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ΒΕΛΒΟΓΕΩΝ
ΝΕΓΓΕΙΙΣ



Energy Strategy & Emission Trading Challenging Issues

Emission Trading & Renewable Energy Support

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Overview and Recent Developments

Hellenic Petroleum - Activities

Domestic Activities

E & P

- ◆ Exclusive rights in Greece
- ◆ Concorcia in W. Greece

Refining

- ◆ Aspropyrgos 140 kbd,
- ◆ Thessaloniki 75 kbd,
- ◆ Elefsina 100 kbd,
- ◆ Wholesale marketing

Petrochemicals

- ◆ Polypropylene, BOPP, PVC, Inorganics, Solvents, PET

Marketing

- ◆ Retail, Aviation, Marine, Industrial, Lubs

Engineering

- ◆ Largest engineering company in SE Europe (Asprofos)

Natural Gas

- ◆ 35% stake in DEPA

Power Gen

- ◆ 390 MW plant in Thessaloniki

International Activities

E & P

- ◆ Albania
- ◆ Libya
- ◆ Montenegro

Refining

- ◆ FYROM
- ◆ OKTA 65 kbd

Petrochemicals

- ◆ Trading

Marketing

- ◆ Cyprus
- ◆ Montenegro
- ◆ Albania
- ◆ Serbia
- ◆ Bulgaria
- ◆ Georgia

Pipelines - Transportation

- ◆ Thessaloniki - Scopje crude pipeline
- ◆ Jet pipeline to Athens Airport
- ◆ Sea transportation for propylene and white products

Recent Developments – Merger with Petrola

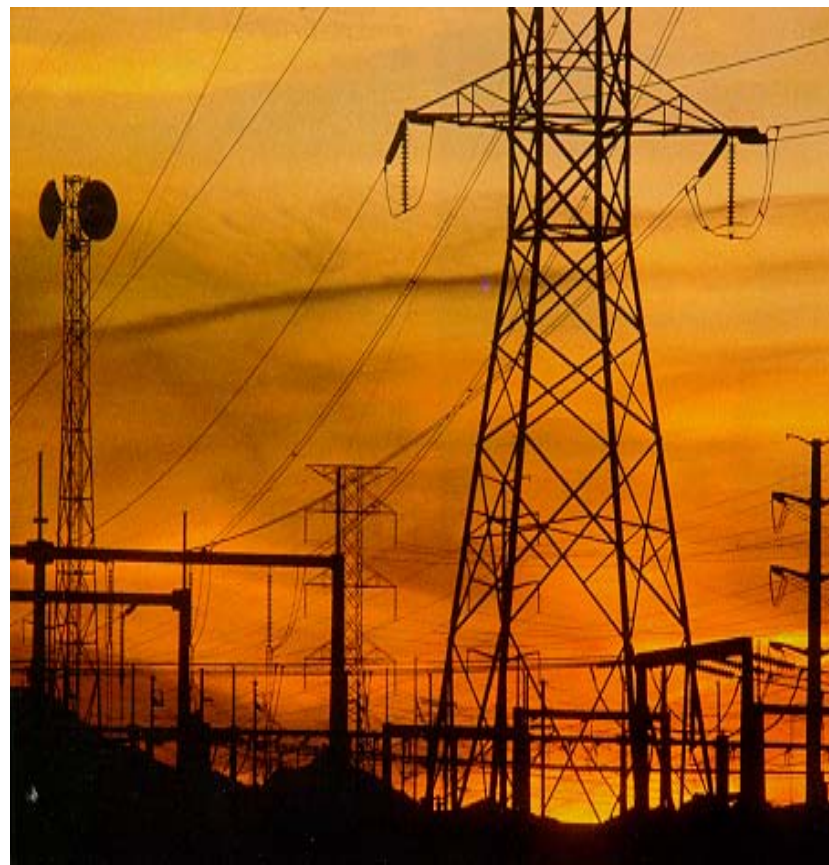
Operational Data

	◆ Hellenic Petroleum	◆ Petrola Hellas	◆ Combined Company
◆ Domestic Refineries	◆ 2	◆ 1	◆ 3
◆ Refining Capacity, million tons per year	◆ 11	◆ 5	◆ 16
◆ Storage Capacity, million cubic meters	◆ 3.1	◆ 3.4	◆ 6.5
◆ Product Sales, million tons per year (2002)	◆ 12	◆ 5	◆ 17
◆ Market Share in Greece, (2002E, wholesales)	◆ 57%	◆ 22%	◆ 79%

