

# Action plan—our key objectives

Target	Status as of 2009	Measures and Programs until 2012
<b>Ongoing reduction in specific energy consumption by 25% from 2002 to 2012</b>	<ul style="list-style-type: none"> <li>Reduction in energy consumption from approx. 1.07 MWh/t output in 2002 to 0.91 MWh/t in 2009.</li> <li>Further utilization of CHP, achieving far higher efficiencies than available from standard boiler plant; in 2009 for example, a new 2 MW cogeneration unit at our Fino Monasco site in Italy eliminated the need for imported electricity. The heat recovered from the gas engine exhaust also covers 50% of the site's steam demand (see article, SR 2009 page 32).</li> <li>Further rollout of energy measurement and control system (installation of PI [process information] systems).</li> <li>In April, start-up of external logistics center (operated by Noerpel), constructed at our Illertissen site in Bavaria in accordance with the latest low-energy standards (see article, SR 2009 page 16).</li> <li>Again focusing on electricity consumption, our Illertissen site replaced its old well water pumps, saving 250,000 kWh per year. Power demand of major biological wastewater treatment plants reduced through speed control of air blowers and introduction of high-accuracy oxygen control.</li> </ul>	<ul style="list-style-type: none"> <li>Introduction of advanced automation and control technologies.</li> <li>Further investigation and rollout of heat recovery technologies.</li> <li>Systematic recording of energy consumption levels based on defined key performance indicators for all production sites and technologies worldwide.</li> <li>Establishment of Process Optimization Teams (POTs) at the operational level at nearly all sites.</li> <li>Set up of the energetic-X-cellence program in Düsseldorf in 2010 and rollout to other sites.</li> <li>Reducing electricity demand by replacing old, inefficient motors and plant illumination, cutting standby consumption and optimizing cold water generation. Further comprehensive energy saving projects were approved at our US sites, in Kankakee and Cincinnati, which come in second and third in our ranking of total energy consumption after Düsseldorf.</li> </ul>
<b>Ongoing reduction in specific CO<sub>2</sub> emissions by 25% from 2002 to 2012</b>	<ul style="list-style-type: none"> <li>Since 2002, the reduction in CO<sub>2</sub> emissions achieved related to production output has amounted to around 16%. Currently 91% of imported fuel used to feed our combustion units is in the form of natural gas, with a further 4% provided by biomass-based production residues.</li> <li>Change in mix of primary energy sources, with increased use of natural gas in particular. Commissioning of a new natural gas boiler at our site in Japan has meant replacement of kerosene as a fuel, reducing CO<sub>2</sub> emissions by about 25%. Our new cogeneration plant in Italy is also expected to improve the CO<sub>2</sub> balance there by at least 20%.</li> <li>Optimization of condensate recovery continues to save water and energy and therefore cut CO<sub>2</sub> emissions. At our US site in Kankakee, an increase in the condensate return rate of 14% has resulted in a further reduction of 200 tons in CO<sub>2</sub> emissions per year.</li> <li>At our Düsseldorf site, we investigated the installation of an in-plant biogas facility; however, decreasing volumes and fluctuating qualities of residues, combined with a lack of technical expertise on the part of likely vendors, mean that supplying external anaerobic digesters is currently the favored route. We also investigated installing a wind farm at our biggest US site in Kankakee, but possible interference with nearby airport and long-range radar systems appears to rule this out at the moment.</li> </ul>	<ul style="list-style-type: none"> <li>Further decrease of CO<sub>2</sub> emissions through energy saving activities.</li> <li>Further expansion of CO<sub>2</sub>-reducing energy supply through steam and power from cogeneration plant.</li> <li>Improved efficiency of existing steam and power cogenerating plants at designated sites.</li> <li>Further research into the use of electricity from renewable sources.</li> <li>Sale of secondary products as biomass-based fuels/energy sources.</li> <li>Further investigations into the utilization of biomass-based, CO<sub>2</sub>-neutral residues or waste as replacements for fossil fuels in our boilers. Strategies and investments to avoid unnecessary energy consumption and emissions from operational interruptions caused by power blackouts, e.g. gen-set in Ecatepec, Mexico.</li> <li>Implementation of w/w Cognis car policy in 2010 according to local standards, incorporating a bonus/penalty system based on a specified base level of CO<sub>2</sub> emissions, and an upper limit on CO<sub>2</sub> emissions for all new cars.</li> </ul>
