

## Progress of “Blue Earth 21”, Cosmo Oil’s Mid-term Environmental Plan

In the Blue Earth 21 plan, we set nine themes and slogans to convey the message of the Mid-term Environmental Plan. Each department sets objectives and works to achieve them.

➤ **Slogans of the mid-term environmental plan:**  
“Cosmo Oil – the environmental choice”

“Committed to environmental excellence”

“Fulfilling our responsibilities  
as a corporate citizen”

“Environment and economics  
– both are essential”

### ➤ Progress in the Blue Earth 21, Cosmo Oil’s mid-term environmental plan

Theme	Activities	Mid-term Target (FY 2004)
<b>1. Prevention of climate change:</b> Reduction of CO <sub>2</sub> emissions from business activities and introduction of new energy	Energy conservation	Reduce unit energy consumption at oil refineries by 9.2% from 1990 level Reduce fuel consumption for distribution: Decrease use of tanker trucks by ▲20%, and coastal tankers by ▲17%, from 1990 level Promote energy conservation at offices. Reduce electricity consumption at offices from 2003 level by ▲5%. Reduce fuel consumption for company cars from 2003 level by ▲7%.◇
	Utilization of the Kyoto Mechanisms	Assessment of engagement with Kyoto mechanisms
	Introduction of new energy	Assessment of introduction of new energy sources (promote wind-power electricity business, install solar panels at two or more SS)
	Air pollution control	Maintain discharge of SOX, NOX and soot from oil refineries at current levels (within legal limits)
<b>2. Reduction of pollutant emissions:</b> Control of emission levels for air and water pollutants below the regulatory standards and reduction of industrial waste, etc.,	Water pollution control	Maintain discharge of COD from oil refineries at the present level (within legal limits)
	Industrial waste reduction	Reduce final disposal by average ▲81% per year (2002-2004) from 1990 level Maintain final disposal (land-fill disposal) / waste generation ratio <b>no more than 1.5%</b> Set targets for further reduction of final disposal aiming at zero emissions◇
	Management of chemical substances	Implement and promote management of chemical substances in accordance with laws and regulations
	Reduction of VOCs based on voluntary standards	Complete assessment of countermeasures linking oil refineries, oil terminals and service stations
<b>3. Prevention of soil contamination:</b> Assessment of current situation and promotion of preventive measures	Service stations (SS)	Promote preventive measures, conduct self-inspections at service stations and take measures appropriate to the situation
	Other facilities	Inspect soil contamination and take appropriate measures at each facility
<b>4. Material reduction:</b> Promotion of 3R activities (reduce, reuse, recycle) and reduction of municipal waste	Paper	Reduce paper ledgers, slips, etc. by promoting merger and abolition or electronic management thereof, preparing for the revised system at oil refineries starting in 2005◇
	Daily items	Establish a sorting and collection and recycling system at all facilities◇
	Water	Introduce wastewater recycling systems at 2 SS or more
<b>5. Reduction of environmental impact of products:</b> Providing petroleum products with lower environmental impacts	Diesel fuel	Establish systems to supply sulfur free (sulfur content of 10ppm or less) diesel fuel
	Gasoline	Establish systems to supply sulfur free (sulfur content of 10ppm or less) gasoline
<b>6. Green purchasing:</b> Expansion of items covered by green purchasing.	Material, equipment, and works	Implement green purchasing of materials and equipment (e.g. construction materials), subsidiary materials (e.g. chemicals and catalysts) and construction work and expand the range of items covered by green purchasing
	Office supplies	Continue purchasing in line with standards◇
	Purchasing from green suppliers	Implement purchasing from green suppliers and expand the range of items covered under green purchasing
<b>7. Research &amp; development:</b> Development of petroleum products and environmental technologies related to business activities	Petroleum product development	Develop high-performance catalysts to reduce environmental impact of products
	Environmental technology development	Develop technologies to reduce and reuse catalysts and those to reduce surplus sludge Develop evaluation technologies for oil content in soil and technologies to clean-up the contaminated soil Provide technologies to absorb and recover vapors including VOCs
	New energy development	Develop fuel cell systems and technologies for the conversion of natural gas to liquid fuel (GTL)
	Technical cooperation in environmental protection	Share environmental technologies with other countries
<b>8. Environmental conservation projects:</b> Continuous efforts to support projects, particularly those related to prevention of climate change	Cosmo the Card Eco projects	For the prevention of global warming, continuously implement the following projects: 1. Aid for developing countries 2. Projects for environmental education◇
	Social contributions	Continuously implement community programs
<b>9. Organization for environmental management:</b> Continuous efforts in environmental management and communication with multiple stakeholders	Environmental management	Promote sharing of environmental awareness to develop human resources
	Communication	Effectively communicate environmental information to all stakeholders

### ➤ Progress in FY 2003

We set priorities as Zero emissions, Green purchasing and Soil conservation for all of our employees to participate in environmental activities and to reinforce our risk management system. We established the foundation for the systems and action plans in FY 2003. We will continuously expand the progress in each activity.

