).



## **Stuttgart: Prolonging the life cycles of LRVs**

To support the climate targets and the local economic dynamic force, Stuttgarter Straßenbahnen AG (SSB) is to operate more light rail vehicles (LRVs). In a relatively short time the SSB has to procure 40 new LRVs. The actual need for LRVs would be much higher if the SSB had not completely overhauled or partly modernised 86 LRVs successively since 2008. Much raw material has been saved by the prolongation of the life cycles of these LRVs.

This project also develops employees and makes jobs secure. Moreover, the employees have the

opportunity to pass on their knowledge and experience to their young colleagues. Mixed teams ensure that the know-how remains in the company. Thus, the SSB can recruit employees in the prosperous Stuttgart region due to its numerous fringe benefits and despite the skills shortage. SSB's target of “balancing work and family life”, which has been awarded each year since 2013, is also advantageous by the recruitment of employees. Finally, SSB's health management programme, which has also been awarded several times, as well as the systematic and well-established occupational safety ensure the safe work environment and the employees' health.

### Nuremberg: Sustainable procurement practice

Rail vehicles are operated for 30, sometimes 40, years. Their long lives are up against shorter and shorter technical innovation cycles, e.g. for electronic components. If certain spare parts are outdated or not manufactured anymore, the public transport purchasers call them "obsolete". This obsolescence is a special challenge to the purchasers and maintenance experts because adequate replacements have to be procured, which is expensive and time-consuming.

Therefore, the public transport companies now often let the manufacturers guarantee by contract that spare parts can be delivered for a long time when they procure certain goods and products. Thus, obsolescence management is always a relevant award criterion to e.g. VAG Verkehrs-Aktiengesellschaft, the public transport company in Nuremberg, when it concludes contracts for new vehicles.

Often other sustainable criteria are also decisive by the procurement of vehicles nowadays. Thus, not only the social standards like payment of the minimum wage and observance of the international labour standards of the International Labour Organization (ILO), but also the origin of materials or the production processes are important factors. VAG's decisions to use sustainable food in the staff restaurant, to avoid packages, to require proof of non-use of so-called conflict minerals (rare earth) and to use energy-efficient products manifest VAG's sustainable and responsible procurement practice.

### DB: Recycling in track construction

Ballast consists of crushed stones made "elastic" by the track bed for extremely heavy trains. As these crushed stones have to have a certain size, they are checked at regular intervals and, if necessary, they are cleaned or exchanged. 99 percent of this ballast are recycled, either on the spot or at external certified plants, and re-used as ballast or e.g. as chipseal in road construction. In 2018 the DB used 3.5 million tons of ballast, of which 740 000 tons had been recycled.

Since 2014 paving stones manufactured in a climate-neutral way and in environment-friendly production processes have also been used at many stations and stops. Thus, e.g. only renewable energy and processed rain water are used for the manufacture of these ecological paving stones, for which recycled material is now also often used. Concrete stones can be fully recycled, and they are therefore a valuable raw material for ecological paving stones, which can consist of up to 40 percent recycled material, which saves many natural resources – another active action for our environment.

Since the beginning of 2018 the DB has used ecological paving stones with a recycling share of 40 percent for all platform renewals of its "Westfrankenbahn". It is the intention of the company to have all 75 stations and stops of this railway modernised by way of these stones by 2025. They have already been used at the Winterhausen, Weiterstadt and Taucha stations as well at the Laudenbach (Württ) and Sulzbach (Main) stops.



13 CLIMATE ACTION



## We move a lot – climate action

The climate protection targets of the Paris Agreement on Climate Change from 2017 can only be achieved with the help of the entire transport sector. At present, they are not even nearly achieved, especially in Germany, and they can only be achieved with the support of public transport, passenger railways and rail freight transport as their vehicles hardly produce climate-damaging emissions. Thus, about 15 million tons of CO<sub>2</sub> emissions are saved when people – or their freight – go by bus and rail.