<b>Ongoing reduction in water and wastewater by 25% from 2002 to 2012</b>	<ul style="list-style-type: none"> <li>Since 2002, we have managed to reduce our organically charged process effluents by 20% in volume. Over the same period, we have reduced the organic load discharged into surface water by 10%.</li> <li>At our US site in Cincinnati, we have cut the organic load discharged into the public sewerage system by 25%.</li> <li>Successes in the incorporation of cleaning-in-place (CIP) systems within production facilities at selected sites, and avoidance of cleaning operations through extended production campaigns e.g. at sulfonation plant Germany/Holthausen and France/Pulnoy.</li> <li>Completion of refurbishment of the wastewater treatment plant at our Spanish site in Castellbisbal, more than tripling the aerobic treatment volume. Further improvements expected with the advent of a new public sewerage system for salty effluents in 2011. Wastewater treatment facilities also upgraded in 2009, e.g. in Thailand, Mexico, France and Brazil. Our Brazilian site managed to reduce the COD load from treated effluent discharged into the Paraíba river by a further 35% per ton of product. Yeast technology successfully introduced to optimize biological performance in Meaux, France.</li> </ul>	<ul style="list-style-type: none"> <li>Focus on identification, monitoring and prevention of wastewater sources at all sites.</li> <li>Improvement of cleaning procedures to reduce water consumption and water contamination.</li> <li>Evaluation of secondary usages of treated wastewater: – Cascade usage of cleaning water – Reutilization of steam condensate.</li> <li>Possible expansion or add-on of biological treatment stages at selected sites such as Castellbisbal in Spain.</li> <li>Production-integral recovery of recyclable portions of process effluent; special focus on water-saving in regions with water shortages such as Mexico, Spain and Turkey.</li> <li>We approved a project to upgrade and refurbish the wastewater treatment plant at Hythe, UK, by the end of 2010.</li> </ul>
<b>Ongoing reduction in waste</b>	<ul style="list-style-type: none"> <li>Since 2002, waste and production residues reduced by almost 24%.</li> <li>Steady increase in recycling and reutilization of production residues.</li> <li>At our site in Illertissen, most residues result from the production of food additives. In 2009, around 2,700 tons of such material were supplied to external fermentation plants, enabling the generation of about 1.8 million m<sup>3</sup> of biogas (see article, SR 2009 page 32).</li> </ul>	<ul style="list-style-type: none"> <li>Further evaluation of secondary usages of waste.</li> <li>Increased utilization of low calorific value production residues in biogas facilities instead of incineration.</li> <li>Avoidance of waste:—Improvement of molecular yield in production through Material Efficiency Program—(see article relating to Holthausen, Germany).</li> </ul>
<b>Further increase in the use of renewable raw materials</b>	<ul style="list-style-type: none"> <li>47%* of the raw materials used are nature-based (natural oils and fats, plants, extracts).</li> <li>63 Cognis products from our Care Chemicals SBU have been evaluated and certified as natural ingredients by the Natural Product Association, USA.</li> <li>First batch of certified palm oil became available in Nov. 2008, and in 2009 we started purchasing activities involving PKO (Palm Kernel Oil) certificates.</li> <li>All standardized contract purchases are now concluded with RSPO members.</li> <li>Development of an auditable supply chain model for a product portfolio based on CSPKO (Certified Sustainable Palm Kernel Oil).