

Whenever you need us

# ENVIRONMENTAL REPORT

2007



Table of contents

Letter from the President of the Management Board of PKN ORLEN SA ..... 3

Introduction ..... 4

Environmental Policy ..... 5

Investing in the environment ..... 6

Responsible Care ..... 8

Air protection ..... 9

Water extraction and wastewater discharge ..... 11

Waste management ..... 12

Packaging and recycling ..... 13

Noise ..... 15

Soil-aquatic environment ..... 16

Environmental charges ..... 17

Peregrine falcon restoration ..... 18

Green fuels ..... 19

"Green police" ..... 23

Green ORLEN Group ..... 24

Environmental activities in ORLEN Group ..... 26

ORLEN Group participation in carbon dioxide emission trading ..... 29

Awards and distinctions ..... 30



## Letter from the President of the Management Board of PKN ORLEN SA

*Dear Sirs,*

*One of the most important challenges for modern society in the era of accelerating progress of civilization is the protection of the natural environment.*

*PKN ORLEN as the leader of the oil industry companies in Central and Eastern Europe is aware of the environmental impact of its operations and supports requirements related to the protection of nature. Aware of our responsibility for the condition of the natural environment, we undertake numerous actions aimed at achieving the highest possible ecological neutrality of our manufacturing complexes in Poland, Czech Republic and Lithuania.*

*We keep investing in ecology-oriented projects which result in a constant improvement of quality and a reduction in the impact of our fuel products, both in Poland and other European countries.*

*In 2007, we implemented more than 700 ecological projects at fuel stations and storage facilities managed by PKN ORLEN in Poland, allocating for the purpose PLN 138 million which exceeded the amount allocated in the previous year by 70%. It is worth mentioning that the construction, modernisation and hermetisation of still more fuel stations and storage facilities contributed to an absolute reduction of hydrocarbon emissions from the storage-cum-distribution part of the Company.*

*We spent more than PLN 122 million on investment projects related to environment protection in our Płock Production Plant, considerably reducing the emission of sulphur dioxide from the Company's Combined Heat and Power Plant, among other issues.*

*Our achievements in the field of environmental protection were recognised in the National Ecological Competition "The Environmentally Friendly" organised under the Honorary Patronage of the President of the Republic of Poland, which awarded our Company with a certificate granting the Company the title of "Polish Ecology Partner".*

*In tune with the mission of PKN ORLEN, we intend to always act with care for our natural environment.*

*Yours faithfully,*

A stylized handwritten signature in black ink, appearing to read 'Wojciech Heydel'.

*Wojciech Heydel  
President of the Management  
Board of PKN ORLEN SA*



## Introduction

Last year, the direction of activities undertaken by PKN ORLEN in respect of environmental protection were determined by the Company's Environmental Policy based on the implementation of sustainable development.

According to the guidelines of the Environmental Policy, our basic activities in 2007 were related to:

- Environment-friendly production (i.e. compliant with effective environmental standards and ecological safety).
- Restoration of endangered elements of the environment.
- Responsibility for the ecological parameters of products launched on the market.

We invested over PLN 122 million in environmental protection in the ORLEN Production Plant itself, whereas the 723 environment-related tasks carried out at fuel stations and storage facilities amounted to PLN 138 million (70 percent more than in 2006).

The consistent implementation of assumed ecological objectives, even though accompanied by continuous growth in production, allowed the Company to comply with environmental standards defined in obtained permissions and to protect the natural environment surrounding the Production Plant in Płock. In addition, investments carried out in the preceding years resulted in a significant reduction in sulphur dioxide emissions produced by the Company's Combined Heat and Power Plant. The modernisation activities carried out on a large scale, including the air-tightening of a series of fuel stations and storage facilities, reduced hydrocarbon

emissions produced by the storage-cum-distribution part of the Company.

Every company in the ORLEN Group implemented various environmental measures. The efforts of many of them were rewarded with important awards and certificates.

Our achievements in the field of environmental protection were recognised in the National Ecological Competition "The Environmentally Friendly" (Przyjaźni Środowisku) organised under the Honorary Patronage of the President of the Republic of Poland. ORLEN obtained a certificate granting the Company the title of "Polish Ecology Partner".

It was also an exceptional year for the Responsible Care Programme. In October, we celebrated its 15<sup>th</sup> anniversary in Poland, and the 10<sup>th</sup> anniversary of ORLEN's participation in it.

The previous year was also the final year of the first accounting period of the European system of trading in rights to carbon dioxide emissions (CO<sub>2</sub>).

The system includes ORLEN installations, as well as those of other companies in our Group. According to verified reports, none of the installations exceeded their limits granted for that period.

Another success, though without our direct participation, belonged to a couple of peregrine falcons nesting in the Production Plant in Płock: four nestlings hatched in a nest box on a chimney of the Company's Combined Heat and Power Plant. All in all, since the beginning of the Programme's implementation, we have reported the birth of 18 falcons within our premises.



## Environmental Policy

Aware of the impact of its activities on the environment, PKN ORLEN announces a systematic adjustment of process planning and implementation methods to the requirements of permanent and sustainable development through an integrated approach to contamination prevention and environmental protection processes.

To this objective is subordinated the Company's strategy, which translates into existing and future development programmes and other activities carried out on the basis of the already implemented Environmental Management System according to the requirements of the PN-EN ISO 14001:2005 standard. We commit ourselves to extend the system to the remaining units in Poland and to build an integrated Management System.

We declare that our efforts will be aimed at the following environmental objectives:

- 1) To ensure integrated prevention and monitoring of pollution emissions to air, water and soil, as well as waste production, so as to ensure a high level of environmental protection as a whole while observing the sustainable development principle.
- 2) To achieve full compliance with current regulations and environmental standards, as well as other applicable requirements.
- 3) To apply the best available technologies (BAT) in new or modernised buildings.
- 4) To take preventive measures against serious industrial accidents.
- 5) To ensure acoustic protection of land and buildings surrounding the Production Plant in Płock

to which such protection applies.

- 6) To optimise the environmental parameters of our fuels by applying low-sulphur components and biofuels.
- 7) To minimise the risk of pollution spreading in soil and water and affecting human life and health.
- 8) To ensure access to information concerning the Company's environmental impact to all who might be interested in such information.
- 9) To increase environmental awareness among employees.
- 10) To continue the Responsible Care Programme.
- 11) To continuously improve the Environmental Management System and to integrate it with the Quality Management System in order to develop a single efficient Management System and ensure constant reduction of the negative environmental impact in all fields of the Company's activity.

In early 2007, the Company was subject to an audit confirming compliance of the Environmental Management System with the requirements of the new PN-EN ISO 14001:2005 standard.

