

THE GOVERNMENT OF THE REPUBLIC OF CROATIA

1847

Pursuant to Article 47, paragraph 1 of the Air Protection Act (Official Gazette 178/2004 and 60/2008), the Government of the Republic of Croatia, at its session on 26 June 2009, adopted the following

NATIONAL ALLOCATION PLAN

FOR GREENHOUSE GAS EMISSION ALLOWANCES IN THE REPUBLIC OF CROATIA

1. PURPOSE AND OBJECTIVES

Article 47, paragraph 1 of the Air Protection Act (Official Gazette 178/2004, 60/2008) establishes the legal framework for the adoption of the National Allocation Plan for Greenhouse Gas Emission Allowances in the Republic of Croatia. The Act lays down the basic elements of the National Allocation Plan for Greenhouse Gas Emission Allowances (hereinafter: National Allocation Plan).

The National Allocation Plan is based on the Air Quality Protection and Improvement Plan in the Republic of Croatia for the period 2008 – 2011 (Official Gazette 61/2008) and Energy Development Strategy (Official Gazette 38/2002), and use of best available techniques.

The Allocation Plan contains: total quantity of allowances allocated to the country within a certain period (national emission ceiling), data on present greenhouse gas emissions, list of activities generating greenhouse gas emissions, annual emission allowances allocated to installations, manner of allocating greenhouse gas emission allowances, assessment of future greenhouse gas emissions, establishment of the new entrants reserve, manner of using the Kyoto Protocol's mechanisms and deadline for the allocation of emission allowances to installations.

The transposition of the following *acquis communautaire* governing climate change into the Croatian legislation is an obligation of the Republic of Croatia, which it has assumed under the Kyoto Protocol and as the result of the process of accession of the Republic of Croatia to the European Union (EU):

- Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community;
- Directive 2004/101/EC amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms;

- Decision 2006/780/EC on avoiding double counting of greenhouse gas emission reductions under the Community emissions trading scheme for project activities under the Kyoto Protocol;
- Decision 2007/589/EC establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC;
- Decision 2005/381/EC establishing a questionnaire for reporting on the application of Directive 2003/87/EC;
- Commission Regulation 2216/2004 for a standardised and secured system of registries pursuant to Directive 2003/87/EC and Decision No 280/2004/EC;
- Commission Regulation 916/2007 amending Commission Regulation 2216/2004 on standardised and secured system of registries pursuant to Directive 2003/87/EC and Decision No 280/2004/EC;
- Commission Regulation 994/2008 on standardised and secured system of registries pursuant to Directive 2003/87/EC and Decision No 280/2004/EC.

The above mentioned *acquis communautaire* has been transposed into the Croatian legal system by the following regulations:

- Regulation on the monitoring of greenhouse gas emissions in the Republic of Croatia (Official Gazette 1/2007),
- Regulation on greenhouse gas emission allowances and emission allowance trading (Official Gazette 142/2008),
- Regulation on the implementation of the flexible mechanisms of the Kyoto Protocol (Official Gazette 142/2008).

The adoption of this National Allocation Plan has completed the transposition of the *acquis communautaire* into Croatian legislation.

The purpose of the National Allocation Plan is to establish the mechanism for monitoring greenhouse gas emissions generated by entities included in the National Allocation Plan, verification of emission data, annual reports on emissions from installations and establishment of the emissions trading scheme, the implementation of which shall begin on the day of accession of the Republic of Croatia to the European Union.

Operators shall organise monitoring of greenhouse gas emissions from installations and report thereon annually, in the prescribed manner. They shall also organise report verification. If they fail to fulfil these obligations in the prescribed period their right to trade shall be suspended until they remove the established deficiencies.

The scheme for trading with allowances shall enable economic entities to reduce greenhouse gas emissions by implementing cost-efficient measures. This shall be achieved by issuing greenhouse gas emission permits for installations. The National Allocation Plan determines the total amount of allowances which are allocated to a specific installation and the precise

amount of emissions in the form of allocated greenhouse gas emission allowances. In this respect one emission allowance represents the allowance to emit 1 tonne of CO₂ equivalent. Installations which reduce their emissions below the permitted allowance by implementing low-cost measures shall be allowed, upon entry into the EU greenhouse gas emission allowance trading scheme, to sell the excess allowances to installations whose emissions exceed the permitted levels, where the implementation costs of mentioned measures is higher than the expense of purchasing emission allowances.

Annual emission allowance of CO₂ established by this National Allocation Plan is based on the principles of Directive 2003/87/EC and is completely harmonised with the requirements of Annex III of this Directive. Guidelines of the European Commission for the preparation of national plans for the period 2005 to 2007 (COM (2003/830) have also been taken into consideration as well as amended Guidelines of the European Commission for the preparation of national plans for the period 2008 to 2012 (COM (2005/703)).

The European Commission (EC) shall evaluate the National Allocation Plan and, if necessary, request from the Republic of Croatia to deliver additional information or to modify certain parts of the National Allocation Plan, if it establishes that those parts are not in compliance with the Directive. In that case, the EC shall specify the reasons for demanding amendments and propose changes, and the thus modified National Allocation Plan shall be subject to further review.

2. BASIS AND PRINCIPLES FOR THE ALLOCATION OF GREENHOUSE GAS EMISSION ALLOWANCES

Summary of principles for the allocation of greenhouse gas emission allowances to installations is presented in the following table:

Basis	Principle	Reference
Obligations of the Republic of Croatia arising from the Kyoto Protocol	The amount of greenhouse gas emissions for the Republic of Croatia in the base year amounts to 34,845 Mt CO ₂ eq. The Republic of Croatia has made commitments to reduce emissions by 5% in relation to the base year, thus achieving the Kyoto target of 33,102 Mt CO ₂ eq.	Decision 7/CP.12 of the Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC) and Draft Report of the Convention Audit Team UNFCCC – IAR (May 2009)
National emission ceiling	Annual emission allowance for allocation amounts to a total of 13,310 Mt CO ₂ eq, including reserves for new entrants	Projections of emission allowance trading scheme prepared on the basis of data from questionnaires, macroeconomic projections from 2003 (National Report)
»Top-down« approach	Total quantity of emission allowances for allocation is determined by top-down projections	
Data from previous periods and projections	Allocation method is based on the combination of approaches following data from previous periods and	