- The Petrola refinery owns and operates the biggest products terminal in the Mediterranean. Located at Elefsis, 20 km out of Athens, it is connected to the Hellenic Petroleum's Aspropyrgos Refinery via pipelines and by sea tankers.
- The combined logistics infrastructure and production capacity strongly supports the expansion in the domestic and international retail business.

Recent Developments – Power Generation

- ◆ Finalized tender procedure for the selection of the contractor for the construction and the supply of equipment of the 390 MW natural gas power station.
- ◆ Austrian company VA TECH HYDRO (General Electric gas turbine technology) selected.
- ◆ Project completion date: April 2005.
- ◆ Secured finance scheme covering 80% of the total investment.



Environment – Safety - Hygiene

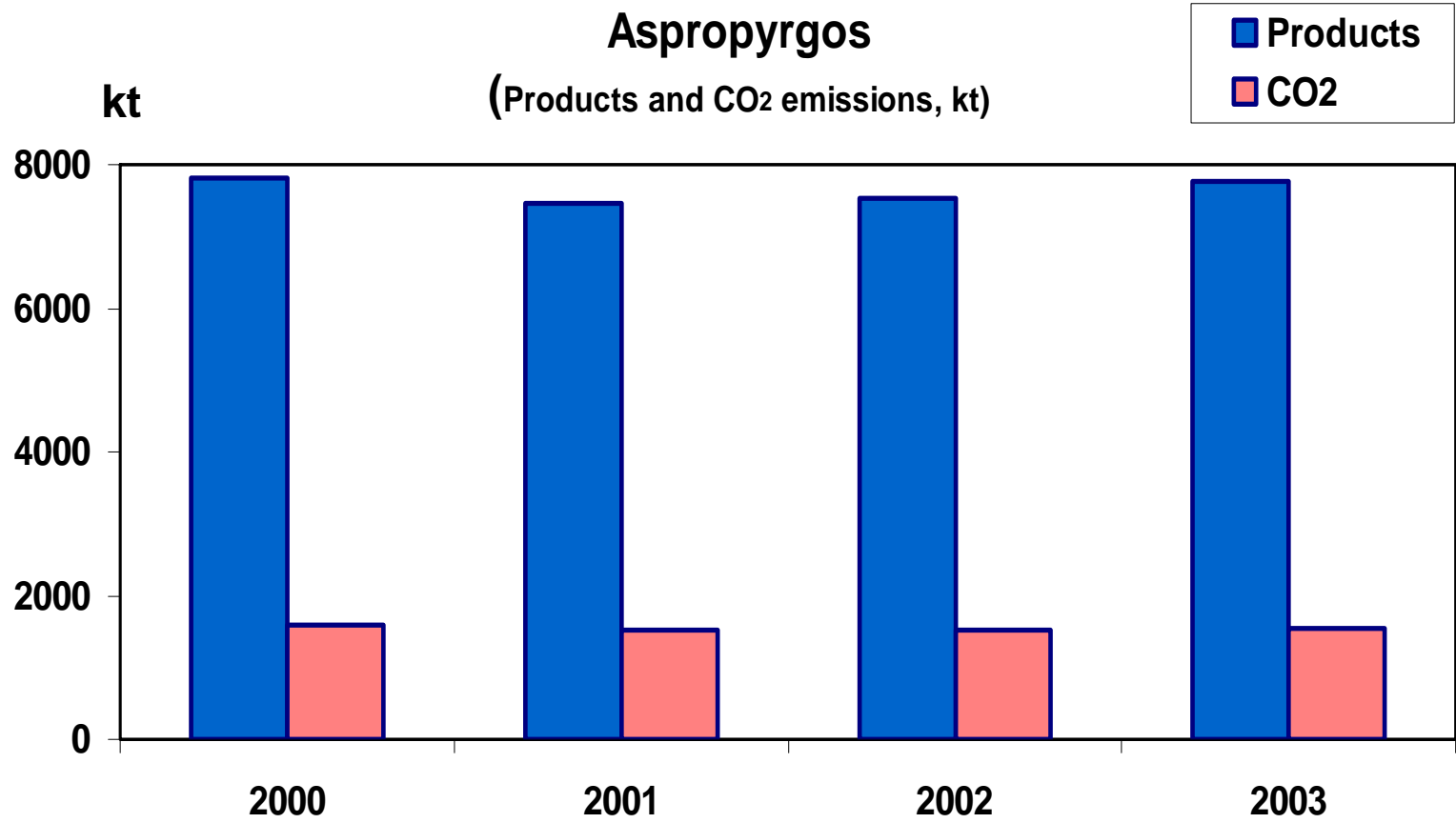
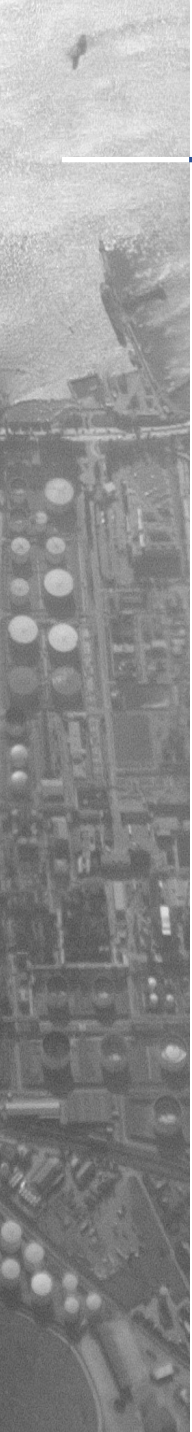
Hellenic Petroleum