Our goal is to achieve maximum environmental neutrality of the Production Plant in Płock and other organisational units of the Company in Poland on their direct environment, and to minimise the environmental impact resulting from the use of our products.





## Investing in the environment

In 2007, capital expenditure on tasks related to environmental protection in ORLEN's Production Plant exceeded PLN 122 million. Significantly, our environmental investments represented 28 percent of the total capital expenditure in Płock.

The most important projects aimed at reducing the impact our Plant has on respective elements of the environment include:

- Construction of the HON VII Installation (together with related infrastructure);
- Construction of the HON Installation from the HOG Installation;
- Wastewater system (1<sup>st</sup> and 2<sup>nd</sup> system) modernisation;
- Modernisation of cooling water pumps electric motors in the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Refinery Water Blocks;
- Modernisation of 00 – 320 No. 3 boiler burners in the Combined Heat and Power Plant;
- Replacement of electric engines in the Petrochemical Water Blocks.

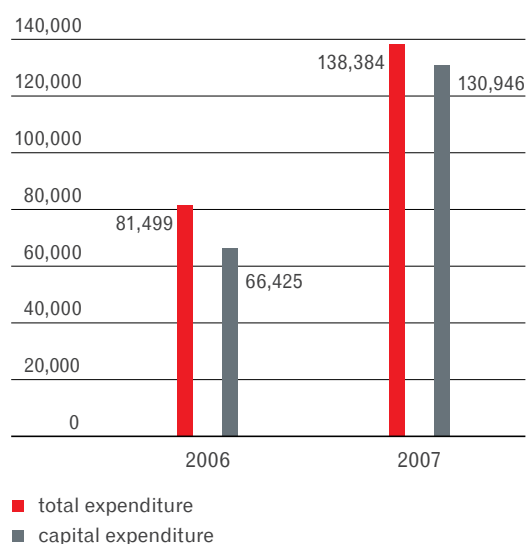
723 environmental tasks were carried out at storage facilities and fuel stations in the ORLEN network. The total expenditure amounted to PLN 138 million, meaning an increase of 70 percent in the environmental budget as compared to 2006.

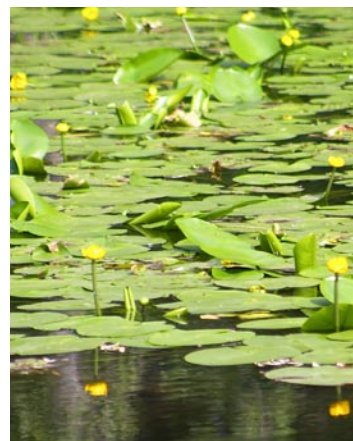
### Storage facilities

The most important tasks in the area of environmental protection implemented in 2007 in storage facilities included:

- Construction of installations dosing ester to diesel oil in storage facilities in: Sokółka, Gdańsk, Ostrów Wielkopolski, Szczecin, Nowa Sól, Mościska and Wrocław.
- Securing oil products against leaking into the soil, air tightening, i.e. reduction of pollution emission to atmospheric air, noise reduction, streamlining water and wastewater management in storage facilities in: Bolesławiec, Świnoujście, Olszanica and Żurawica.

**Capital expenditure on environmental tasks at fuel stations and storage facilities in 2006-2007 (thousand PLN)**





## Investing in the environment

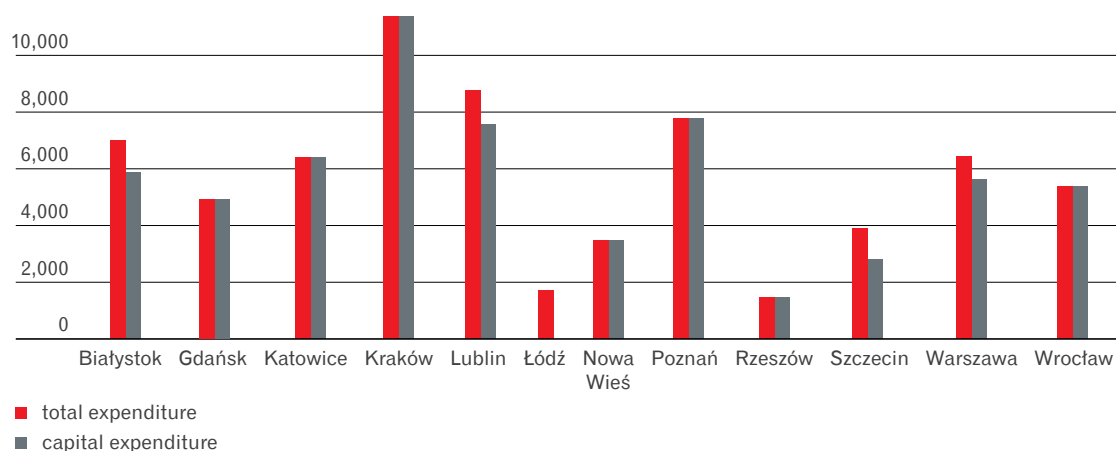
- Sealing the unloading track in the facility in Świnoujście.
- Reclamation of the soil-aquatic environment in selected facilities.
- Preparing geological designs for environmental boreholes.

### Fuel stations

Our environmental activities at ORLEN fuel stations concern mainly the adjustment of the existing stations and construction of new ones in compliance with current EU regulations on the provision of devices protecting the natural environment. Thus, the vast majority of ORLEN stations are provided with: wastewater systems, separators and other wastewater treating devices; air-tightening; sounding probes or, additionally, piezometers; seals and two-coat tanks preventing pollution leakage to soil.

In total, we carried out 711 tasks connected with environmental protection at our fuel stations in 2007, to which we allocated over PLN 70 million.

Capital expenditure on environmental tasks at fuel stations in 2007 (thousand PLN)





## Responsible Care

In 2007, PKN ORLEN celebrated the 10<sup>th</sup> anniversary of the implementation of the Responsible Care Programme. For the last 15 years domestic representatives of the chemicals industry have been implementing the tasks and objectives of the Programme. Currently, 37 Polish companies are involved in Responsible Care.

In accordance with the idea of the Programme, its participants aim at continuous improvement of their operations under the so-called HSE triad (Health, Safety, Environment), that is in the area of health, safety and environmental protection. We are proud to say that five companies within the ORLEN Group also volunteered to submit themselves to compliance with the rules of the Programme:

- ANWIL S.A. (in 1995)
- Inowrocławskie Kopalnie Soli Solino S.A. (in 2002)
- Basell Orlen Polyolefins Sp. z o. o. (in 2003)
- ORLEN Asphalt Sp. z o. o. (in 2005)
- ORLEN Eko Sp. z o. o. (in 2005)

In 2007, we submitted the following documents to the Secretariat of the Responsible Care Programme: "Indicators – 2006 reporting", "2006 environmental database" and "2006 self-assessment questionnaire". Data provided in those documents is used to balance and evaluate the environmental condition and progress of the Responsible Care Programme among its participants – members of the Polish Chemical Industry Chamber – Employers Association.