Reference period and relevant emissions	<p>planning approach. The period from 2004 to 2007 is the base period for CO₂ emission.</p> <p>The preceding reference period is the period from 2004 to 2007. Relevant installation emissions are average emissions of two years with highest emissions during the reference period.</p>	Projections of emission allowance trading scheme on the basis of data from the questionnaire
Two-stage approach	<p>The allocation of emission allowances is conducted in two stages. First, emission allowances are allocated to four sectors and then to installations within those sectors.</p> <p>All installations are included in line with the definitions from Directive 2003/87/EC establishing a scheme for greenhouse gas emissions allowance trading.</p>	
Sector approach	<p>National Allocation Plan of emission allowances recognises 4 installation groups: power generation installations (thermal power > 20 MW), installations for cement and lime production, petrochemical installations and other installations.</p>	
Allocation according to sectors	<p>Allocation to installations is conducted in two stages. First emission allowances are allocated to four sectors and then to installations within those sectors.</p> <p>Allocation according to sectors is performed by top-down approach projections made for emissions, which are based on data on emissions from preceding periods, projected production growth and projected reduction of carbon dioxide emissions.</p>	
Allocation according to installations	<p>Allocation of allowances at installation level is conducted on the basis of an emission share of a particular installation in the total relevant emissions of that sector.</p>	
Installations with incomplete data from the previous periods	<p>Individual cases are assessed for the purpose of determining emission allowances for installations whose data from preceding periods are incomplete. Emission allowances will</p>	

	be allocated on the basis of referential values.
Previous activities and clean technology	Previous activities and clean technology are not taken into account due to data insufficiency.
New entrants	New entrant reserve amounts to 0.858 Mt CO ₂ eq per year. The reserve is based on known plans and projections. An installation which has obtained its use permit after the adoption of the National Allocation Plan for Greenhouse Gas Allowances shall be considered a new entrant.
Installation shutdown	Installation operators shall report on the shutdown of an installation.
	Unused emission allowances shall be transferred to the new entrant reserve.
Reserve for joint implementation projects	No reserve for joint implementation projects has been established.
Emission units derived from the implementation of the Kyoto Protocol's project mechanisms	Installations are permitted to use emission reduction units (ERU) and certified emission reduction units (CER) up to 15% of their emission allowances.
Allocation	The allocation of emission allowances for the calendar year is completed by 28 February.
Transfer of emission allowances to future period »Banking«	Allows for transfer of emission allowances to future period which starts from 2013.
Public auctioning	Pursuant to this National Allocation Plan, allowances are allocated free of charge.
Emission of other greenhouse gases (besides CO ₂)	Besides CO ₂ , other greenhouse gases have not been included in the National Allocation Plan.

3. CLIMATE CHANGE POLICY OF THE REPUBLIC OF CROATIA

3.1. Status overview

Climate change is considered a dominant environmental issue in the 21st century. Climate change and its impacts are becoming more and more obvious, and scientists predict that those changes will become even more intensive. Climate change and its impacts are reflected in various phenomena: temperature change, quantity and distribution of precipitation, sea-level

rise, frequency of extreme meteorological conditions, changes related to water resources, ecosystems, agriculture, forestry, health, and significant economic damages.

Croatia has been a party to the United Nations Framework Convention on Climate Change since 1996 (Official Gazette – International Treaties 2/1996). The Republic of Croatia, as a country undergoing the process of transition to a market economy, has undertaken its scope of responsibility assumed under Annex I to the Convention. The Republic of Croatia has been a party to the Kyoto Protocol to the United Nations Framework Convention on Climate Change since 28 August 2007 (Official Gazette – International Treaties 5/2007).

Annex B of the Kyoto Protocol lays down quantified emission limitation and reduction commitments for developed countries and countries undergoing the process of transition to a market economy that have to be achieved in the period from 2008 to 2012. The established emission reduction for the Republic of Croatia is 5% compared to the level in the base year, 1990.

The European Union leads in global efforts for the prevention of climate change and intends to keep that position in the future. It has recognised that benefits from early actions are multiple in relation to damages that might appear in the future and risks they might pose for the competitiveness of the European economy. The first Climate Change Programme (2000-2004) and second Programme (2005) lay down the long-term path to low-carbon economy, with major changes in production and energy consumption as well as transport.

In 2003, the EU emission share in total global greenhouse gas emissions amounted to 14%. Under the Kyoto Protocol, the EU has assumed the objective to reduce emissions by 8% (EU-15), using an internal scheme to define the various commitment arrangements for each country.

The EU Environment Council supports the objective to limit global temperature rise to a maximum of 2° C in comparison to the pre-industrial age. In accordance with the above, the EU has recently set the objective to reduce emissions by 20% in 2020, in comparison to 1990, and is ready to reduce emissions even by 30% if other industrial countries undertake to do the same.

After the initial emission decrease, due to renewal of economy, emissions started to grow in the period from 1995 to 1999 at an annual rate of 3.6%, while the average annual increase in the period from 2001 to 2005 was 2.6%. The greatest emission growth is recorded in the energy sector, related to energy production, and in transport.

Pursuant to the Act on the Environmental Protection and Energy Efficiency Fund (Official Gazette 107/2003), the Environmental Protection and Energy Efficiency Fund was established in 2003 for the purpose of securing financial resources required for projects and programmes in the area of environmental protection, energy efficiency and use of renewable energy sources.

In 2007, the Government of the Republic of Croatia has adopted the Regulation on unit charges, corrective coefficients and detailed criteria and benchmarks for establishing the charge for carbon dioxide emissions into the environment, (Official Gazette 73/2007). According to that measure, entities subject to payment of the charge are identified on the basis

of their CO₂ emissions. This includes all emission sources, that is, installations with thermal power exceeding 100 kW.

In 2006, the Government of the Republic of Croatia adopted the Strategic Development Framework 2006 – 2013 and the National Programme for the Accession of the Republic of Croatia to the European Union which set the mid-term and long-term priorities and strategic objectives of the Republic of Croatia.

The basic objectives in relation to economic development are the following:

- increase of the average real growth rate of the GDP to 6.0% per year (5.1% from 2006 to 2009 and 7% from 2010 to 2013)[\[1\]](#)
- inflation rate lower than 2.5% per year
- unemployment rate below 9% (after accession to the EU)
- increase of foreign investments.

From 2000, economic growth has been especially accelerated (see figure 3.1.).

In the energy sector, the Croatian economic growth has the following features:

- low level of energy consumption (electric power consumption of 2 776 kWh/per capita)
- low share of carbon in total consumption (8.3%) and production of electrical energy (6.3%)
- high share of renewable energy sources in the production of electrical energy (43% of Croatia's own electrical energy production in 1990)
- large import of electrical energy (45%)
- significant share of cogeneration in electrical energy production (13.6%)
- significant share of biomass in satisfying heating consumption (17.4% general consumption)

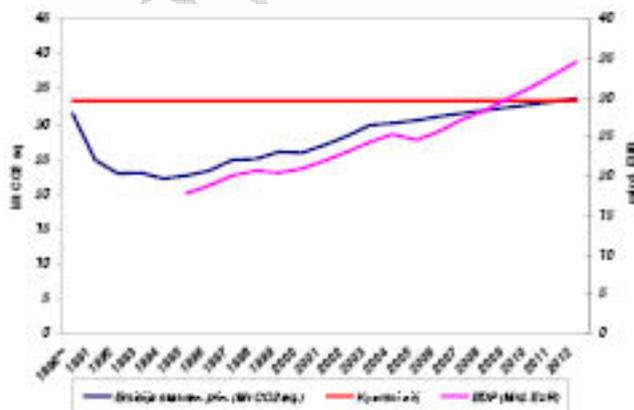


Figure 3.1 GDP and carbon dioxide movement trend in the Republic of Croatia. GDP data are expressed in chain-linked scope, the reference year is 2000 (according to foreign exchange

rates from 2000), source Eurostat[2]; GDP values and greenhouse gas emissions for the period from 2010 to 2012 have been projected from previous years.

