

Sustainability Sep 18, 2019

Management approaches: Product responsibility

The sustainability activities of the company are subdivided into four main spheres of activity. Porsche manages the respective activities based on guidelines, regulations, and clear responsibilities.



Sustainability principle

Porsche develops high-quality, innovative and long-lasting products. With each new model generation, Porsche consistently sets new standards in quality, environmental friendliness and safety across the entire life cycle of all -vehicles.

The Product responsibility action area covers the topics identified in 2017's materiality -analysis, namely "Vehicle safety", "Fuel consumption and vehicle emissions", "Materials and sustainable raw materials" and "New -mobility concepts". Clearly defined processes and skills are in place for these topics, alongside transparent evaluation procedures.

Vehicle safety

Vehicle safety is of the utmost importance to Porsche, with the safety of the vehicle's occupants being the top priority. In addition, -making sure that other road users are also kept safe is another key aim. For their part, Porsche stakeholders place a great deal of importance on vehicle safety. During the sustainability survey conducted as part of 2017's materiality analysis, stakeholders ranked this topic in first place, not least due to its economic relevance and social importance.

Vehicle safety is a decisive criterion from the outset in the development of innovative, -state-of-the-art vehicles. Alongside accident prevention – by fitting vehicles with ABS or ESP systems or automatic emergency braking -systems – one of the main goals is to reduce the effect of an accident on the vehicle's -occupants. With this in mind, during the development phase of a new model the deformation behaviour of the vehicle body is precisely -defined for a variety of frontal, lateral and rear end impacts. Vehicles are also fitted with a smart restraint system consisting of airbags and seatbelts. Crash tests are used to check the effectiveness of the safety systems. In a controlled crash the impact of the entire vehicle slamming into an object, such as a wall, is -investigated. Crash test dummies with sensors are used, which allows an evaluation of the possible injuries of the occupants. Specific -biomechanical limits must be adhered to, stipu-lating such parameters as

maximum acceleration or deceleration of the head.

In addition to carrying out complete vehicle crash tests, component tests and computer simulations are used during development to tune the complete vehicle system and its behaviour in an impact and continuously improve it until it is ready for series production. The Porsche safety strategy defines the underlying requirements, not only complying with statutory rules across the world but also meeting internal company requirements. The latter extend beyond the minimum required by law and involve a significantly broader load case portfolio. In this way, Porsche can ensure that, in the event of an accident, its drivers and their passengers, as well as other road users, benefit from the high level of protection synonymous with Porsche.

The ultimate vision in terms of vehicle safety is the general avoidance of accidents. Porsche is therefore consistently working on the development of anticipatory systems. In this way, vehicle safety at Porsche will continue to make an important contribution to general road safety in the future. In accordance with the rules of the Global Reporting Initiative, the topic of “vehicle safety” is covered in this report by the indicator *GRI 416: Customer Health and Safety*.

Fuel consumption and vehicle emissions

Electrification and digitalisation are responsible for radical change in automotive construction. For its part, Porsche is embracing this challenge. The company builds sports cars that reconcile apparent contradictions: tradition and innovation, performance and day-to-day usability, functionality and design, and exclusivity and social acceptance.

At the same time, fuel consumption and vehicle emissions have a key role to play. After vehicle safety, they were identified as the second-most important topic by stakeholders in the 2017 materiality analysis. Their materiality to Porsche is also evidently clear within the company: fuel consumption and vehicle emissions are key issues with regard to commercial relevance, yet they also have significant ecological and social consequences. Continuous efficiency gains, the development of alternative drive technologies, falling fuel consumption and lower emissions – for Porsche, resource-saving and environmentally friendly mobility is a primary strategic target.

In addition to a wide range of measures to increase efficiency – from lightweight construction and technologies for the optimisation of conventional combustion engines to the use of smart assistance systems – Porsche is increasingly exploiting hybridisation and the complete electrification of its model range. The themes of “electromobility” and “vehicle architecture of the future” are cornerstones of the Porsche Strategy 2025. The Taycan, Porsche’s first all-electric model, is redefining sports car construction in terms of performance, driving dynamism and range.

Optimising consumption is one side of resource-saving mobility; reducing harmful emissions is the other. Modern exhaust after-treatment systems reduce emissions, regardless of the current discussion surrounding diesel engines. In late October 2018, Porsche recalled its diesel Macan with the 3.0-litre V6 engine in emission class Euro 6 for a software update after irregularities were found in the engine control software. Germany’s Federal Motor Transport Authority (KBA) had ordered a recall for a software update in July 2018 in order to remedy the issue. On 1 August 2018, the KBA approved Porsche’s proposed software update for the Macan with the 3.0-litre V6 diesel engine in emission class Euro 6.

Porsche had already recalled diesel Cayennes with the 3.0-litre V6 engine in emission class Euro 6 in Germany during the previous year. Investigations had revealed irregularities in the engine control software for these vehicles. The KBA had ordered a recall for a software update in order to remedy the issue. In mid-October 2017, the FBA approved Porsche’s proposed software update for its diesel Cayenne with the 3.0-litre V6 engine in emission class Euro 6. Porsche has since recalled the vehicles concerned for a free software update.