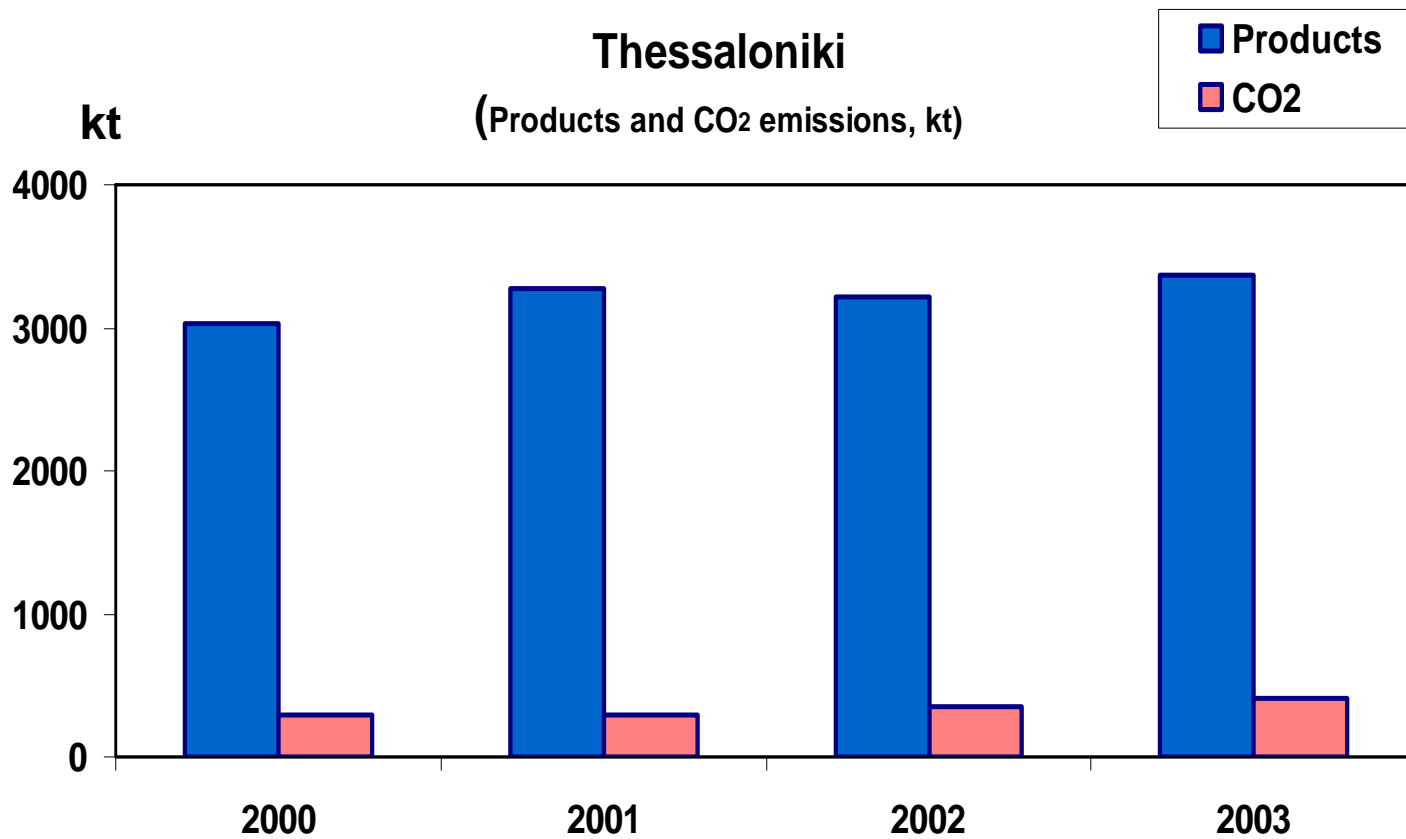
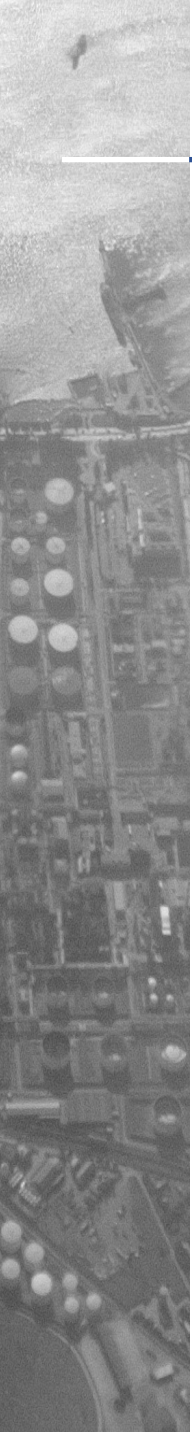
- ◆ has instituted policy for the environment, safety, hygiene and the prevention of major accidents.
- ◆ has established specific organizational structure at each installation for safety and environmental surveys, implementation of corrective actions, and monitoring.
- ◆ submits annual reports to national authorities for air emissions, liquid and solid waste, monitoring of subsoil, and Leak Detection and Repair (LDAR) programs.
- ◆ Has signed voluntary cooperation agreements for fire fighting and marine pollution with other companies.
- ◆ Cooperates closely with the Ministries of Development, of Environment and Public Works, and EU authorities as well as European petroleum industry association EUROPIA and CONCAWE.