The economic situation was significantly different at the time when the National Allocation Plan was being prepared in the 1st quarter of 2009. So far, the global financial crisis has had a limited impact on the Croatian economy, slowing down its growth.

Data from economic projections of key data for Croatia for the period 2005-2010, which were published on the Ecfina web site (table 3.1).were used for the preparation of the National Allocation Plan.

Table 3.1 Economic projection of key data for Croatia (2005-2010) for 2008 – PREDICTING EFFECTS OF MAJOR MEASURES – CROATIA

2007 Change on annual level %

In billion HRK	Current price	%GDP	1992 – 2004	2005	2006	2007	2008	2009	2010
GDP at permanent price	275.1	100.0	-	4.3	4.8	5.6	3.5	3.0	4.0
Private consumption	15.4	55.8	-	3.4	3.5	6.2	3.1	2.5	3.0
Public consumption	55.3	20.1	-	0.8	2.2	3.4	3.0	2.5	2.0
Permanent gross capital investments	82.4	30.0	-	4.9	10.9	6.5	6.0	5.0	7.5
Export (goods and services)	131.2	47.7	-	4.6	6.9	5.7	3.7	3.5	5.0
Import (goods and services)	154.2	56.1	-	3.5	7.3	5.8	4.3	3.9	4.8
Gross national income at permanent prices (GDP deflator)	266.6	96.9	-	3.5	4.4	6.0	3.2	3.6	4.5
Contributions to GDP growth	Domestic demands		-	3.7	5.7	6.4	4.3	3.6	4.6
	Built reserve		-	0.6	0.2	0.0	0.0	0.2	-0.1
	Foreign balance		-	0.1	-1.1	-0.8	-0.9	-0.7	-0.6

The Action Plan for Climate Change Mitigation in the Republic of Croatia, which was adopted within the framework of the Air Quality Protection and Improvement Plan for the Period from 2008 to 2011 (Official Gazette 61/2008) was also used for the preparation of the National Allocation Plan.

3.2. Greenhouse gas emissions in the Republic of Croatia

In May 2008, the annual National Greenhouse Gas Emission Inventory Report of the Republic of Croatia was prepared, encompassing the period from 1990 to 2006. In accordance with reporting requirements pursuant to the UNFCCC, and as a party to the UNFCCC and to the Kyoto Protocol, as of 2001 the Republic of Croatia is under the obligation to submit the national greenhouse gas inventory report once a year to the Secretariat of the UNFCCC.

The 2008 National Greenhouse Gas Emission Inventory Report reflects general economic trends in the Republic of Croatia. Summarised data are presented in tables 3.2 and 3.3, and graphically in figures 3.2 and 3.3.

Greenhouse gas emissions from the energy sector and transport make up approximately 76% of total greenhouse gas emissions in 2006.

Main emission sources in industrial processes sectors are:

- cement production
- lime production
- ammonia production
- nitric acid production
- consumption of synthetic gases in refrigerators and cooling devices.

All together they make up 98.8% of total sector emissions in 2006. Iron production in blast furnaces and aluminium production were terminated in 1992, and ferroalloys production in 2002. Cement production grew in the period from 1997 to 2005. Manufacturers' goal is maximum use of capacities which amounts to a total of approximately 3.2 million tonnes of clinker a year, while 3.1 million tonnes of clinker were produced in 2006. Ammonia production in 2006 was 1.8% lower in comparison to the previous year. Nitric acid production in 2006 was also lower by 1.1% in comparison to 2005. The emission level of these sub-sectors is strictly related to market demand for a specific mineral fertiliser.

Therefore the main policy and strategy measures are aimed at energy efficiency, energy security, use of renewable energy sources and expansion of the free energy market. For that purpose, the Republic of Croatia has adopted the following regulations for their implementation:

- Energy Act (Official Gazette 68/2001, 177/2004 and 76/2007);
- Act on the Regulation of Energy Activities (Official Gazette 177/2004);
- Act on the Electricity Market (Official Gazette 177/2004 and 76/2007);
- Act on Oil and Petroleum Products Market (Official Gazette 68/2001 and 87/2005);
- Act on the Production, Distribution and Supply of Thermal Energy (Official Gazette 42/2005);
- Regulation on the minimum share of electricity produced from renewable energy sources and cogeneration whose production is incentivised (Official Gazette 33/2007);
- Regulation on incentive fees for promoting electricity production from renewable energy sources and cogeneration (Official Gazette 33/2007);

- Tariff system for the production of electricity from renewable energy sources and cogeneration (Official Gazette 33/2007);
- Ordinance on use of renewable energy sources and cogeneration (Official Gazette 67/2007);
- Ordinance on acquiring the status of eligible electricity producer (Official Gazette 67/2007);
- General conditions for electricity supply (Official Gazette 14/2006);
- Electrical Energy System Network Rules (Official Gazette 36/2006);
- Ordinance on the fee for connection to the energy network and increase in connected power (Official Gazette 28/2006);
- Ordinance on the requirements for performing energy activities (Official Gazette 6/2003 and 94/2005);
- Ordinance on energy balance (Official Gazette 67/2007).

3.3. European Union policy and Directive on greenhouse gas emission allowance trading

EU's proposed objectives by 2020

On 23 January 2008, the European Commission announced a proposal package for achieving objectives which are legally binding for the Union, for reducing greenhouse gas emissions by at least 20 % compared to 1990 levels. The emission reduction shall be increased to 30% by 2020 if developing and developed countries which are currently not parties to the Kyoto Protocol undertake appropriate commitments to reduce greenhouse gas emissions in that period.

The fundamental starting point is general reduction of greenhouse gas emissions by 20% compared to 1990, which is equivalent to a 14% reduction compared to 2005. However, greater reduction is expected to happen in sectors included in the European scheme for greenhouse gas emission allowance trading (EU ETS), as emission reduction is cheaper in that area. The distribution of reductions is the following:

- 21% emission reduction in sectors included in EU ETS by 2020 compared to 2005;
- average reduction of approximately 10% compared to 2005 in sectors not covered by EU ETS;

Changes in the greenhouse gas emission allowance trading system after 2012

Major changes are as follows:

- instead of 27 national emission ceilings, there shall be just one for the whole EU area; the annual emission ceiling shall decrease in a linear manner which will continue even after the third trading period (from 2013 to 2020) from 1974 to 1720 Mt/annually by 2020;

- emission allowances for the energy sector shall be allocated by public auctioning, and for the industry partially by public auctioning and partially free of charge;
- harmonised rules shall be introduced for free allocation and public auctioning;
- several new activities (e.g., aluminium and ammonia production) shall be introduced to the ETS, as well as gases: nitrous oxide and perfluorocarbon;
- Member States shall be allowed to exclude smaller installations included in the system, under the condition that they are subjected to appropriate emission reduction measures;

The EC proposes the introduction of a unique emission ceiling for the whole territory of the EU, as well as allocation of emission allowances on the basis of completely harmonised rules. Consequently, national emission allowance allocation plans shall no longer be necessary. As of 2013, the total quantity of emission allowances shall be reduced in a linear manner by 1.74% per year.