During the reporting year, the KBA issued Porsche with recall notices for the Cayenne 4.2-litre V8 diesel (Euro 5 and Euro 6) and Panamera 4.0-litre V8 diesel (Euro 6). As soon as the technical

solution has been approved, vehicle owners will be contacted accordingly by their Porsche dealers. Porsche consistently aligns its product range with its customers' wishes and strives to achieve technological leadership. Demand for diesel vehicles is falling. Traditionally, the -diesel segment has been less important to Porsche, accounting for just 12 per cent of business in 2017. At the same time, interest in hybrid models is soaring. As far as the -Panamera is concerned, 63 per cent of the -vehicles delivered in Europe are hybrids. As of February 2018 Porsche no longer included any diesel models in its portfolio. The company made the decision in September 2018 to no longer offer any diesel models.

In accordance with the rules of the Global -Reporting Initiative, the topic of fuel consumption and vehicle emissions is covered in this report by the indicator GRI 305: Emissions. The figures in this report that are required for this indicator refer, however, solely to emissions that arise in production and administrative operations. For this reason, the -consumption and emission figures for all -vehicle models are reported instead.

Materials and sustainable materials

Materials and sustainable raw materials are the building blocks of modern, future-ready vehicle architecture. The Porsche stakeholders surveyed as part of the 2017 materiality -analysis also assigned a high level of relevance to this issue.

The long service life of Porsche vehicles, their high-quality workmanship and the use of low-wear materials all form part and parcel of the Porsche principle. The company is focusing to an ever greater extent on the environmental effects of a vehicle across its entire life cycle, from the acquisition of raw materials and the vehicle's manufacture and use through to its disposal. The aim is to achieve a total eco-logical optimum.

Electric vehicles, for example, do not cause -environmental damage when they are being driven, which helps to improve air quality in built-up areas. Conversely, however, the en-vironmental impact of the manufacturing process is on the increase as a result of the raw materials and production processes used for components such as traction batteries. Together with its suppliers, Porsche is therefore working to make improvements to the battery manufacturing process in order to conserve -resources, cut the energy density further and improve performance. Against this background, the Battery Recycling Working Group was set up during the year under review in -order to tackle the key questions of what happens to old batteries once they are no longer fit for use. Information and project findings from the relevant departments are being analysed, and the Working Group is submitting recommendations to the Porsche Group which are then being put into practice. A pilot project is running in parallel in the Aftersales department, as part of which used traction batteries are being recycled for use as energy stores as part of a second life concept. In this way, -resources can be conserved and sustainability enhanced.

Optimal and environmentally compliant vehicle production is an ongoing task for Porsche. This naturally also applies to the selection of sustainable materials and consideration of life -cycles. The company has been scrutinising both of these areas as part of its 2025 strategy. Consequently, environmental aspects are -already being given greater weighting in the pre-development phase and taken into account at an early stage in the project award process. Measures are also in place to raise project managers' awareness of ecological issues even further. The company is also a heavy promoter of the recycling of raw materials, the extraction and processing of which required a high level of effort.

In this report, the topic of "Materials and sustainable raw materials" is covered in accordance with the rules of the Global Reporting -Initiative by the indicator *GRI 301: Materials*. The indicator is measured and reported in terms of the annual consumption of materials.

New mobility concepts

Urbanisation, increasing prosperity, a worldwide increase in mobility and the associated higher

environmental pollution trigger innovation and market dynamics for the adaptation of the automobile and its use. These factors are leading to a diversification of drive concepts in a move towards highly efficient, alternative concepts. At the same time, however, more and more new and attractive mobility concepts are also being researched and developed. Digitalisation and connectivity, as well as customers' desire for more flexibility and sustainability, are accelerating this change. In the 2017 materiality analysis, Porsche stakeholders underlined the huge significance of this turnaround.

Porsche is developing innovative products and services to shape flexible and comfortable mobility. These include innovative parking solutions, needs-driven vehicle usage, seamless integration with other forms of transport and the best possible use of electric vehicles thanks to optimised charging options. Agile and interdisciplinary teams are developing models that take their lead from customers' latest requirements. This development is -underpinned by close cooperation between the company's different departments and an open information policy, as well as by early -piloting and stakeholder involvement.

The mobility options offered to employees are another key area. An interdepartmental project has been launched to determine how to improve the traffic situation and the mobility of staff at Porsche's sites around the world for the long term. The project is particularly relevant to the main plant in Zuffenhausen, which is located in an urban area. The employees based there receive a monthly subsidy towards local public transport costs. In addition, the availability of parking at the plant, and mobility around the site grounds have also been significantly improved. Porsche manages the daily delivery traffic as efficiently as possible which is why Logistics is already making use of three natural-gas trucks, one e-hybrid truck and two electric trucks.

In order to make mobility fit for the future and make smart cities a reality, Porsche also -combines attractive mobility offers, technical expertise and digital solutions. In the year -under review, Porsche and the PTV Group, the world market leader in the development of -intelligent software solutions and integrated traffic concepts, examined measures for the liquefaction and relocation of traffic in the Ludwigsburg model area. These included innovative approaches such as a change in traffic management, a shift to public transport or the strengthening of inner-city cycling.

Porsche Consulting has also optimized the road construction site "Am Kräherwald" in a cooperation with the city of Stuttgart sponsored by Porsche. The aim was to significantly accelerate the construction project compared to a road section completed in 2017. The -Porsche subsidiary introduced a new system for planning and controlling the construction site, which accelerated the construction time by more than 80 per cent and thus reduced congestion and emissions.



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