### **DB: Travelling environment-friendly**

Already today, about 150 million long-distance passengers of the DB travel environment-friendly with green electricity in the ICE, IC and EC trains in Germany. As from 2019 the 15 biggest stations are also exclusively supplied with green electricity. By 2030 the green electricity share of DB's total energy consumption shall amount to 80 percent. In addition, the DB also permanently increases its efficiency. Thus, the energy consumption of DB's latest generation of trains, the ICE 4, has been reduced by 22 percent per seat as against the ICE 1 generation. The environmental friendliness of DB's short-distance customers and logistics customers also increase continuously. Thus, e.g. the suburban railway in Hamburg is fully supplied with renewable energy.

DB's logistics customers can also have their rail freight transported with green electricity via the "DBeco plus" offer. It is calculated how much green electricity is needed for the transport, which is then fed into DB's system. Beside improvements of the climate balance of the rail transport mode especially a modal shift from the road to the rail would support the climate protection. It is estimated that about 11 million tons of CO<sub>2</sub> could be saved with such a shift.

### DB Cargo: Climate protection within rail freight transport

The rail freight transport sector cannot always do without diesel locomotives, but DB Cargo always endeavours to reduce their fuel consumption and their emission of pollutants.

A good example of the efforts of the company is the so-called eco-tuning, which it developed for its shunting locomotives together with DB Eco Rail, Munich University of Applied Sciences and MTO Engineering and which optimises the engine control so that the fuel consumption is reduced by up to 3.5 percent. So far, 385 shunting locomotives have been optimised with eco-tuning in Germany and abroad. The locomotives do not have to go into the workshop for this improvement, they are simply tuned via a smartphone and a mobile data flasher in only 15 minutes. Thanks to this optimisation about 800000 litres of diesel fuel – and thus 2.1 million kg CO<sub>2</sub> – could be saved last year. This amount corresponds to the fuel that a car would consume if it were to drive around the earth at the equator 333 times.

The automatic stop-start control for locomotives is another example of a development to the benefit of the environment. Just as in a car the engine is stopped automatically in its idle state, i.e. it is not supplied with diesel fuel. This control reduces the fuel consumption of a locomotive by about five percent. Since 2015 DB Cargo has equipped altogether 246 shunting locomotives with this innovative control. Of course, all new locomotives are also equipped with it.

### Berlin: Light-weight buses

Light-weight buses are a concrete example of how the CO<sub>2</sub> emission can be reduced as they have an energetic advantage. Thus, they emit up to 20 percent less pollutants than standard buses. Berliner Verkehrsbetriebe (BVG) uses this benefit by the procurement of new buses as an intermediate step on its way towards the intended CO<sub>2</sub>-neutral bus operation. All in all, the BVG emitted about 165 000 tons of CO<sub>2</sub> in 2018, of which the major part (about 90 percent) was emitted by the diesel-powered buses.

To limit the emissions as much as possible and to be able to observe the ever-stricter emission standards, the BVG continuously renews its bus fleet. Technical retrofits for the exhaust gas after-treatment of the buses also contribute significantly to reducing the emissions generated by public transport and stresses the environmental advantage of public transport. In 2018 the BVG also concluded framework contracts on the delivery of new line-service buses. Thus, up to 600 articulated buses and up to 350 standard buses with state-of-the-art EURO-VI diesel technology are to be procured.





# THE SUSTAINABLE DEVELOPMENT GOALS

<b>1</b> NO POVERTY 	<b>2</b> ZERO HUNGER 	<b>3</b> GOOD HEALTH AND WELL-BEING 	<b>4</b> QUALITY EDUCATION 	<b>5</b> GENDER EQUALITY 	<b>6</b> CLEAN WATER AND SANITATION 
<b>7</b> AFFORDABLE AND CLEAN ENERGY 	<b>8</b> DECENT WORK AND ECONOMIC GROWTH 	<b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE 	<b>10</b> REDUCED INEQUALITIES 	<b>11</b> SUSTAINABLE CITIES AND COMMUNITIES 	<b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION 
<b>13</b> CLIMATE ACTION 	<b>14</b> LIFE BELOW WATER 	<b>15</b> LIFE ON LAND 	<b>16</b> PEACE, JUSTICE AND STRONG INSTITUTIONS 	<b>17</b> PARTNERSHIPS FOR THE GOALS 	<b>SUSTAINABLE DEVELOPMENT GOALS</b> 

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# Imprint

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## **Publisher**

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