Proposals for sectors not included in the emission allowance trading scheme

In sectors which are not included in the emission allowance trading scheme, such as building, transport, agriculture and waste management, the EU shall reduce greenhouse gas emissions by an average of 10% below 2005 levels by 2020. The linear trend shall apply for the achievement of national targets by 2020, with the starting point in 2013 which presents an emission average for sectors not included in the emission allowance trading scheme in the period from 2008 to 2010. For each Member State, the EC proposes a separate target according to which it must reduce, or in the case of a new Member State, it may increase emissions by 2020. These changes range between -20% and +20%, which ultimately leads to the total average reduction of 10%. The EC proposes use of GDP per capita data as the main criterion for establishing targets for Member States.

Table 3.2 Emissions/removal of greenhouse gases, according to gases, for the period from 1990 to 2006 (Gg CO₂ eq)

Greenhouse gas	1990	1995	2000	2001	2002	2003	2004	2005	2006
Carbon dioxide (CO ₂)	24 069	17 007	20 102	21 018	21 994	23 577	23 180	23 595	23 699
Methane (CH ₄)	3 390	2 684	2 638	2 785	2 847	2 953	3 070	2 962	3 110
Nitrous oxide (N ₂ O)	4 079	3 197	3 465	3 531	3 463	3 352	3 649	3 654	3 594
Hydrofluorocarbons, perfluorocarbons (HFCs, PFCs) and sulphur hexafluoride SF ₆	980	43	23	49	49	164	189	349	431
Total emission (excluding CO ₂ from LULUCF)	32 527	22 930	26 228	27 383	28 353	30 045	30 08	30 561	30 834
Removal (LULUCF)	-4 185	-9 154	-5 281	-8 214	-8 206	-6 278	-7 900	-7 726	-7 490
Total emission (including LULUCF)	25	13	20	19	20	23	22	22	23

342 776 947 169 148 768 189 835 344

Table 3.3 Emissions/removal of greenhouse gas, according to sectors, for the period from 1990 to 2006 (Gg CO₂ eq)

Source	1990	1995	2000	2001	2002	2003	2004	2005	2006
Energy	22	16	18	19	21	22	2 048	22	22
Industrial processes	882	400	907	953	074	580	411	548	
Use of solvents and other products	4 609	2 785	3 400	3 271	3 148	3 348	3 659	3 833	4 004
Agriculture	80	80	69	75	99	108	135	155	182
Waste	4 558	3 191	3 285	3 485	3 400	3 348	3 549	3 560	3 507
Total emission (excluding CO ₂ from LULUCF)	399	475	567	599	633	663	697	601	591
Removal (LULUCF)	32	22	26	27	28	30	30	30	30
Total emission (including LULUCF)	-4	-9	-5	-8	-8	-6	-7	-7	-7
	185	154	281	214	206	278	900	726	490
	25	13	20	19	20	23	22	22	23
	342	776	947	169	148	768	189	835	344

Figure 3.2 Emissions/removal of greenhouse gas, according to gases, for the period from 1990 to 2006 (Gg CO₂ eq)

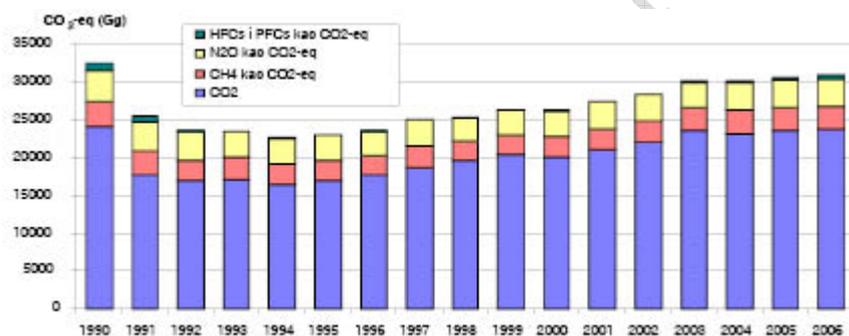


Figure 3.3 Emissions/removal of greenhouse gas, presented according to sectors, for the period from 1990 to 2006 (Gg CO₂ eq)

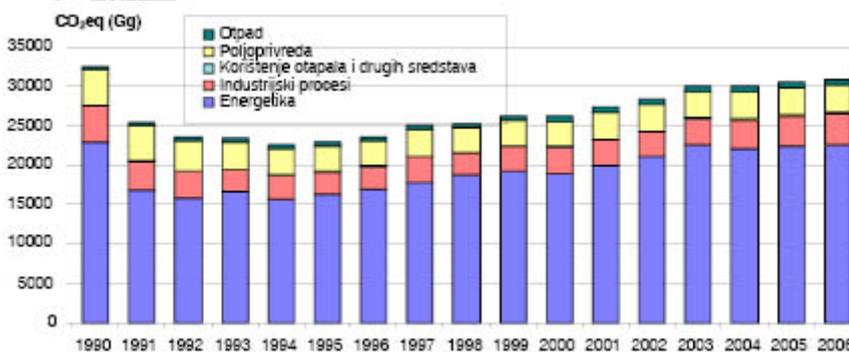


Table 3.4 Emission shares of CO₂, according to activities, for the period from 1990 to 2006 (Gg CO₂ eq)

Resources	1990	1995	2000	2001	2002	2003	2004	2005	2006	Total share of emissions (%)
Energy	7286	5198	5907	6327	7228	7895	6853	6884	6657	28
Industry and construction	5833	2943	3091	3231	3023	3184	3573	3671	3768	16
Transport (road and other)	4266	3469	4644	4752	5062	5453	5612	5839	6226	26
Services and households	3832	2922	3521	3713	3802	4061	3968	3997	3763	16
Purification of natural gas	416	697	633	688	665	684	710	691	663	3
Cement production	1069	622	1232	1393	1360	1369	1456	1487	1572	7
Lime production	160	83	138	163	181	178	186	198	244	1
Limestone and dolomite production	43	11	8	9	10	11	12	12	11	approximately 0
Production and use of Na ₂ CO ₃	25	14	11	12	12	14	17	17	15	approximately 0
Use of ammonia	861	1051	1038	848	769	877	920	907	879	4
Ferroalloys production	194	33.9	20.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Aluminium production	111	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total CO ₂ emissions (Gg)	24099	17045	20243	21137	22111	23726	23306	23704	23797	100

3.4. Greenhouse gas projections

Projections of greenhouse gas emissions in the Republic of Croatia were published in 2003 [3], and updated in 2008. The report covers the period from 1990 to 2020. The greenhouse gas projections encompass the following three scenarios:

1. scenario »without measures«: special emission reduction measures have not been defined or implemented;
2. scenario »with measures«: including implementation of the most feasible scenario from the Energy Development Strategy which is basically restricted to measures in the energy sector;

3. scenario »with additional measures«: according to which, energy efficiency, renewable energy and emission reduction are effectively implemented in the Republic of Croatia, and significant effects are expected to take place in the period after 2010; priority sectors are: waste disposal, agriculture, industrial processes and renewable energy.