In 2007, the Company undertook to carry out the following tasks:

- 13 tasks related to environmental protection (7 completed, the others in progress).
- 9 tasks related to the improvement of process and work safety (3 completed, the others in progress).
- 5 tasks related to health protection and illness prevention (3 completed, the others in progress).
- and 2 tasks related to education and organisation, all of them completed.

In 2007, the President of the PKN ORLEN Management Board signed the Global Responsible Care Charter Support Declaration, created on the initiative of the International Chemical Council Association (ICCA). This is a type of voluntary self-regulation within the chemical industry, focusing on respect for environmental protection and human health and safety all over the world.

Moreover, the Charter suggests how to rise up to the challenge of sustainable development and defines the rules of appropriate chemical management, and demands more transparency in the chemical industry.

The Global Responsible Care Charter met with the approval of the UN Secretary-General who described it as an "inspiring model for other industries in the field of voluntary self-regulation". Several national chemical associations, including the Polish Chemical Industry Chamber, declared their support for the Charter.





## Air protection

Control measurements carried out in 2007 confirmed that permitted levels of pollution emissions to the atmosphere set out in the Integrated Permit were not exceeded. Despite an increase in crude oil processing compared to 2006, the Company experienced a significant drop in all emitted pollutants, the only exception being carbon monoxide emissions. Significantly, sulphur dioxide emissions fell by 31 percent and that of dust produced by fuel combustion – by 23 percent.

In 2006 and 2007, the Płock Plant emitted the following amounts of its most characteristic pollutants:

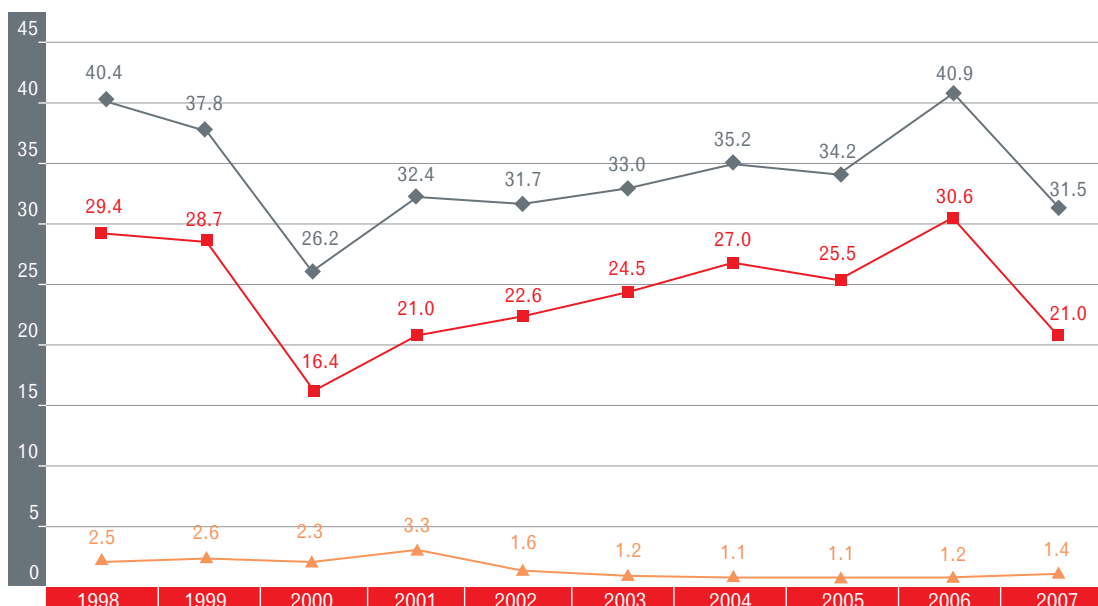
### Emissions of selected pollutants

Pollutant type	Pollution emissions [Mg]		Increase/Decrease	
	2006	2007	[Mg]	[%]
<b>Total emissions of all pollutants</b>	<b>6,594,433.82</b>	<b>6,269,287.66</b>	<b>–325,146.16</b>	<b>–4.93</b>
Sulphur dioxide	30,578.34	20,973.30	–9,605.04	–31.41
Nitrogen dioxide	7,983.84	7,474.71	–509.13	–6.38
Fuel combustion dust	748.10	574.53	–173.57	–23.20
Carbon dioxide	6,553,571.87	6,238,941.29	–314,630.58	–4.80



## Air protection

Emissions of the main pollutants by the Plock Production Plant in 1998 – 2007 (thousand Mg)



- ◆ Total emissions (without carbon dioxide)
- Sulfur dioxide
- ▲ Total hydrocarbons

Thanks to our investments in the environment and the consequent adjustments to tighter emissions standards applicable to the Combined Heat and Power Plant (since 1 January 2007), SO<sub>2</sub> emissions fell significantly – by over 30 percent.

The implementation of tasks relating to air-tightening of fuel storage-cum-distribution processes (storage facilities and fuel stations) resulted in a significant reduction in hydrocarbon emissions from these facilities. Our efforts rewarded us not only with cleaner air but also with lower environmental charges on ORLEN.



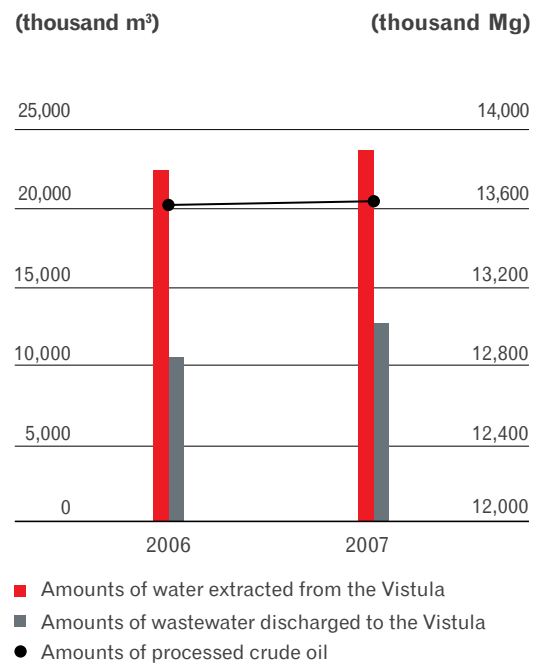
## Water extraction and wastewater discharge

In 2007, water extraction from the Vistula went up by approximately 6 percent, mainly due to the higher demand for water used for cooling production installations (Water Blocks).

