



HEP
is the winner
of the national
award for general
contribution to
environmental
protection by a
socially
responsible
company,
2003.

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Sustainable development

Policy and organization of nature and environmental protection function

HEP continuously monitors and analyzes the impact of its business processes on the environment. The company reports on all environmental components timely and objectively to relevant institutions, units of local self-government and the interested public. Employees working in nature and environmental protection function attend seminars and workshops to get informed about duties and activities arising from environmental and nature protection legislation. Technical support to these employees that are active in individual HEP Group companies is provided by the members of HEP's Team for Environmental Protection Coordination and Standardization. There is a single accounting method for environmental expenses.

Harmonization with the EU legislation

Analyses of the impact of the harmonization of the Croatian legislation with the EU nature and environmental legislation on the operation and development of the Croatian electricity system have shown that the greatest impact will come from provisions relating to air protection and climate change and to licensing of thermal power facilities, but also from those relating to management of PCB (polychloride biphenyls) containing equipment and the provisions of Water Framework Directive.

Large Combustion Plants Directive defines limit values of air emissions from plants above 50 MW of thermal capacity; its application will impact decisions on the duration of life of HEP's existing thermal power plants and on the planning of new ones.

The provisions of the Integrated Pollution Prevention and Control Directive, which apply to all industrial plants and consequently to HEP's existing and future large combustion facilities, have been transposed into the umbrella Environmental Protection Act. The Act requires all those to which it applies to prepare plans by 2010 for obtaining integrated environmental protection requirements based on which a plant or a part thereof will be allowed to operate. Due to the old age of HEP Group thermal power plants and technical constraints, if significant improvements will be needed to meet the integrated environmental protection requirements, significant funds will be necessary.

Transposing the EU climate change legislation into the Croatian legislation is planned to be completed by the end of 2008. By the passage of the ordinance on greenhouse gas emission quotas, which will apply from 2010, Croatia will establish an emission trading scheme for greenhouse gases. A plan for allocation of emission quotas, National Allocation Plan (NAP), will define emission reduction for each plant, so the

issue of emission quotas for each thermal power plant will be the subject of a compromise between the interest of the state to reduce CO₂ to the level set out in Kyoto Protocol and HEP Group development plans.

By ratifying the Stockholm Convention, Croatia has committed itself to disposing of PCB-containing equipment by 2025, but all EU member states have obligated themselves to withdraw such equipment by the end of 2010 in compliance with Directive 96/59. In 2007, HEP prepared a new inventory in order to determine the number and costs of PCB containing equipment that must be disposed of and replaced. The analysis has shown that 3,003 PCB containing condensers are in use within HEP and that disposal and replacement costs would amount to about 40 million kuna. Due to the significant costs and because the Waste Act provides that Rules on PCB (polychloride biphenyls) and PCT (polychloride terphenyls) Management will not come into force until 2008, the deadline that has been proposed for withdrawal of such equipment is the year 2015.

Basic indicators

According to water quality analyses carried out during 2007 by authorized laboratories as required by water laws and regulations, all HEP's plants operated in accordance with permits and legal requirements. In 2007 using Process Waste Inventory HEP continued to monitor air emissions of pollutants -sulfur dioxide (SO₂), nitrogen oxide (NO_x), carbon dioxide (CO₂) and particulates as required by air quality legislation, as well as the quantities of hazardous and non-hazardous waste generated by HEP.

Air emissions

In 2007 production of electricity from HEP's thermal power plants increased so that emissions of almost all air pollutants, except particulates, also rose compared to 2006.

Emission of pollutants into air from HEP's thermal power plants (1990) 1998-2007

year	SO ₂ (t)	NO _x (t)	CO ₂ (kt)	particulates(t)	electricity produced from HEP's thermal power plants (GWh)
1990	69,402	9,248	3,750	2,031	4,030
1998	47,119	10,719	4,120	2,905	4,561
1999	47,092	11,506	4,195	2,610	4,768
2000	17,827	7,975	3,654	885	3,958
2001	21,669	9,222	4,347	1,382	4,713
2002	17,248	10,544	5,259	1,135	5,899
2003	21,350	9,391	5,679	1,507	6,703
2004	13,081	7,051	4,503	767	5,899
2005	16,890	6,003	4,694	664	5,387
2006	17,258	7,092	4,544	954	5,436
2007	24,376	9,532	5,460	756	6,845
change 07/06(%)	+29.20	+25.60	+16.78	-26.29	+20.58

Specific emission of all pollutants, except particulates, increased in 2007 relative to the total electricity produced, which is a result of lower hydroelectric production.