An overview of the scenarios is presented on the basis of data from 2004, updated in 2008.

Note: total projections of greenhouse gas emissions are presented with the scenario »with measures« and »without measures«. Figure 3.4 presents the Kyoto Protocol target.

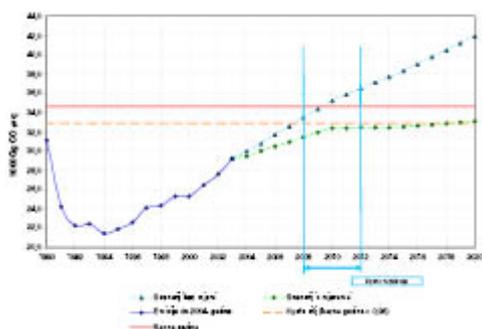


Figure 3.4 Projections of greenhouse gas emissions in the Republic of Croatia for the period from 1990 to 2020 (Gg CO₂eq).

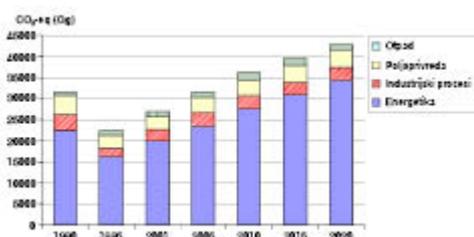


Figure 3.5 Projections of greenhouse gas emissions in the Republic of Croatia; greenhouse gases according to sectors for the period from 1990 to 2020 (Gg CO₂eq) for the scenario »without measures«

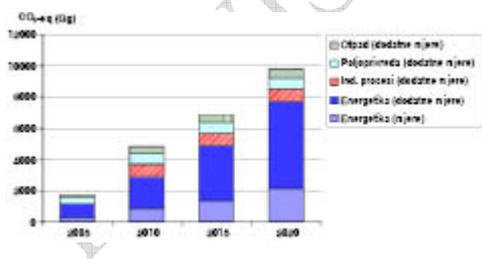


Figure 3.6 Potentials for greenhouse gas emission reduction in the Republic of Croatia; greenhouse gases according to sectors for the period from 1990 to 2020 (Gg CO₂eq) for the scenario »with measures«.

Emission restriction has a major impact on the Croatian economy which marks a high level of electrical energy import. Furthermore, commitments to reduce emissions affect competitiveness of installations and release of carbon dioxide:

(1) The Republic of Croatia is located between an economically highly developed area where industrial emissions are restricted i.e. the European Union and a region where the economy and industry are still recovering i.e. other countries of South Eastern Europe. Consequently, the Republic of Croatia faces two types of competition: one coming from more efficient and developed industry, and the other coming from undeveloped industry without restrictions;

(2) the Croatian cement production sector is undergoing strong development due to great momentum in the construction sector; operators of cement or lime production installations wish to extend their capacities outside the Republic of Croatia, particularly to countries outside the EU;

(3) in relation to the accession of the Republic of Croatia to the EU, the Croatian transport fuel productions (refineries) are facing harmonisation with the European fuel standards, such as low sulphur content; this shall require adjustment of refinery installations and result in greater energy consumption per tonne of product;

(4) The Republic of Croatia is rapidly developing as a tourist destination; the relatively long Croatian coast attracts many tourists, and this will result in continuous increase of transport emissions.

4. QUANTITY OF EMISSION ALLOWANCES

4.1. National target according to the Kyoto Protocol

The base year emission of the Republic of Croatia amounts to 34.845 million tonnes CO₂ eq. The commitment of Republic of Croatia under the Kyoto Protocol is to reduce greenhouse gas emissions by 5% in comparison to the base year, which amounts to 33.102 million tonnes CO₂ eq in the base year.

According to land use, land-use change and forestry categories (LULUCF), in compliance with Article 3, paragraph 4 of the Kyoto Protocol, Croatia has 0.972 million tonnes emissions of CO₂ eq in sinks.

4.2. Total quantity of emission allowances

Methodology

This section describes the methods and presumptions used to predict the total quantity of emission allowances, or a particular share of an installation, from sectors covered by the emission trading scheme, in the total national emissions, or in emission reduction commitments.

Brief description of the methodology used for determining the total amount of emission allowances:

- Stage 1: determining national projections of greenhouse gas emissions for sectors covered by the emission trading scheme and sectors not covered by the emission trading scheme, with measures laid down for all sectors not covered by the emission trading scheme, taking into account EU mid-term objectives, that is the objective of – 20% emission reduction by 2020;

- Stage 2: determining expected emissions for sectors covered by the emission trading scheme following »without measures« scenario;
- Stage 3: determining planned measures for emission reduction in sectors covered by the emission trading scheme and »benchmarking« with the European sectors covered by the emission trading scheme;
- Stage 4: determining the total quantity of emission allowances for sectors covered by the emission trading scheme.

Annual sequence of greenhouse gas emissions

The last National Greenhouse Gas Emission Inventory of the Republic of Croatia for the period from 1990 to 2006 was published in May 2008.[\[4\]](#).

The details on emissions and emission projections for 2010, 2015 and 2020 are presented in section 3.4. Table 4.1 presents annual trend and projected quantities of greenhouse gas emissions in the Republic of Croatia by 2020.