The amount of wastewater discharged to the Vistula increased by nearly 20 percent as compared to the previous year, the main reason being wet, rainy weather in 2007. Our wastewater system, and then the Central Wastewater Treatment Plant reported 35 percent more rainwater sewage than the year before.

Since more water from the cooling systems desalination process was discharged to the industrial and fire water systems, we were able to recover and reuse for the production of industrial water 4.5 percent less treated wastewater than the year before.

### Amounts of water extracted from and wastewater discharged to the Vistula vs. amounts of crude oil processed in 2006–2007



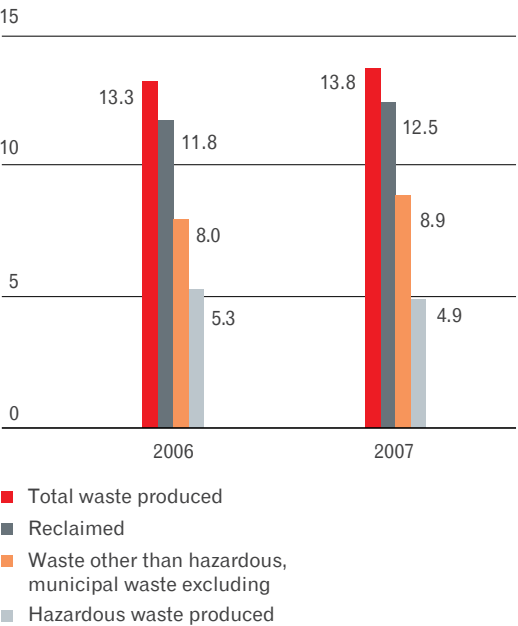


Waste management

In 2007, we reported a slight increase in waste production (by 0.5 thousand Mg compared to 2006). The fact that in 2007 we produced more steel and iron scrap than in the previous year was due to installation dismantling.

We are pleased about the increase in the amount of reclaimed waste – by 0.7 thousand Mg.

Waste produced in 2006 – 2007 (thousand Mg)





## Packaging and recycling

We used 4 types of packaging in the territory of Poland in 2007:

- plastic,
- paper and cardboard,
- steel (including steel sheet),
- wooden pallets.

It is worth mentioning that:

- in 2007 the total weight of packaging used in the territory of Poland went down by 10 percent;
- the weight of reclaimed packaging went up by 9 percent.

The reason behind the positive tendency is not only our increasing environmental awareness but also tighter statutory reclamation and recycling levels determined each year by the Minister of Environment.

Apart from the fall in total packaging weight, the amount of plastic packaging and natural packaging went down, compared to 2006, by 32 and 14 percent respectively. On the other hand, the weight of paper and cardboard packaging slightly increased – by 4 percent, the same as steel packaging (including steel sheet) – an increase of 11 percent.

### The weight of packaging released in 2006–2007\*

Type of packaging or product	2006		2007	
	reclaimed	level in % recycled	reclaimed	level in % recycled
Natural materials	–	13	–	15
Steel (including steel sheet)	–	18	–	20
Plastic	–	22	–	25
Paper and cardboard	–	45	–	48
<b>Total packaging</b>	<b>43</b>	<b>–</b>	<b>50</b>	<b>25</b>

\*according to an annex to the Regulation of the Minister of Environment of 24 May 2005 (Journal of Laws No. 103, item 872).





Packaging and recycling

Reclamation and recycling

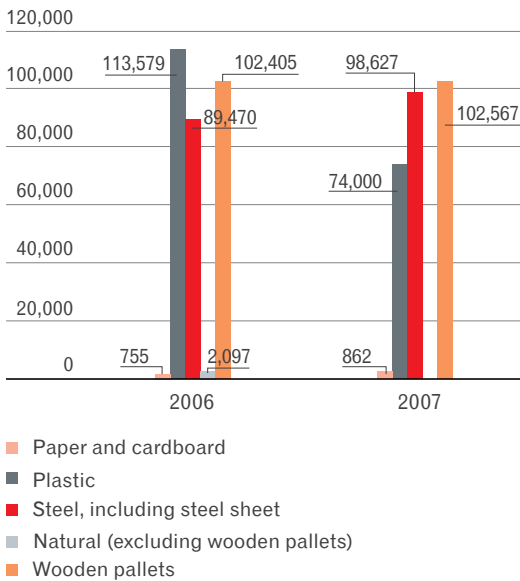
Reclamation means any activities aimed at using all or parts of waste by reclaiming their substance, materials or energy. Recycling is a special kind of reclamation where the matter contained in waste is re-processed in a production process in order to obtain material to be used for the same (or different) purpose. Such techniques are increasingly popular and supported by all, starting from individuals to government agencies across the world.

In 2007, we managed to comply with all statutory obligations concerning recycling. We reached the required levels for respective groups of packaging released by us domestically:

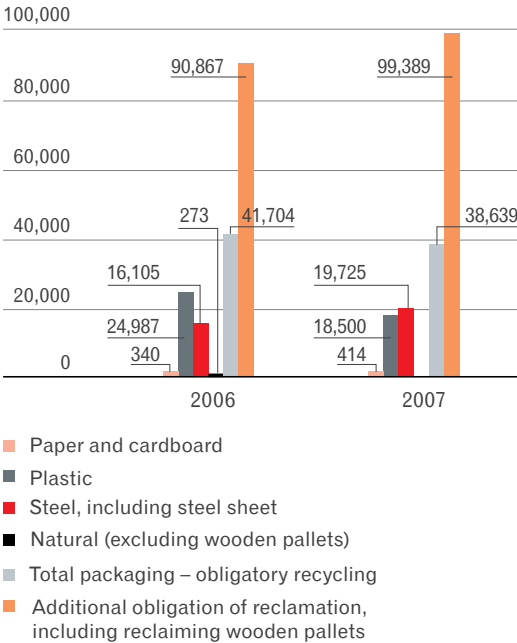
- 25 percent for plastic,
- 48 percent for paper and cardboard,
- 20 percent for steel (including steel sheet).