Specific emission of pollutants g/kWh of electricity produced within HEP (1990) 1998-2007

year	SO ₂	NO _x	CO ₂	particulates (t)
1990	8.98	1.20	485.00	0.26
1998	4.72	1.07	406.15	0.29
1999	4.17	1.02	360.78	0.23
2000	1.88	0.84	370.81	0.09
2001	1.92	0.82	372.81	0.12
2002	1.53	0.94	434.74	0.10
2003	1.84	0.81	472.11	0.13
2004	1.06	0.57	349.99	0.06
2005	1.46	0.52	376.15	0.06
2006	1.49	0.61	328.09	0.08
2007	1.89	0.74	422.76	0.06
change 2007/ 2006 (%)	+21.16	+17.57	+22.39	-25.00

Trend of pollutant emissions from HEP's thermal power plants (1990) 1998-2007



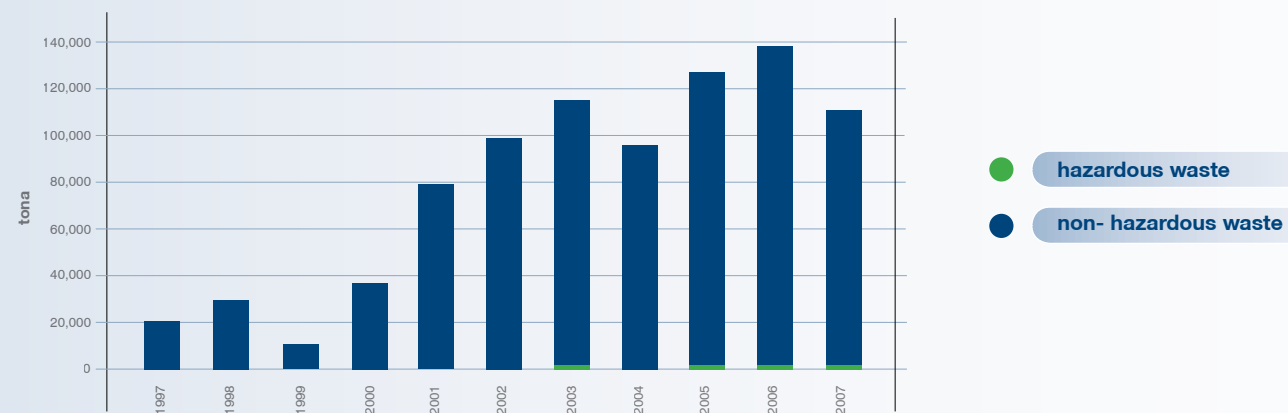
Waste

Over the last three years HEP's waste management system has significantly improved. Most plants have either completed or begun construction of temporary disposal facilities for waste and secondary raw material and equipped them with tanks for separate waste collection. According to Process Waste Inventory, which HEP has been keeping since 1997 and which includes the data on the quantities of generated hazardous and non-hazardous waste and on the method of waste management, in 2007 HEP's plants generated 1,269 tons of hazardous and 105,569 tons of non-hazardous waste.

Total quantity of hazardous and non-hazardous waste generated within HEP Group 1997-2007

Year	Hazardous waste/ t	Non-hazardous waste/ t
1997	819	18,861
1998	637	27,303
1999	479	5,670
2000	490	37,531
2001	518	76,717
2002	577	98,492
2003	1,148	111,292
2004	940	92,067
2005	1,209	124,820
2006	1,112	134,336
2007	1,269	105,569
Change 2007/ 2006 (%)	+12	- 21

Total quantity of hazardous and non-hazardous waste generated within HEP Group 1997-2007



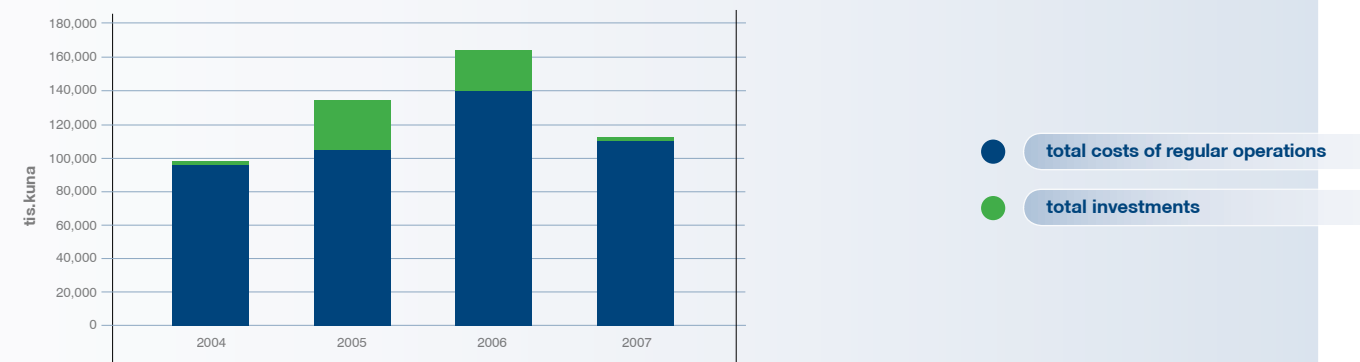
Expenses for nature and environmental protection

Since the beginning of the implementation of Accounting for Nature and Environmental Protection Expenses project (RETZOK) in 2004 until early 2008, HEP Group invested 54,056,000 kuna in total in the protection of nature and the environment while ordinary operations for the same purpose totaled 457,211,000 kuna. Total expenses for nature and environmental protection in 2007 were 114,418,000 kuna. The most significant investments in 2007 were made to improve the waste management system in HEP's plants, soil and groundwater protection and protection of nature and landscape.