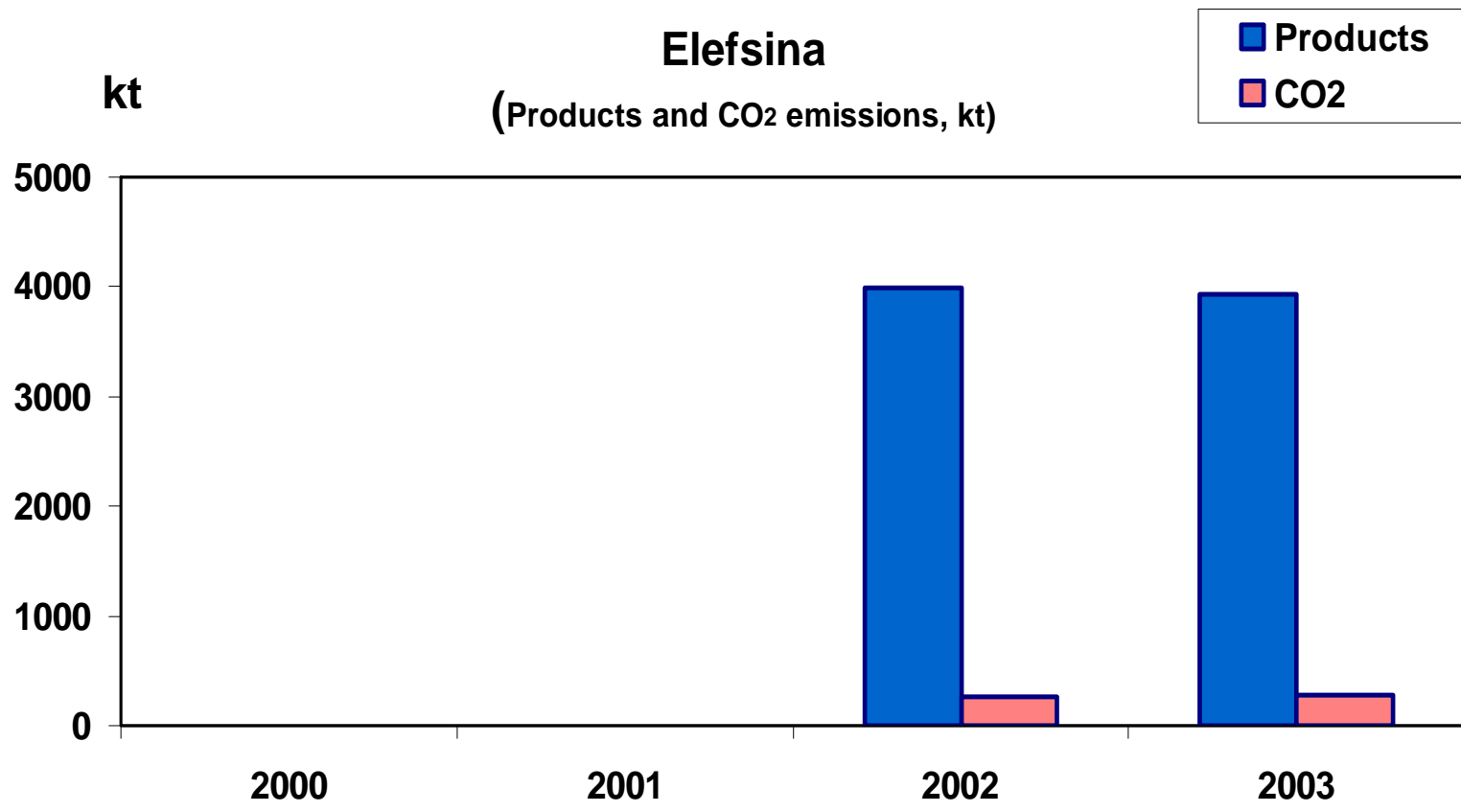
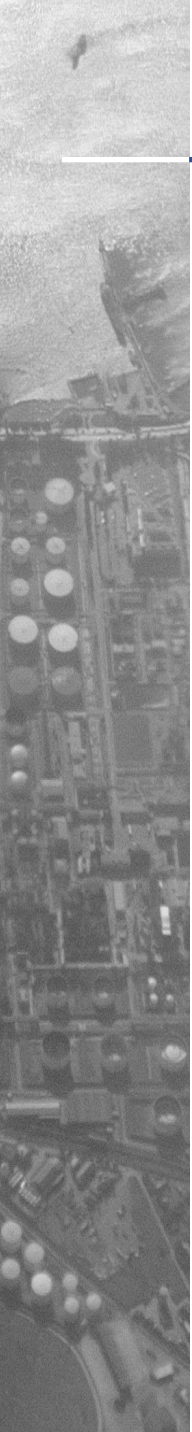
Quality Control