</li> </ul>	<ul style="list-style-type: none"> <li>Continuous annual monitoring of the proportion of natural renewable raw materials in our products. Ongoing evaluation of new partner and project options focusing on bio-surfactants within the Cluster Industrielle Biotechnologie (CLIB) network, which now boasts more than 70 members from the chemical industry, SMEs and academia. Participation in opinion-forming processes within Germany's VCI (chemical industry association), and the associated DIB (association of industrial biotechnology), geared to the evaluation and promotion renewable feedstocks for the chemical industry.</li> <li>Ongoing active support of the Roundtable on Sustainable Palm Oil (RSPO) (Cognis a member since 2004) and the sale of CSPO (Certified Sustainable Palm Oil) and CSPKO.</li> <li>Supply chain model for the "Book &amp; Claim" marketing option for sustainable palm oil products.</li> <li>Ongoing dialog with different stakeholder groups.</li> </ul>
<b>Zero lost-time accidents</b>	<ul style="list-style-type: none"> <li>2009 incidence rate a repeat of the encouraging 2008 figure: 0.46.</li> <li>Entire Asia-Pacific region accident-free for one year.</li> </ul>	<ul style="list-style-type: none"> <li>Further training in safety awareness and continuation of internal audits.</li> <li>Provision of regular training in occupational safety for production employees worldwide.</li> <li>Greater emphasis on preventive maintenance.</li> <li>Site-specific workplace safety improvement programs.</li> <li>Ongoing monitoring of process safety and workplace safety ("Top Ten" in safety) at site level.</li> </ul>
<b>Healthy working environment</b>	<ul style="list-style-type: none"> <li>Ongoing health programs at different sites: <ul style="list-style-type: none"> <li>Cancer prevention at Holthausen in Germany.</li> <li>First aid training at sites in Germany, Canada and China.</li> </ul> </li> <li>Continuation of sport programs at various sites, e.g. Argentina, Brazil and Monheim in Germany.</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive health programs and campaigns at respective sites.</li> </ul>
<b>Create and further develop a high-performance organization</b>	<ul style="list-style-type: none"> <li>All companies run performance management programs.</li> <li>Implementation of 4C Competence Model based on appropriate training, intranet-based support and information to all employees.</li> <li>Further development of Cognis College in Germany (see article, SR 2009 page 25).</li> <li>Further corporate-wide rollout of succession management process to SBUs and functions.</li> <li>"Grow" management trainee program in Asia-Pacific (see article, SR 2009 page 24).</li> <li>Commencement of training on 24 Principles in 2009 with several workshops (see article, SR 2009 page 23).</li> </ul>	<ul style="list-style-type: none"> <li>Employees receive regular feedback on their performance.</li> <li>Agreement of individual development plans.</li> <li>Continuous development and implementation of Cognis College programs based on business needs.</li> <li>Cooperation with the Sustainability A to Z institute, led by Drs. Paul T. Anastas and Julie B. Zimmerman, to institute appropriate training activities aligned to the implementation, dissemination and verification of our 24 Principles (see article, SR 2009 page 23).</li> </ul>
<b>High employee satisfaction</b>	<ul style="list-style-type: none"> <li>Schedule for next employee survey to be finalized in Q3/2010.</li> <li>Quarterly leadership presentations to support dialog between managers and employees.</li> <li>Targeted leadership workshops at country level.</li> <li>Parties to celebrate 10 years in business at the majority of our sites, accompanied by special 10 Year Anniversary communications campaign.</li> </ul>	<ul style="list-style-type: none"> <li>Regular worldwide employee surveys ("Cognis Barometer").</li> <li>Advancement of dialog between managers and employees.</li> </ul>

\* Some assumptions have been made where criteria for data monitoring have changed due to international directives or national legislation, or where definition changes in the referenced production output figures hamper a direct comparison of 2002 and 2009 figures. Following the sale of Oleochemicals and Pulcra Chemicals, the basis for calculation and comparison is exclusively the core businesses of Cognis (Care Chemicals, Nutrition & Health and Functional Products).