Expenses for nature and environmental protection in 2007 according to RETZOK reports

Environmental area	Costs of regular operations (HRK '000)	Investments (HRK '000)
air and climate	2,311	0
waste water	4,795	105
waste	27,690	763
soil and groundwater protection	9,262	831
noise and vibrations	48	0
nature and landscape protection	17,606	892
radiation protection	127	0
research and development	690	8
other (mostly fees)	49,290	0
TOTAL	111,819	2,599

Total expenses for nature and environmental protection within HEP Group 2004 - 2007



Major achievements 2007

Certificates

During 2007, activities continued to introduce the environmental management system in conformity with ISO 14001:2004 and quality management system in conformity with ISO 9001:2004 into HEP's plants:

- In addition to TE-TO Zagreb, Management Board and Production Area North and Production Area South, environmental and quality management systems were introduced in EL-TO Zagreb and CCPP Jertovec. These systems are planned to be introduced into other plants of HEP Proizvodnja d.o.o. as well.
- Environmental management system in conformity with ISO 14001:2004 was introduced in Elektra Zagreb as the largest distribution area and the first within HEP ODS d.o.o.
- In Transmission area Zagreb (HEP OPS d.o.o.) preparations have been carried out for introduction and certification of environmental management system.

Achievements in thermal power plants

- In Rijeka TPP, the making of the model of dispersion and distribution of air pollutants was completed, currently underway is the replacement of the system for continuous measurement of air pollutant concentrations with the system for continuous measurement of mass flow in accordance with air protection legislation.
- In Sisak TPP, a new software was put in place for continuous measurement of air pollutants from boiler furnaces and a camera shooting smoke of the chimney of Units 1 and 2. A project to clean up the lagoon from waste mud was launched, the warehouse of laboratory chemicals was reconstructed and the warehouse of chemicals was roofed.
- In TE-O Zagreb, a building permit was obtained for connection of internal sewage to the public system, a new system for measuring and monitoring of air pollutants was installed, and a temporary waste disposal facility was built and fenced in accordance with waste management legislation.
- In EL-TO Zagreb, as part of the reconstruction of a 30 MW unit, currently underway is the replacement of burners in accordance with air protection legislation. In 2007, remediation was completed of the sewage system, a new water treatment plant was built and a temporary waste disposal facility was built and landscaped.

Achievements in hydro power plants

- In Dubrava HPP (Production Area North), improvements were made on the system protecting oil to leak into the waterway by increasing the number of oil separators and installing oil detectors at points where seepage water accumulates such as the drainage well and seepage water canals at the lowest level of the powerhouse. Currently underway is the preparation of design documentation for the construction of protective floating dams at the end of the tailrace channel at Dubrovnik HPP.
- In Čakovec HPP (Production Area North) the cleaner production project was implemented in order to protect water. Hydraulic mineral oil on the small power plant, biological minimum generating set and quick-closing valve of the generating set were replaced with biologically degradable oil.
- Years-long cooperation of Hydro Production Area North with the Faculty of Mathematics and Natural Sciences of the University of Zagreb continued on the project Physical, Chemical, Biological and Ichthyological Characteristics of Water with the aim of monitoring the state of nature and the environment in the areas of Dubrava, Čakovec and Vraždin hydro power plants.
- A research was completed into the numbers of invasive mollusk species *Dreissena polymorpha* (Pall.) in the hydro power plants on the Drava, which have been covering vital plant parts and thereby affecting production efficiency and causing material damage.
- Hydro power plants, in collaboration with local sport-fishing clubs, continued their years-long practice of stocking river and reservoirs with fish in order to renew fish stock and preserve biological diversity.



Other achievements in HEP Group companies

- In order to improve energy efficiency and reduce air pollutant emissions, two boiler plants within HEP Toplinarstvo Osijek were connected to the district heating system.
- As part of regular maintenance of the gas network within HEP Plin d.do.o. measures have been implemented to prevent leakage of natural gas, which directly reduces physical losses as well as emissions of the greenhouse gas methane into the air.
- Within Elektra Zagreb (HEP ODS d.o.o.), cleanup of polluted soil was carried out in compliance with laws and regulations because of transformer damage and leakage of transformer oil into the soil after the substations had been broken into by unidentified perpetrators.
- In HEP ODS d.o.o., the implementation of protection from electromagnetic field continued. Currently underway is the development of two studies which will determine and assess the impact of distribution overhead and underground lines on the environment.
- A study that examines the level of occupational exposure of HEP employees to low-frequency electric and magnetic fields during work in power plants and facilities has been completed.
- Based on the Cooperation Agreement concerning the protected species of the white stork *Ciconia ciconia* (L.) made between HEP and the Ministry of Culture in 2004, the implementation of measures for protection of the white stork continued as well as ringing and monitoring of storks in the area of Sisak-Moslavina County in accordance with the Cooperation Agreement concerning monitoring and ringing of the stork population of 2005.