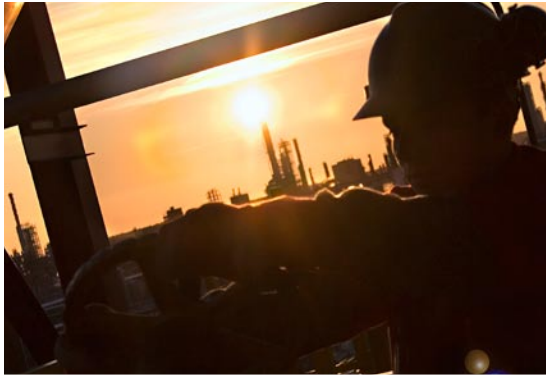
Moreover, we reclaimed 50 percent of all types of packaging used in Poland, including wooden pallets, which amounts to 99,389 kg. Thus, we fully complied with the extended obligation of waste reclamation according to the Regulations of the Minister of Environment.

The weight of packaging released in 2006–2007 (kg)



The weight of packaging recycled and reclaimed in 2006–2007 (kg)





## Noise

The level of noise generated by the Production Plant in Płock in 2007 was monitored at 3 locations, as agreed with the Department of Environment and Agriculture of the Mazowieckie Voivodeship Office in Warsaw:

- Nowa Biała 32a,
- Biała 19,
- Stare Draganie 19.

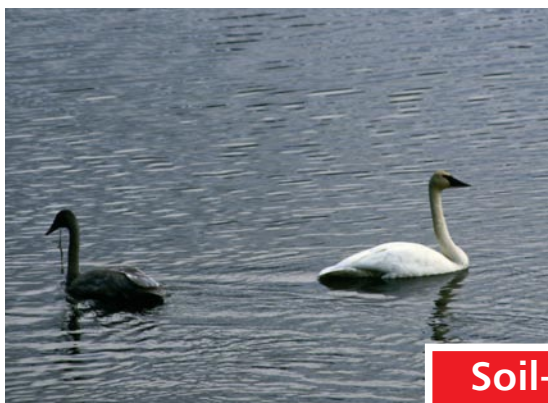
Noise was measured at the height of 4.0 m, and parameters were registered in one-minute spans. The basic noise indicators are:

- equivalent sound level A LAeq,
- minimum sound level A LAFmin,
- maximum sound level A LAFmax.

According to the measurements around our premises, noise levels are periodically high. However, since the measuring points are affected by various acoustic interference other than noise generated by ORLEN, it is impossible to determine the direct contribution of the Production Plant to the noise level in the environment.

Within and around ORLEN premises there are installations of other operators (such as Basell Orlen Polyolefins, ORLEN Asphalt, ORLEN Oil, ORLEN Eko, Petro Remont), as well as production and service facilities which influence the local acoustic climate. Of no little importance is also the noise produced by vehicles and people living in the vicinity of the plant.

In 2007, we developed a database of noise sources in the Płock Production Plant using the IMMI programme by Wölfel. Thanks to calculating noise creation from the sources within the Production Plant in Płock, we were able to generate reliable data as to the noise burden on the environment. On this basis, we prepared a motion to change noise monitoring methods that the Integrated Permit binds us to.



## Soil-aquatic environment

In 2007, we continued with remedy works imposed on us by the Integrated Permit issued for the Production Plant in Płock, namely we removed oil-derivative products and monitored the soil and aquatic environment.

A fall in the oil products removed in 2007 was mainly due to a negative change of environmental conditions. i.e. a high ground water level.

Significantly, after several years of intensive removal, the amount of product removable from the soil is finally being reduced.

Systematic observations and measurements, including ground water monitoring indicate that the existing oil product spots on ground water surface do not pose a threat to human life or health, and are unlikely to spread.



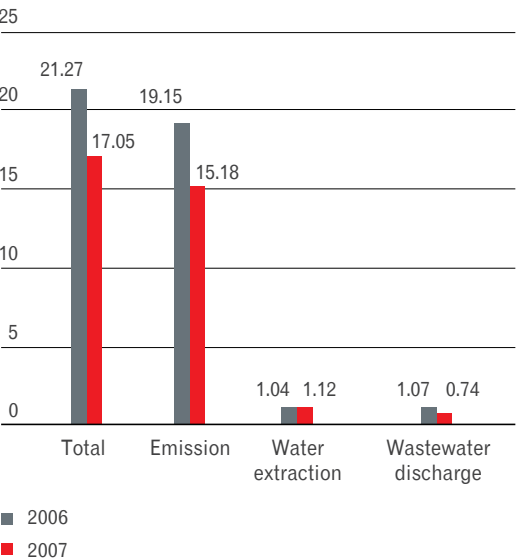
## Environmental charges

In 2007, we paid over 20 percent less in environmental charges than in 2006. The best environmental effect was achieved by significantly limiting emissions to air (e.g. of sulphur dioxide (SO<sub>2</sub>) from the Combined Heat and Power Plant).

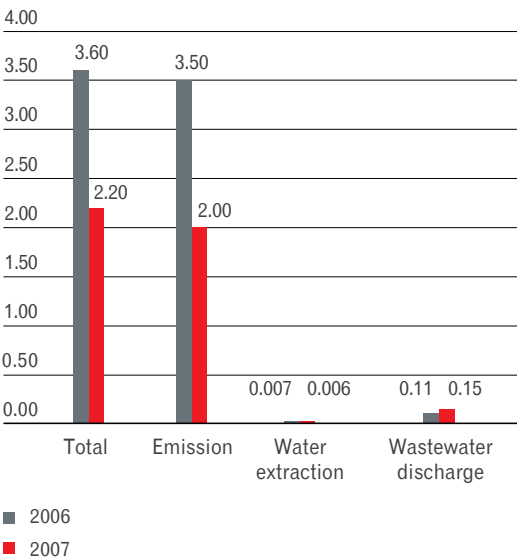
Moreover, we paid less for wastewater discharge into the Vistula compared to the previous year, despite an increased amount of wastewater discharged. It was possible after deducting increased COD load uptaken with the Vistula waters of worse quality than in the previous year.

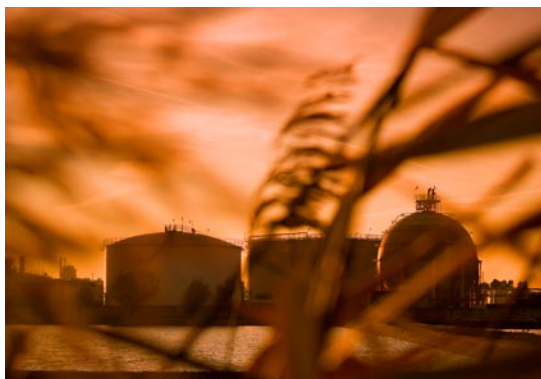
Regarding fuel stations and storage facilities, we reported a significant, 38.1 percent drop in total environmental charges (as compared to 2006). This was possible thanks to our investment projects: completion of the air-tightening of storage facilities and fuel stations, and selling (or liquidation) of certain facilities.