Table 4.1 Annual sequences of greenhouse gas emissions from 1990 to 2020. (Mt CO₂ eq) [\[5\]](#)

	1990	1995	2000	2005	2010	2020
Greenhouse gas emissions (total)(*)	32.527	22.930	26.228	30.561	35.219	41.867
Greenhouse gas emissions (energy sector and industry) (**)	10.775	7.213	6.741	10.340	12.238	14.373

(*) Total emissions in Croatia; data for 1990, 1995, 2000 and 2005; projections for 2010 and 2020

(**) Total greenhouse gas emissions generated by energy activities and industry defined in compliance with the National Inventory Report (»top-down« calculation); these data do not correspond to emissions of installations covered by the emission trading scheme according to the National Allocation Plan for which data have been collected using the »bottom-up« approach, even though they present emission trends in these two sectors. Greenhouse gas emissions (all gases), data for 1990, 1995, 2000 and 2005; projections for 2010 and 2020

Projection of greenhouse gas emissions in 2010 and in 2020 have the following features:[\[6\]](#):

- (1) increase of CO₂ emissions generated by domestic and international transport;
- (2) increase of CO₂ emissions generated by increased industrial production capacities;
- (3) increase of CO₂ emissions generated by increased energy production capacities;
- (4) decrease of energy consumption and related greenhouse gas emissions in the building sector, as a result of the thermal insulation improvement programme and increased use of renewable energy sources in this sector;
- (5) decrease of N₂O emissions generated by artificial fertiliser industry;

(6) decrease of CO₂ emissions generated by the gas sector caused by reduction measures applied during gas research;

(7) decrease of CO₂ emissions generated by electricity production caused by increased use of natural gas in the building and small enterprise sector;

(8) decrease of CH₄ and N₂O emissions generated by the agricultural sector caused by implementation of measures for collecting biogas and improved fertiliser use;

(9) increase of renewable energy sources in the overall domestic energy production, in particular due to increased capacities for using wind to generate energy, major increase of solar energy use and increased biomass based energy generation (in agriculture, heat supply sector and cement industry).

Projections for the period from 2010 to 2020 show that according to the »without measures« scenario a major emission increase will take place (table 4.2).

Table 4.2 Total increase, average annual increase of greenhouse gas emissions in total and for energy production sector in percents by 2020

	Increase 2010 – 2020	Average annual increase
Greenhouse gas emissions (without measures, total)	18.8%	1.7%
Greenhouse gas emissions (without measures, energy production sector)	17.5%	1.6%

Determining the total emission allowance which represents the ceiling for the greenhouse gas emission allowance trading scheme

On the basis of the above described methodology, projections of the ceiling for the emission allowances trading scheme and its share in the total greenhouse gas emissions have been prepared, as shown in table 4.3.

Table 4.3 Ceiling for the emission allowances trading scheme compared to national greenhouse gas emissions in the period from 2010 to 2012 (Mt CO₂ eq)

	Annual average	% of total emissions	% +/- to Kyoto target
Greenhouse gas emission according to »without measures« scenario	36.676	-	+10.8
Greenhouse gas emission »with measures« (excluding forest management)	33.990	-	+2.7
Emission with included allowance for forest	33.018	-	-0.25

management (sink) -0.972 Mt CO₂ eq

The ETS ceiling, current level (base year 2007)	12.996	--	--
The ETS ceiling, »without measures« scenario	14.319	39.0	--
The ETS ceiling, with measures (-/- 7.5% emission reduction measures)	13.310	39.2	--

The total emission allowance which is at the same time the ceiling for the emission allowances trading scheme (ETS ceiling) has been established at 13,310 Mt CO₂ eq per year, including the new entrant reserve of 0,858 Mt CO₂ eq annually.

Application of measures determined in Annex III of the Emission Trading Directive

The Croatian Greenhouse Gas Allowance Allocation Plan has been prepared in compliance with the EU criteria for the preparation of National Allocation Plans.

Table 4.4 Sectors outside the scheme (non-ETS) and within the emissions trading scheme (Mt CO₂-eq.)

Sector	CO ₂ emissions
Sectors included in the trading scheme (ceiling) ETS	13.310
Sectors outside the trading scheme (non-ETS)	20.680
Croatia – total	33.990
Base year	34.845
Kyoto target	33.102
Forest management allowance LULUCF	0.972
Kyoto target with forest management allowance LULUCF	34.074

4.3. New entrant reserve

The new entrant reserve (NER) has been determined in compliance with the principles presented in section 5.

The amount of the new entrant reserve and its share in the total quantity of emission allowances is presented in table 4.5.

Table 4.5 New entrant reserve within the greenhouse gas emission trading scheme

New entrant reserve	0.858 Mt CO ₂ eq.
Share in total emission allowance quantity	6.4%

4.4. Possibility of inclusion and exclusion for trading in other greenhouse gases emissions

There is no possibility for including other greenhouse gases e.g. N₂O (nitrous oxide) in the period covered by the National Allocation Plan.

5. EMISSION ALLOWANCE ALLOCATION METHODOLOGY

5.1. General

The total amount of emission allowances, 100%, is allocated to installations free of charge. The majority part, that is, 93.6% of emission allowances is allocated to installations, while the rest (6.4%) is intended for the new entrant reserve.

Procedure description

After compiling the list of installations which may be potential participants in the trading scheme pursuant to Annex I of Directive 2003/87/EC, questionnaires were delivered to installations, and thus entered data were examined by Croatian and international experts involved in the implementation of CARDS project. The examination was carried out in line with the provisions of Decision 2007/589/EC establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC.

For the purpose of identifying all potential participants in the emission allowance trading scheme, installation operators have been invited to respond via the web site of the Ministry.

Installations delivered data on their emissions for the period from 2004 to 2007, partially for 1990, 1995 and 2000, as well as plans for the period from 2008 to 2012 and 2015. Data for previous and future required periods are not equally reliable and complete.

From the process of data examination and on-site assessments it may be concluded that data from 2004 to 2007 which make up the base can be considered as reliable.

Data kept by the Environmental Protection and Energy Efficiency Fund were also used as a data source related to fees for emissions of CO₂ into the environment, in the part which refers to collecting data on CO₂ emissions generated by entities subject to payment of the fee.

5.2. Sector approach

The allocation of emission allowances is conducted in two stages – emission allowances are allocated to four sectors and then to installations within those sectors.

The selection of the four sectors is based on circumstances which are relevant for Croatia.

During the preparation of the National Allocation Plan for Greenhouse Gas Allowances, installations have been distributed into four sectors:

1. energy sector; this sector includes installations for the generation of energy mainly for general consumption, that is, installations generating electrical energy and thermal installations;
2. mineral oil refineries;
3. cement and lime production installations;

4. other installations; this group includes the majority of smaller installations and mainly encompasses food production, brick production and manufacture of ceramic products; note: it also includes fuel oil furnaces which use installations included in the greenhouse gas emission allowances trading scheme.

Sectors encompassed by the emission allowance, that is, in the greenhouse gas emission allowances trading scheme in the Republic of Croatia have the following characteristics:

- the energy sector is very important and encompasses around 49% of emissions from installations included in the greenhouse gas emission allowances trading scheme; sector emissions are basically conditioned by domestic energy consumption and export;
- mineral oil refineries, despite the restricted number, make up around 22% of emissions from installations included in the greenhouse gas emission allowances trading scheme, and their emissions are influenced by modifications in the field of fuel standards for motor vehicles in the Republic of Croatia and in Europe;
- cement and lime production installations, which encompass 28% emissions from installations included in the greenhouse gas emission allowances trading scheme, and their emissions are effected by the increase in activity in the domestic construction sector;
- other: encompasses a great number of small installations in the production sector, mostly related to brick and food production, and also includes a smaller number of local installations for heat production; these installations make up approximately 3% of emissions from installations included in the emission allowances trading scheme.

