

Environmental and Social Data Sheet

Overview

Project Name:	<i>BMW INNOVATIVE TECHNOLOGIES RDI</i>
Project Number:	<i>2012-0471</i>
Country:	<i>Germany</i>
Project Description:	The project has two major components: (a) BMW's R&D investments in fuel efficient and CO ₂ reducing innovative technologies (2013-2016), including developments in conventional internal combustion engines, battery technology for electric vehicles, electric drive systems, hydrogen fuel cell technologies including storage, powertrain system and vehicle integration for electric vehicles, and light weighting technologies; and (b) BMW's expenditures in vocational training at its German manufacturing operations (2013-2015).
EIA required:	no
Project included in Carbon Footprint Exercise ¹ :	no

Summary of Environmental and Social Assessment, including key issues and overall conclusion and recommendation

The project concerns investments in research and development that will be carried out in existing facilities without changing their already authorised scope. An Environmental Impact Assessment (EIA) is therefore not required by EIA Directive 2011/92/EU. The project per se does not have any impact on the environment and overall, it is considered as environmentally acceptable. While all R&D sub-projects have as an objective the improvement of CO₂ and pollutant emission characteristics, a few of them will lead to "zero" emission vehicles contributing towards the long-term demanding CO₂ emission targets.

Environmental and Social Assessment

Environmental Assessment

A significant part of the project deals with the improvements in the internal combustion based powertrains, and the reduction of driving resistances and electrical consumption that will allow the company to meet its CO₂ emission requirements in 2015 and 2020, which for BMW stands at 101 gCO₂/km.

The developments in alternative drivetrains and technologies including the battery for electric vehicles, the hydrogen fuel cell technologies, electric drives and light weighting will contribute to the wider adoption of electrified vehicles and will be significant elements of the technology leap necessary to achieve the medium to long-term demanding CO₂ emission objectives.

The BMW programme that encompasses all the improvement activities is named Efficient Dynamics and it is split in three major areas: (i) Powertrain (ii) Vehicle that addresses aerodynamics, Rolling Resistance, and also Lightweight Design/ Weight Distribution; and (iii) Energy management that focuses on the vehicle Electrical System, Engine Start Stop, Energy Recuperation, Thermal Management, waste energy recovery and Preview based Functions & Connectivity.

¹ Only projects that meet the scope of the Pilot Exercise, as defined in the EIB draft Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: above 100 000 tonnes CO₂e/year absolute (gross) or 20 000 tonnes CO₂e/year relative (net) – both increases and savings.

In the Battery technologies, the development activities on the current generation are focusing on cost and safety, while BMW is also working on future technologies that would provide substantially higher specific energy and density characteristics.

Light-weight technologies:

Finally in the Hydrogen fuel cells area, the company develops cryo-compressed and compressed gas storage solutions, fuel cell technologies, fuel cell electric powertrains and power electronics.

Other Environmental and Social Aspects

The promoter demonstrates high level of awareness of the key environmental issues. The company has a formalised environmental strategy which includes specific quantifiable targets, and the products go through a life cycle analysis. Environmental management systems are in place in all production facilities worldwide as well as in the central planning departments. With the exception of Manaus (Brazil) and Cassinetta (Italy), these systems are certified in accordance with ISO 14001. The German and Austrian sites have undergone additional external audits and meet European Eco-Management and Audit Scheme (EMAS) standards.

BMW aims to be the most resource-efficient carmaker in the world and to this goal they are integrating environmental considerations into all major investment decisions at an early stage as well as tracking and monitoring all the relevant environmental indicators. The Group-wide environmental protection approach is based on a Clean Production strategy which aims to keep consumption of resources and the environmental impact of production processes as low as possible. In 2001, BMW committed to achieving this goal by signing the International Declaration on Cleaner Production of the United Nations Environment Programme. In 2007, the company set the goal of reducing the consumption of resources and emissions per vehicle produced by an average of 30% between 2006 and 2012. The parameters used to measure this are energy, water, process wastewater, disposed waste and solvent emissions. In the end, the average improvement was at about 36%, so that the target was exceeded. More specifically energy was reduced by 26%, water by 30%, process wastewater by 36%, waste for disposal by 65% and solvent emissions by 27%.

In terms of greenhouse gas emissions, and CO₂ emissions in particular, the reduction is mainly addressed through the development and manufacturing of efficient vehicles. However the company is also aiming at improving manufacturing CO₂ footprint, through the implementation of effective production processes, using renewable energy sources and carefully selecting its production locations. The company has reduced the CO₂ emissions per vehicle produced by about 20% from the 2008 figures, while the target is to become a leader in the use of renewable energy by 2020, having the vision to draw at some point 100% of their energy requirements from renewable energy sources. Carbon-neutral electricity will be used for the entire production process of the BMW i3 in Leipzig (project financed by the Bank) through four wind turbines on the plant's premises, each of which with a capacity of 2.5 megawatts.