**Environmental charges in the Płock Production Plant in 2006–2007 (million PLN)**



**Total environmental charges at fuel stations, storage facilities and separate units of PKN ORLEN S.A. (million PLN)**





## Peregrine falcon restoration in ORLEN

For the last six years, ORLEN, together with the Society for the Protection of Wild Animals "Sokół" (Stowarzyszenie na rzecz Dzikich Zwierząt "Sokół") has been restoring the peregrine falcon population in Poland by settling the birds in a suitable environment.

We are very pleased to note that the nest boxes have been inhabited by peregrine falcons since 1999, and we have witnessed the birth of 18 nestlings.

The birds living within our premises are looked after all year round. We check their nest boxes, take photos and make recordings of the birds, and ring the young ones.

In 2007, 4 nestlings, two cocks and two hens, hatched in the nest box installed on the chimney of the Combined Heat and Power Plant. When we discovered the offspring in May, they appeared to be approximately 3 weeks old. We ringed them with:

- ornithological rings (yellow, for birds hatched in urban/developed areas)
- birdwatching rings (blue, with big letters and digits, visible from a distance through optical devices).

We found out (using optical devices) that the eggs were laid by a hen who settled down in the plant in 2002.

It is worth mentioning that the ORLEN couple had offspring for the seventh year in a row, which is very rare for those birds (usually, there is a break after 3 or 4 years).





## Green fuels

### PRO-ENVIRONMENTAL EFFECTS IN THE FIELD OF FUEL PRODUCTION

#### Petrol

Last year, we produced the following types of petrol:

- Eurosuper 95,
- Super Plus 98,
- VERVA 98.

All types of our petrol contain a package of top quality refining components, the key one being a detergent additive which ensures compliance with the highest engine valve purity standards according to the World-Wide Fuel Charter.

#### Eurosuper

is a mixture of hydrocarbon from crude oil processing. This is the most basic type of fuel offered on the Polish market. Thanks to the most noble components, like ether, alkyl or isomerizate, the required octane number is obtained at reduced content of aromatic hydrocarbons, benzene and sulphur.

#### Super Plus 98

is a sublime mixture of hydrocarbon from crude oil processing. Its specific components ensure the required octane number at reduced content of aromatic hydrocarbons, benzene and sulphur, often below 10 ppm.

#### VERVA 98

is sulphur-free and ensures high efficiency and durability of catalytic converters. Thanks to the reduction of sulphur content below 10 mg/kg, ignition, combustion and exhaust systems are much less subject to corrosion. The fuel prolongs the life of exhaust fumes catalysts. It guarantees hydrocarbon and carbon monoxide reduction in exhaust fumes. The combustion process of VERVA 98 is additionally improved by a customised package of optimally dosed cleaning additives (detergents) which guarantee the purity of an inlet system and even eliminate those deposits left by fuel of unknown origins not containing detergents. It is anticorrosive and antioxidant and protects stored fuel from degradation.



## Green fuels

### Petrol quality in 2005–2007

Type		Average sulphur content	Benzene content	Ethanol content	MTBE ether content	ETBE ether content
		[% weight]	[% V/V]	[% weight]	[% weight]	[% weight]
Eurosuper 95	2005	0.0032	0.71	–	2.52	–
	2006	0.0022	0.62	–	0.40	–
	<b>2007</b>	<b>0.0007</b>	<b>0.59</b>	–	<b>0.01</b>	–
Eurosuper 95 with EETB	2005	0.0033	0.69	–	0.01	5.36
	2006	0.0029	0.67	–	–	6.80
	<b>2007</b>	<b>0.0010</b>	<b>0.62</b>	–	<b>0.05</b>	<b>8.69</b>
Super Plus 98	2005	0.0008	0.67	–	9.79	–
	2006	–	–	–	–	–
	<b>2007</b>	–	–	–	–	–
Super Plus 98 with ETBE	2005	0.0008	0.67	–	1.49	7.24
	2006	0.0006	0.57	–	0.02	10.09
	<b>2007</b>	<b>0.0004</b>	<b>0.52</b>	–	–	<b>10.37</b>
VERVA 98 Płock Plant	2005	0.0008	0.67	–	2.33	7.45
	2006	0.0006	0.57	–	0.02	10.09
	<b>2007</b>	–	–	–	–	–

### Production of the most noble environmental components for petrol in 2005 – 2007 [Mg]

Type of component	2005	2006	2007
MTBE	2,258	0	0
ETBE	89,767	101,496	96,846
Alkyl	112,525	126,515	117,278
Isomerizate	452,559	492,528	371,188



## Green fuels

### Diesel oil

For the last four years, our diesel oil has complied with future EU standards to be effective from 2011.

In 2007, we produced the following types of diesel oil with sulphur content not exceeding 10 mg/kg [0,0010 % (m/m)]:

#### **SUPER City Diesel oil**

is produced only in select European countries under the name of City Diesel. Originally, it contained 200 mg/kg of sulphur. It was launched on the Polish market in 1994, and since then ORLEN has been its only producer domestically. Currently, it meets much stricter quality standards. Sulphur content has been reduced to 10 mg/kg, and the content of multiring aromatic hydrocarbons – to 5% (m/m). The product contains a package of purifying additives which improve diesel quality, and ensure good cleaning, anticorrosive, antioxidant and lubricating properties.

The same as other diesel oils, City Diesel is protected against microbiological contamination.

The Super City Diesel is used in road transport, especially mass transport, in large cities and environmentally protected areas.

#### **Ekodiesel Ultra**

is top quality fuel that meets the most rigid quality and environmental requirements imposed on diesel engine fuels in the EU. Its most important advantages over previous diesel oils include trace levels of sulphur content (below 10 mg/kg), reduced aromatic hydrocarbon content, a higher octane number, better properties in winter weather and a high level of microbiological purity.



## Green fuels

### Bioester 100 diesel oil

sold in south Poland during a pilot period from 1.09.2007 to 31.12.2007. The first of the type in our market.

ORLEN's bioester is a renewable fuel made from vegetable oil (mainly rape-seed oil), for diesel engines. It complies with all the requirements laid down in the PN-EN 14214 standard applicable to Poland as well as all other EU Member States. Bioester can be used alone or mixed with traditional diesel oil.

Bioester can be used to run engines in:

- Buses,
- Trucks,
- Delivery vans,
- Passenger cars,
- Tractors,
- Combine harvesters,
- Other machines and devices.