Sector 1: Generation of electrical and thermal energy for general consumption (EN)

Capacities for the generation of electrical energy in the Republic of Croatia include electrical power plants owned by the HEP group (Croatian Electric Power Company), a certain number of industrial power plants and several privately owned wind power plants and small hydro power plants. Total capacity which provides for the needs of the Croatian electricity system amounts to 4 049 MW (with 50% capacity of Krško nuclear power plant in Slovenia). Out of that quantity, 1 632 MW is generated by thermal power plants, 2 079 MW by hydro power plants and 338 MW by Krško nuclear power plant (which is 50% of its total capacity).

Over the period of several years up to 2007, HEP d.d electrical power plants in Sisak and Rijeka were not operating in full capacity. In relation to the above, and with reference to domestic and international measures, this circumstance was taken into account when calculating the base emission year for these installations.

Sector 2: Petrochemical industry (PC)

Croatia has two oil refineries, in Sisak and Rijeka. Lubricants are produced by plants in Rijeka and Zagreb. Processing capacities of the Croatian refineries are owned by INA. Two types of fuel combustion are present in the refineries – for heating and/or cogeneration and for proper energy consumption in the production process. Furthermore, there is consumption of refinery gas for energy generation.

Refineries are at present undergoing restructuring for the purpose of expanding their capacities. Growing fuel consumption in the transport sector and adoption of new standards in compliance with EU standards present the main reasons for expansion.

Sector 3: Lime and cement production (CV)

In the Republic of Croatia there are four major cement producers, which produce Portland cement. CO₂ emissions which are generated during the cement production process present the most important source of total CO₂ emissions outside the energy sector. This sector has a great growth perspective, as a direct consequence of growing building activities in Croatia and neighbouring countries, and in particular in Bosnia and Herzegovina.

For calculating the base year for carbon dioxide emissions from sugar plants, characteristics are lime production (as a part of sugar production) and CO₂ absorption during production

Sector 4: Other production and installations (OP)

Other production mainly includes installations in the following sectors:

- brick and tile production,
- nitric acid production
- food production
- other types of production.

In Croatia, there is one nitric acid producer using the production procedure of applying double pressure, according to the pressure used during the oxidation and absorption stages. Ammonia which is used as raw material, evaporates, and when mixed with air burns in the catalyst made of platinum-rhodium alloy. Nitrous oxide, which is also a greenhouse gas, is thus generated.

Approach to emission allowance allocation at the sector level

Emission allowances according to the group source were allocated on the basis of individual negotiations, in which emission trends after 2004 were predicted and the method of calculation was defined. Plans submitted in relation to future emissions and related additional data, as well as expected justified CO₂ emissions for the period from 2010 to 2012 have also been considered. Emission allowances according to source were allocated after reviewing additional information and other details.

In general, data on CO₂ emission quantities for an activity or product unit were used as reference criteria to the greatest possible extent.

Sector allocation

Allocation to four sectors was determined in accordance with the following methodology:

Stage 1: determining the two years during which all sector installations jointly produced the highest emission, including the last four years, or 2004, 2005, 2006 and 2007.

Stage 2: determining the average emission of an installation within the sector for two selected years; this figure presents the base year emission (EMbase).

Stage 3: determining the base year emission for 2007 (EMbase (2007)).

Stage 4: calculating total emissions from an installation for all four sectors in the base year (TotalSector EMbase (2007)).

Stage 5: determining emission growth factors according to sectors, for the period from 2008 to 2012 (FRSector).

Stage 6: calculating total emissions from an installation for all four sectors during the allocation period from 2010 to 2012, in line with the »without measures« scenario (TotalSector EMbase (2010- 2012)).

Stage 7: establishing the commitment to reduce emission, which has to be fulfilled by each sector during the allocation period from 2010 to 2012 compared to the base year (SESector (2010- 2012)).

Stage 8: subtraction of the commitment to reduce emission which has to be fulfilled by the sector during the allocation period from 2010 to 2012 (SESector (2010-2012)), from the installations' total emissions for all four sectors during the allocation period from 2010 to 2012 (TotalSector EMbase (2010- 2012)).

The obtained figure represents the total allocation of emission allowances per sector for the period from 2010 to 2012 (Total RSector (2010- 2012)).

Brief overview of the calculation method:

Total RSector (2010- 2012) = TotalSector EMbase (2007) x FRSector

x SESCOCTOR (2010-2012)

Table 5.1 Allocation per sectors for the greenhouse gas emission trading scheme in the Republic of Croatia for the period from 2010 to 2012 (Mt CO₂ eq)

Sector	Basis for the allocation	Emission growth factor	BAU-emissions(2)	Emission reduction commitment	Allocation
		(1)	TotalSector EMbase	(3)	2010 – 2012
	TotalSector EMbase (2007)	FRSector	(2010 – 2012)	SESector	Total
		(per year)	(per year)	(2010- 2012)	(2010 – 2012)
Energy	6.623	0.0%	6.623	0.497	6.126
Petrochemical	2.440	1.6%	2.596	0.195	2.401

Cement and lime	3.021	1.9%	3.254	0.243	3.010
Other	0.917	1.9%	0.988	0.074	0.914
Total	13.001 Mt	---	13.461	1.009	12.451

(1) Emission growth factor determined as 60% of the economic growth factor of a certain sector.

(2) BAU – without emission reduction measures

(3) Commitment to reduce emissions = 7.5%

5.3. Calculation of emission allowance allocation at the installation level

The allocation method is based on a combination of approaches taking into consideration the previous period and the prediction approach. The general principle for the calculation of emission allowance allocation at the installation level is, as follows:

$$\text{Total RInstallation} = \text{EMbase (2007)} \times \text{Total RSector (2010 – 2012)} / \text{TotalSector EMbase (2007)}$$

where

Total RInstallation = allocation to an installation for the period from 2010 to 2012.

EMbase (2007) = base year emission of an installation for 2007.

Total RSector (2010- 2012) = total allocation at sector level for the period from 2010 to 2012.

TotalSector EMbase (2007) = calculated total emission of an installation for all four sectors in the base year, 2007.

Note: the base year for individual installations consists of the average of the two years with the highest emissions in the relevant sector.

Individual allocation of emission allowances

Individual allocation of emission allowances to installations included in the greenhouse gas emission trading scheme is shown in table 1 section 1 List of installations

6. NEW ENTRANT RESERVE AND SHUTDOWN OF INSTALLATIONS

6.1. New entrant reserve

General

Emission allowances to new entrants shall be allocated free of charge, from the new entrant reserve.

The new entrant reserve shall be managed at the national level and shall be available to new entrants from all sectors at the beginning of the first trading period. The reserve shall be subtracted from the total emission ceiling before the allocation of emission allowances to sectors. Emission allowances from the reserve shall be allocated free of charge, upon putting the installation into operation. If new entrants' requirement for emission allowances exceeds the reserve, operators have to buy emission allowances on the market.