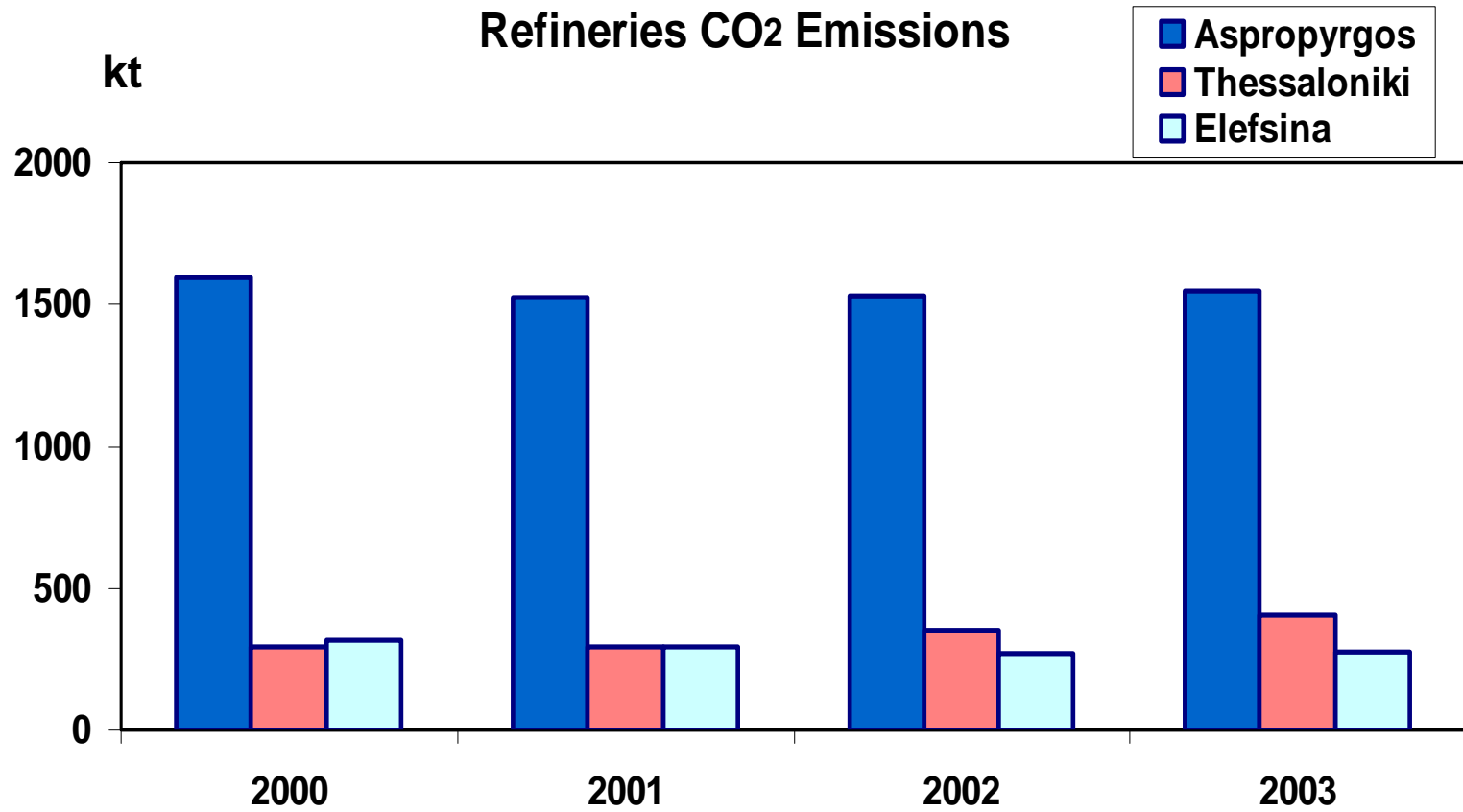
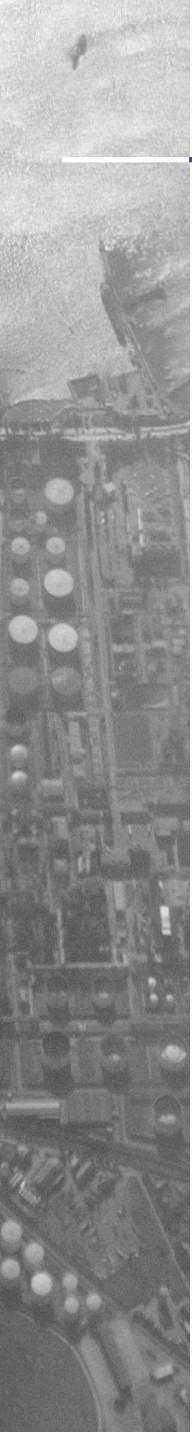
- ◆ ISO 9001 / 2000 quality certificates have been obtained for Refinery and Chemical Plant in Thessaloniki and by the subsidiary marketing company.
- ◆ ISO 14001 for Environment in marketing company's supply and storage activities.
- ◆ At the Aspropyrgos and Elefsis refineries environmental management system per EMAS has been initiated.
- ◆ Marketing company has been certified per ELOT 1801 and, OHSAS 18001 for Hygiene and Safety.