### Types and quality of diesel oil [% weight]

Type	Sulphur content		
	2005	2006	2007
Ekodiesel Ultra*	0.00070	0.00075	0.00062
City Super	0.00045	0.00036	0.00036

\* including ON VERA diesel

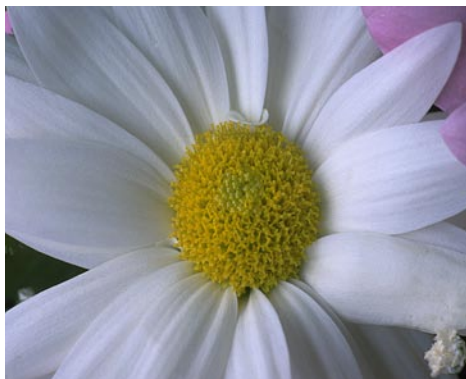
### Heating Oils

#### Light Ekoterm Plus

is a modern and safe energy source and a top quality product that meets world standards both concerning operating parameters and environmental protection. It is characterised by a low sulphur content (since late 2007 – below 0,10 % (m/m), low adhesiveness, low flow temperature (below – 20°C) and high heating value.

### Ekoterm Plus [% weight]

Type	Sulphur content		
	2005	2006	2007
Ekoterm, light heating oil	0.056	0.117	0.105



## "Green Police"

### Company Ecological Inspection System

The activities of the PKN ORLEN Ecological Inspection reflect the Company's concern for the full control and monitoring of production processes that may affect the environment.

In 2007, an environmental inspection, nicknamed the "Green Police" by our employees, recorded 22 interventions related to periodic small inconveniences.

The majority of notifications within the Production Plant in Płock related to planned tasks: system standstills for renovation, blowing, rinsing and steaming of pipelines, tanks, devices, columns, switching reactors and discharge of hydrocarbons to torches, furnace cleaning and pumping slop containers, etc.).

Chance events in the Plant were connected with system blackouts, increased discharge of gases to torches or, for example, furnace extinguishing.

Each intervention was subject to special investigation. In the area of occurrence of inconveniences, pollution concentration was measured and actions undertaken to identify the source of inconvenience. Weather conditions and pollutant concentrations were also controlled in automatic air monitoring stations.





## Green ORLEN Group

All companies within the ORLEN Group have regularised a formal-cum-legal status in relation to environmental protection (that is, emissions of substances to the air, waste production, wastewater discharge and extraction of surface water).

Pursuant to the Directive 96/61/EC concerning integrated pollution prevention and control and the Regulation of the Minister of Environment of 26 July 2002 on the types of installations likely to cause major contamination of the environment as a whole or respective natural elements, the following companies of the ORLEN Group have been granted with an Integrated Permit:

- ORLEN Oil Sp. z o. o.
- ORLEN Asphalt Sp. z o. o.
- ORLEN Eko Sp. z o. o.
- Basell Orlen Polyolefins Sp. z o. o.
  - installations: Polyethylene I, II and III
  - installations: Polypropylene I, II and III.
- ANWIL S.A.
  - installations comprising the Polyvinyl Chloride Complex,
  - fuel combustion installations – in the Combined Heat and Power Plant in the Energy Complex,
  - installations comprising the Fertiliser Complex,
  - waste storage installations for non-hazardous and neutral waste with separate compartments for hazardous waste (permit granted in 2007).
- Rafineria Trzebinia S.A. refinery
  - biodiesel installations,
  - paraffin hydrotreating installations,
  - Energomedia Sp. z o. o. – fuel combustion installations.
- Rafineria Nafty Jedlicze S.A. refinery
  - Used Oil Regeneration Installations,
  - Pipe-Tower Distillation Installation (DRW),
  - Solvent Installation,
  - Raf Energia Sp. z o. o. – for Combined Heat and Power Plant,
  - Raf Ekologia Sp. z o. o. for Waste Incinerator Installation.
- Spolana a.s.
  - production of caprolactam and sulphur acid together with wastewater treatment plant,
  - production of PVC and vinyl chloride monomers,
  - energy, toxic waste repository,
  - electrolysis.
- Unipetrol Group – for the following installations:
  - polymer production (polyethylene and polypropylene),
  - monomer production – water cracking and production of condensed naphthalene,
  - carbamide production,
  - ammonia production,
  - hydrogen production (POX unit) and Chezacarb unit,
  - Oxo alcohols production,
  - energy production, water extraction and treatment, and wastewater treatment.
- AB Mažeikių Nafta
  - installations at IPPC Mažeikiai Oil Refinery,
  - installations at IPPC Butinge terminal,
  - installations at IPPC Biržai pump station.



## Green ORLEN Group

Pursuant to the Directive 96/82/EC on the control of major-accident hazards involving dangerous substances and the Environmental Protection Law Act (Journal of Laws No. 25/2008, item 150), a part of ORLEN Group companies were classified as establishments of increased or high risk of industrial failure. Consequently, they are obliged to prepare several documents (Plant Application, Programme for Preventing Major Failures, Report on Safety and Internal Operational and Rescue Plan). Such reports, approved by relevant Fire Services, have:

- Rafineria Trzebinia S.A.
- Basell Orlen Polyolefins Sp. z o. o.
- ORLEN Oil Sp. z o. o.
- Inowrocławskie Kopalnie Soli Solino S.A.
- ANWIL S.A.
- Rafineria Nafty Jedlicze S.A.
- ORLEN Eko Sp. z o. o. – for liquid gas distribution.

Such documents have also been approved by relevant local authorities for:

- Unipetrol Group – for production units of the Unipetrol holding companies,
- AB Mažeikių Nafta – for the refinery in Judekai and Butingė.



## Environmental activities in ORLEN Group

In 2007, the ORLEN Group implemented a number of pro-environment projects and tasks with a direct effect on the natural environment.

### ANWIL S.A.

- Construction and startup of installation for catalytic selective nitrogen oxide reduction (SCR) in waste gas from lines A and B of the nitric acid installation. Environmental effect: major reduction of nitrogen oxide concentration released to the atmosphere in waste gases from production process;
- Construction and startup of degassing installation for technological condensate on the Ammonia A line. Environmental effect: using the condensate for the production of boiler powering water, reduction of the amount and charge of ammonium ion and organic compounds in discharged wastewater;
- Sealing industrial wastewater system by means of a sealing sleeve. Environmental effect: renovation of over 10 km of the wastewater system without digging – minimise risk of contaminating the soil and aquatic environment.

### ORLEN Oil Sp. z o. o.

- Taking into account the company's strategic plan actions aimed at reducing negative impact on the natural environment;
- Ensuring financing for investments serving the purpose of environmental protection;
- Compliance with valid regulations concerning environmental protection;
- Selection and application of new, environmentally-friendly technologies, such as:
  - supplementing the Platinum oil offer with products for engines complying with Euro4 requirements and the strictest of quality specifications among car producers, as well as ACEA 2004 classification,
  - production of oil for gardening, agriculture and forestry – "Green Line", such as ORLEN Oil Agro or ORLEN Oil Trawol,
  - inception of the Base Oil Interchange programme targeting high quality diesel oils (semisynthetic and mineral) produced on the basis of base oils from ORLEN Group,
- Employee involvement in all pro-environment activities.