### ➤ Plan for FY 2004

At all times our company has main three priorities. Zero emissions, Green purchasing and Soil Conservation and will continue to implement the mid-term environmental plan. Our aim is to achieve the objectives in all themes in FY 2004 as this is the last year of the first term of the mid-term environmental plan. After reviewing the results for FY 2003, we revised some of our objectives.

Evaluation ○ : achieved △ : not achieved  
▲ : decrease  
◇ : Objectives reviewed and reset in FY 2003

	FY 2003 Target	FY 2003 Actual	Evaluation	Ref.
	▲8.3% (vs. 1990) ◇	▲10.7%	○	21
	Tanker trucks▲19% (vs. 1990)	Tanker trucks ▲20%	○	25
	Coastal tankers▲16% (vs. 1990)	Coastal tankers ▲11%	△	25
	Prepare to expand throughout the business	Established Office Clean-Up Team to reinforce the system Survey relating to energy saving at all offices	○	24
	Same as left target	Exercised and utilized Australian emission rights. Participated in ventures and seminars to gain knowledge on emission trading, CDM, etc.	○	41
	Same as left target	Carried out survey of circumstances relating to wind power generation	○	28
	Same as left target	Installed solar panels at 4 service stations	○	26
	Same as left target	Maintained (complying with relevant regulations)	○	22
	Same as left target	Maintained (complying with relevant regulations)	○	23
	Same as left target	▲87.4% (vs. 1990)	○	21
	Establish systems at each site to achieve zero emissions	Established action plan for zero emissions of industrial waste	○	15
	Same as left target	Assessed the amount of chemical substances emitted or transported based on PRTR Law and reported them to the government	○	22
	Same as left target	Assessed the status of VOC in oil refineries and oil terminals and considered appropriate action (delayed from plan)	△	—
	Same as left target	Introduced EM points system (SS management tool) every 6 months. Educated employees in SS on environmental management. Conducted self-inspections for oil tanks	○	16 26
	Implement systematic assessments and countermeasures	Conducted soil tests at 11 sites and reinforced the maintenance of facilities and daily inspection	○	16
	Reduce paper ledgers, etc.▲18% (vs. 2002)	Reduced paper ledgers, etc. ▲33.3%	○	24
	Expand to other sites	Established Office Clean-Up Team to reinforce the system. Assessed all business sites on sorting, collection and recycling system oil tanks	○	—
	4 locations	Wastewater recycling systems were not introduced	△	—
	Supply diesel fuel that complies with the regulations. (sulfur content of 50ppm or less)	Initiated nation-wide supply of diesel oil (sulfur content of 50ppm or less) since April 2003	○	DataBook p5
	Same as left target	Prepared for supply systems including establishment of new facilities	○	11
	Set standards for green purchasing	Surveyed suppliers and set standards for green purchasing (delayed from plan)	△	15
	Set standards for green purchasing	Surveyed all business facilities and set standards for green purchasing	○	15
	Set standards for green purchasing	Conducted questionnaires to suppliers and set standards for green purchasing	○	15
	Same as left target	Continued development of high-performance desulfurization catalysts for sulfur free diesel fuel manufacturing	○	27
	Same as left target	Provided technical support for surplus sludge reduction system in actual operation	○	11
	Same as left target	Continued development of FCC metal scavenger	○	—
	Same as left target	Utilized evaluation technology for oil content in soil at oil refineries and SS and continued development of soil cleaning technologies (delayed from plan)	△	27
	Same as left target	Provided technical support to promote sales of VOC recovery system (7 cases)	○	—
	Same as left target	Conducted verification testing on catalysts under development at GTL pilot plant	○	27
	Same as left target	Continued development of hydrogen production catalysts made from LPG or oil to use for development of fuel cells	○	12
	Same as left target	Implemented technical cooperation with other countries about Zero Flare plan, energy conservation, etc.	○	43
	Same as left target	Continued implementation of Cosmo the Card Eco projects	○	39
	Same as left target	Implemented "Cosmo Children's Earth School" to provide environmental education to children. Introduced "Cosmo Earth Conscious Act" to encourage society to participate in environmental protection	○	49 - 50
	Same as left target	Provided each level of employees with environmental education	○	36
	Same as left target	Continued provision of environmental information through environmental publications, advertisements, Web sites, etc.	○	47 - 48