

ENVIRONMENT

Protection of the environment and the prevention of climate change are key corporate objectives for DEUTZ. We manufacture environmentally responsible products that meet the latest emissions standards and even future emissions standards and therefore make a vital contribution to protecting the environment. Our production processes are also resource-efficient. More than ten years ago, DEUTZ decided to implement an environmental management system as a way of contributing effectively to environmental protection. The system keeps track of aspects that are highly relevant to the environment, such as keeping the air clean, avoiding and correctly disposing of waste, protecting against soil and water pollution and sustainably reducing energy consumption.

ENERGY MANAGEMENT SYSTEM

We have successfully deployed our energy management system at our Cologne sites since 2013, and it first achieved certification in November of that year. In April 2015, as part of the annual quality and environmental audit, the certification body DNV GL once again accredited the energy management system without any reservations. As planned, the ISO 50001 certificate was then extended to all German sites. This means that we also satisfy the provisions of the German Energy Services Act (EDL-G), which requires all companies categorised as being larger than an SME to conduct energy audits.

The ongoing expansion of additional meter infrastructure enables energy to be monitored and, at the same time, provides a transparent overview of all energy flows. Additional potential was identified by implementing a variety of technical and organisational measures last year. The resulting annual savings amount to 775 MWh of electricity and 1,116 MWh of heat.

However, the potential for further savings is still far from exhausted: additional efficiency measures and the final phase in the expansion of the monitoring system are already being planned for 2016. New opportunities for savings will be opened up by the closure of the Cologne-Deutz site and the associated relocation of some manufacturing operations to the new production hall at the Cologne-Porz site, which is being built in accordance with the latest requirements under the German Energy Saving Regulation (EnEV).

DEUTZ Group: Energy consumption in our plants¹⁾

MWh	2015	2014
Electricity ²⁾	77,388	87,944
Natural gas	34,243	34,768
District heating	23,857	22,596
Heating oil	3,788	3,456
Diesel fuel ³⁾	21,252	32,313

¹⁾ Plants in the DEUTZ Group, excluding joint ventures.

²⁾ Recovered energy has been subtracted.

³⁾ At 9.85 kWh/litre (mean).

ENVIRONMENTAL MANAGEMENT SYSTEM

In April 2015, external environmental auditors from the certification body DNV GL found once again that DEUTZ AG's environmental management system conforms to the international ISO 14001 standard. For the first time since the environmental management system was implemented, a main target was defined and quantified in 2015: a year-on-year reduction of CO₂ emissions by at least 2.0 per cent per engine.

A comparison of total annual emissions shows that CO₂ emissions have gone down by around 13 per cent. This trend correlates closely with the production programme, which was smaller than in 2014.

CO₂ emissions per engine (Scopes 1–3) increased to 460kg in 2015 (2014: 365kg). The targeted reduction in CO₂ emissions of 2 per cent per unit of production was not achieved because we have an underlying energy requirement for the production of our engines (Scope 2 emissions) that applies regardless of the size of a production programme.

The closure of the site in Cologne-Deutz and the construction of the new shaft centre at the Porz plant are expected to lead to a significant improvement in our carbon footprint. DEUTZ is therefore continuing to pursue its target of a 2 per cent reduction in CO₂ per engine in the coming reporting year.

DEUTZ Group: Annual CO₂ emissions in our plants¹⁾

Tonnes	2015	2014
CO ₂ emissions (Scope 1)	13,251	16,289
CO ₂ emissions (Scope 2)	51,070	57,021
CO ₂ emissions (Scope 3)	531	1,528
Total CO ₂ emissions	65,134	77,463

Scope 1: CO₂ emissions caused by combustion in our own facilities.

Scope 2: CO₂ emissions relating to purchased energy (e.g. electricity, district heating).

Scope 3: CO₂ emissions from flying and the use of hire cars.

¹⁾ Plants in the DEUTZ Group, excluding joint ventures.

FURTHER IMPROVEMENT OF AIR PURITY

Over and above the effects of the production programme, emissions of dust, carbon dioxide, benzene and nitrogen oxide have decreased substantially as a result of particularly low-emission engines being tested and a shortening of the testing times in the test bay.

DEUTZ Group: Emissions per engine in our plants¹⁾

Emissions per engine	2015	2014
CO ₂ (kg)	460	365
Nitrogen oxide (kg)	0.128	0.140
Dust (g)	2.6	2.7
Benzene (mg)	44.8	48.6

¹⁾ CO₂ emissions in plants in the DEUTZ Group. All other figures relate to German plants.

A variety of individual technical and organisational measures made it possible to shorten the testing times. To further reduce emissions and costs, we are planning to carry out cold testing²⁾ of some of our products in the production test bays in Cologne. The construction of a laboratory for exhaust after-treatment technology, which contains a model gas testing rig, enables the simulation of engine emissions for bench-scale testing. This saves on various test runs at the development stage.

In order to satisfy customers' requirement for even more eco-friendly engine technologies, DEUTZ AG has converted four of its test cells so that engines can be tested with LPG as part of research and development. The advantage in terms of air purity is obvious: LPG-powered engines do not emit any dust.

²⁾ Functional testing of the engine without initiating the combustion process.

FOCUS ON WATER POLLUTION CONTROL

We ensure the safe operation of all equipment to which the German Federal Water Act (WHG) applies by having them inspected regularly by experts from a central monitoring agency. This not only ensures the necessary technical requirements for safe operation are in place but also reduces the likelihood of equipment downtimes.

The retirement and deinstallation of the electroplating plant in Cologne-Deutz significantly lowered environmental risk during the reporting year. The deinstallation of the electroplating equipment and the transfer of some of it to the new location of the external service provider were carried out in close cooperation with the local environmental authorities – a model example of collaborative partnership.

In the last stage of its expansion, the R&D testing centre's cellars were extensively refurbished. The work was undertaken in order bring the equipment-specific water pollution controls in line with the latest technology. This predominantly involved replacing waste water pipes and recoating the floors, which have to resist penetration by substances that could pollute the water. Just under €0.2 million was invested in these measures.

Use of resources improved again The recooling plant, which supplies the R&D testing centre with water for cooling, had previously been operated using an open recirculating cooling system. Besides the loss of water resulting from this process, the outdated machinery consumed a lot of electricity. We completed the installation of a closed recirculating cooling system and the replacement of the inefficient circulating equipment last year. Just under €0.3 million was invested in this construction work. The ongoing benefits of this measure – reduced water consumption at the Cologne-Porz site and lower consumption of electrical energy – will help to conserve the resources available to our Company in the long term.