## Environmental activities in ORLEN Group

### Rafineria Trzebinia S.A.

- Construction of wastewater treatment plant for wastewater produced by the biodiesel installation – planned for 2008 – 2009. The goal is to pre-treat contaminated wastewater to a level acceptable at other stages of treatment. Environmental effect: protection of soil and aquatic environment.

- Measures taken in order to increase fire safety in the "Góra" Salt Mine and Underground Oil and Fuel Storage:
  - buying a HAWLE hydrant,
  - extension of hydrant network,
  - systematic training of the Voluntary Fire Brigade on site. The above undertakings were also connected with the Responsible Care Programme.

### Rafineria Nafty Jedlicze S.A.

- Construction of installation for solvent manufacturing;
- Adjusting fuel storage tanks to comply with regulations;
- Creating a separating unit for used oil;
- Modernisation of waste incinerator;
- Modernisation of excess gas network.

### Spolana a.s.

- Renovation of wastewater system at street U3. Environmental effect: removal of cooling water impurities;
- Renovation of capture tanks for NaOH containers. Environmental effect: leakage being a potential source of ground water contamination removed;
- Construction of wastewater sludge storage. Environmental effect: production stocks stored for further use;
- Updating the wastewater monitoring system. Environmental effect: outdated system (DOS based) replaced and supplemented;

### Inowrocławskie Kopalnie Soli SOLINO S.A.

- Startup of wastewater treatment plant in Mogilno Salt Mine;
- Modernisation of rainwater installation in the "Góra" Salt Mine and Underground Oil and Fuel Storage to prevent hydrocarbon contamination in case of failure (project executed under the Responsible Care Programme);



## Environmental activities in ORLEN Group

- Dechlorination of electrolysis wastewater condensate. Environmental effect: reduced chlorine content in wastewater;
- Shutting the polymerization wastewater well. Environmental effect: emission of volatile chlorinated hydrocarbons prevented and compliance with BAT achieved;
- Renovation of NH<sub>3</sub> aeration in waste. Environmental effect: wastewater contamination reduced.

### Unipetrol Group

- Wastewater sludge incineration with brown coal in T700 power plant. Environmental effect: wastewater sludge not piled.
- Using methanol for wastewater treatment. Environmental effect: biomass supplied;
- Treatment of wastewater from the unit gasifying crude oil remnants. Environmental effect: removing ammonia from wastewater and using it for the desulphurisation process in the T700 power plant.

### AB Mažeikių Nafta

- In 2007, air contamination around the plant was monitored in four measuring points within the plant's protective zone. The following pollutants were monitored: C<sub>1</sub>–C<sub>10</sub>, benzene, toluene, xylene, carbon monoxide, hydrogen sulphide, sulphur dioxide and nitrogen dioxide;
- Numerous investment projects in air protection (monitoring of greenhouse gas emissions to the atmosphere installed) and water resources protection are being implemented.





## ORLEN Group participation in carbon dioxide emission trading

Pursuant to the Act of 22 December 2004 on trading in atmospheric emissions allowances of greenhouse gas and other substances, the following installations participate in the CO<sub>2</sub> trading system:

- PKN ORLEN S.A.
  - Combined Heat and Power Plant
  - Refinery
- ANWIL S.A.
  - Combined Heat and Power Plant
- ORLEN Asphalt Sp. z o. o.
  - Refinery installation in Płock
  - Installation in Trzebinia
- Rafineria Nafty Jedlicze S.A.
  - Refinery installation
- Rafineria Trzebinia S.A.
  - Refinery installation
- Raf Energia Sp. z o. o. – Jedlicze
  - Combined Heat and Power Plant
- ENERGOMEDIA Sp. z o. o. – Trzebinia
  - Combined Heat and Power Plant
- Spolana a.s.
- Unipetrol RPA (two installations)
- AB Mažeikių Nafta
- AB Mažeikių Elektrinė

All the above installations received permits to participate in trading in emissions rights which specify the method of monitoring carbon dioxide emissions. The rights are calculated on the basis of a report made on 31 December of preceding year, subject to verification by an authorised auditor.

Under the National Allocation Plan, all the installations of ORLEN Group companies had a sufficient amount of rights to CO<sub>2</sub> emission. Any surplus rights were disposed of.

Moreover, in 2007, ORLEN Oil Sp. z o. o. applied to the Mazowieckie Voivodeship Office for authorisation to participate in CO<sub>2</sub> emissions trading.

Under the National Allocation Plan, all the installations of Unipetrol Holding and Mažeikių Nafta Group companies had a sufficient amount of rights to CO<sub>2</sub> emissions. Any surplus rights were disposed of.



## Awards and distinctions

In 2007, we received a number of awards, distinctions and certificates confirming how much we care for the natural environment. The most important of them include:

### **ORLEN Oil Sp. z o. o.**

- 14<sup>th</sup> International Fairs "Fuel Station 2007", "Product of the Year" award for Platinum oils made for engines complying with Euro4 standards on exhaust fumes emissions, i.e.: Platinum Max Energy Euro4 5W/30 oil for passenger cars and three oils for diesel engines in trucks and buses: Platinum Ultor Progres 10W/40, Platinum Ultor Extreme 10W/40 and Platinum Ultor Plus 15W/40.
- The company was a laureate in a competition organised by the Minister of Environment: "Polish Ecology Leader", in the category of products for Platinum brand oils for engines compliant with Euro4 standard. The Jury took note of the company's other "environmental" products, like biodegradable oils for motorboat outboard engines and Pilarol Eko oil for forestry purposes. It was also emphasised that the company observes environmental protection standards at all production and distribution stages.

### **Basell Orlen Polyolefins Sp. z o. o.**

- "Environmentally Close Company 2007" certificate.

### **Inowrocławskie Kopalnie Soli SOLINO S.A.**

- Another certificate of compliance with ISO 9001 and ISO 14001 for the Integrated Quality and Environment Management System.

### **Rafineria Trzebinia S.A.**

- The company participated in the 9<sup>th</sup> National Environmental Competition "Environmentally Friendly". In January 2008, the National Environmental Panel announced that the company was one of the prize winners in the competition. It aspired for the title of an "Environmentally Friendly Enterprise" in the category of "Products Worth Recommending", which it received for the BIO Product Range (Bioester and ON BIO 20).