Net Production – CO₂ Emissions









Net Production – CO₂ Emissions

- ◆ Aspropyrgos Refinery : Produces 51 % of net products
Self consumption 6 % of throughput
Emissions correspond to 20 % of net products
- ◆ Thessaloniki Refinery : Produces 22 % of net products
Self consumption 4 % of throughput
Emissions correspond to 12 % of net products
- ◆ Elefsina Refinery : Produces 27 % of net products
Self consumption 2 % of throughput
Emissions correspond to 7 % of net products

Measures – Actions

- ◆ Rational use of energy.
 - maximum use of refinery gas in self consumption
Aspropyrgos 65%
Thessaloniki 60%
Elefsina 30 %

- ◆ Quality of Products
Continuous improvements of product specifications.
 - Products according up to 2000 EU specs.
 - 2003 early introduction of 2005 EU specs, Diesel at 50 ppm.

- ◆ Application of Best Available techniques (BAT).
 - BAT have been selected for all new units and to the old ones wherever possible. The majority of techniques used at Aspropyrgos refinery are BAT.

- ◆ Energy Saving Actions.

Energy Saving Actions

- ◆ Cogeneration plant at Aspropyrgos Refinery.

Two Gas Turbines producing electricity and steam fueled by refinery gas.

Actual production

- 276,5 GWH / yr Electricity

- 540.000 T / yr steam.

CO₂ emissions reduction of 202.145 tn CO₂ / yr.

Due to the cogeneration plant operation, the total CO₂ refinery emissions were reduced by 13 %.

Note : Coefficient used 1.03 kg CO₂ / KW, source P.P.C.
Base year 2003.

Energy Saving Actions

Other Investments

- ◆ During 1998 – 2001 for energy were spent for energy saving projects resulting in a saving of 39.277 FOET/yr corresponding to 125.294 t CO₂ eq/yr emissions. Ministry of Development subsidized the projects.

Projects included:

- Replacement of pipe insulation.
- Replacement of steam traps.
- Boilers upgraded and new one.
- APC system installation at furnaces and boilers.
- Installation of real time data base for utilities.

The cost for subsidized investments is 6.150.000 Euro.

- ◆ For the period of 2004 – 2008, energy savings projects with a cost of 18.000.000 Euro are scheduled. Estimated fuel reduction: 10.288 FOET/yr or 33.000 t CO₂ eq/yr emissions. Ministry of Development subsidized the projects.

The cost for no subsidized investments is 7.800.000 Euro.

Note : Energy savings for no subsidized project has not been estimated.

CO₂ Trading Strategy Issues

- ◆ Improve Measurement and Reporting
 - develop the most cost-effective metering/monitoring solutions to meet uncertainty requirements
 - develop a detailed “data road map” that reviews each necessary component of CO₂ emissions
 - the most “fit for purpose” software solution

- ◆ Improve Price Knowledge

- ◆ CO₂ Allocation Management Options.
 - Internal installation-specific reduction measures
 - sponsorship of CDM/JI projects

- ◆ Find the new Accounting Requirements

Directives that Influence Refineries Operation

- ◆ 2003 / 17 for product specs required new unit investments and resulted in an increase of self consumption mainly due to the increase of the required hydrogen production.
- ◆ 2001 / 80 does not influence significantly the refineries operation according to the National Reduction Plan.
- ◆ 2003 / 87 emission trading will influence the operation cost.
- ◆ 1999 / 32 amendment of marine fuel specs, requires change of crude oil slate.



Refineries have faced reduction pollutant emissions and will continue to face them effectively by using clean technology and applying energy efficient technologies.

but

Refineries have already added new process units and will be called on to expand process units further to cope with mandatory environmental specifications, with inevitable associated increases in CO₂ emissions.

ΕΛΛΗΝΙΚΗ
ΠΕΤΡΟΛΙΑ



Thank you for your attention

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