Extent of new entrant reserve

The reserve is established at the annual level of 0.858 Mt CO₂ eq and makes up 6.4% of the total quantity of emission allowances. The new entrant reserve has been determined using data submitted by operators through questionnaires, plans for reducing emissions presented by installations and existing national strategies and programmes. The new entrant reserve includes entrants which have been established as new, as well as an additional quantity intended for non-established, new entrants.

Accessibility and application submission

New entrant is every new installation or existing installation which obtains a greenhouse gas emissions permit or renews it after the adoption of the National Allocation Plan. Installations recognised after the adoption of the National Allocation Plan are considered new entrants. If an existing installation undergoes capacity expansion, then the rights from the new entrant reserve are allocated only for that expansion.

Access to the reserve is also permitted to installations which undergo modification in their operation or capacities, that is, in their technology which increases the nominal capacity of permitted emissions. All those changes must be reflected in their permits. The calculation of an emission allowance for a new participant shall be based on general principles applied to the relevant sector, technological characteristics, expected number of operating hours and other important assumptions.

Permits for new entrants shall be based on the same principles in Croatia's legislative practice which is applied for the purpose of issuing use permits.

6.2. Installation shutdown

General

An installation shall be considered as permanently shut down if the following conditions exist for at least one year:

- a) production is equal to zero,
- b) CO₂ emissions are equal to zero,
- c) the installation is not re-opened in the future period, that is, in the present or following trading period.

In case of demonstrated or reported shutdown, emission allowances will remain valid during the whole calendar year. For the following calendar year, emission allowances are transferred to the new entrant reserve.

Temporary installation shutdown

The installation shall be considered as temporarily shut down if the shutdown is stated in its business plan or is necessary due to unexpected circumstances, and the following conditions are simultaneously present during at least one year:

- a) production is equal to zero,
- b) CO₂ emissions are equal to zero,
- c) the installation re-starts operation after shutdown.

In case of temporary shutdown, the emission allowance for the period in which the installation is out of operation is transferred to the new entrant reserve.

Partial shutdown

The installation shall be considered as partially shut down when the operator has the intention to permanently reduce installation capacity which leads to reducing the nominal capacity of permitted emissions.

The emission allowance related to reduction is transferred to the new entrant reserve.

7. USING EMISSION UNITS DERIVED FROM PROJECT MECHANISMS

Criteria for participating in the greenhouse gas emission allowance trading scheme are conditioned by restrictions related to the use of reduction units obtained on the basis of the Clean Development Mechanism (CDM) and Joint Implementation (JI). This is in compliance with the provisions of the Kyoto Protocol which consider the use of emission units obtained through the implementation of the Kyoto Protocol mechanisms as an addition to domestic measures for countries committed to reduction under the Protocol. Criterion 12 of Annex III of the Directive on greenhouse gas emission allowance trading instructs that the NAP must establish the maximum number of certified emission reduction units (CER) and emission reduction unit (ERU) which the installation operator may use as a percent of the quantity allocated to each individual installation.

The NAP establishes that installations may use emission units from JI and CDM projects at 15% of the quantity allocated to each installation. Installation operators included in the emission trading scheme in the Republic of Croatia shall therefore be offered the possibility to achieve the emission reduction target as established by the National Allocation Plan through an appropriate policy.

The percentage is to a certain extent compliant with the measures the installations will undertake. Undertaken measures are calculated as the difference between projected emissions without measures and total allocated emission rights. Furthermore, the ceiling of 15% emission units from project mechanisms covered by the emission allowance trading scheme is

also defined by the fact that the National Allocation Plan includes the possibility of applying cost efficient measures for installations which will have to be able to sustain compensation in case of unpredicted economic growth.

Restrictions in relation to use of emission reduction units shall apply for the whole allocation period, at the installation level. The transfer of emission units from one period to the next shall be permitted between years, so that installations which have not used the allocated quantity during one trading year may transfer those emission reduction units to the following year for future use.

As the Republic of Croatia is not a host country to joint implementation projects, the reserve for double calculation of emission units from JI projects has not been planned.

8. PUBLIC DISCUSSION

Access to information and public participation has been realised in accordance with a special regulation governing access to information and public participation.

Cooperation with participants has been realised by means of completing questionnaires and visiting installations.

A Proposal of the NAP was published on the web site of the Ministry in September 2008, and was further presented to economic entities in November 2008. Economic entities delivered their objections, proposals and comments in writing.

A series of meetings was held with specific installation operators, as well as with representatives of specific sector associations.

In February 2009, a meeting was held on which the Proposal of the NAP was reviewed together with the European Commission representative. The NAP was amended in line with comments made by economic entities and suggestions from EU experts and was published for public inspection on the web site of the Ministry at the beginning of June.

9. OTHER CHARACTERISTICS

9.1. Transfer of emission allowances to another period

Unused emission allowances from this period which remain on operators' accounts in the registry may be, upon the settlement of accounts and not later than 30 April 2013, transferred to the following trading period.

9.2. Pooling of installations

No application by an operator or group of operators wishing to pool has been received and therefore reserves for pools have not been established during this period.

9.3. Public auction

Emission allowances are allocated to installations free of charge in the whole amount. The Ministry of Environmental Protection, Physical Planning and Construction has decided that there will be no sale or public auctioning of emission allowances.

9.4. Later entrants

Later entrants are covered by the formulation which is contained in the section on the new entrant reserve stating that any installation which receives an operating permit after the adoption of the NAP, shall be considered as a new entrant. Therefore there is no room for the new category »later entrants«.

10. LIST OF INSTALLATIONS

Table 1 List of installations obliged to obtain greenhouse gas emission permits with allocated annual greenhouse gas allowances

Ordinal number	Installation name	Operator's name	Basic activity	Annual emission allowance CO2 tonnes
1	Lička Tvornica Vapna	Kamen Sirač d.d.	lime	38,278
2	Kamen Sirač – PEC 1-2	Kamen Sirač d.d.	lime	93,995
3	Kamen Sirač – PEC 3	Kamen Sirač d.d.	lime	72,880
4	KRAŠ	Food industry Kraš d.d.	food industry	8,564
5	HEP – 1 ELTO	HEP group	energy	381,225
6	HEP – 2 KTE Jertovec	HEP group	energy	46,407
7	HEP – 3 Plomin-1	HEP group	energy	668,507
8	HEP – 4 Plomin-2	HEP group	energy	1,301,637
9	HEP – 5 Rijeka	HEP group	energy	1,058,567
10	HEP – 6 Sisak	HEP group	energy	1,696,777
11	HEP – 7 TE-TO Osijek	HEP group	energy	145,627
12	HEP – 8 TE-TO Zagreb	HEP group	energy	792,762
13	HEP – 9 Toplinarstvo Osijek	HEP group	energy	3,543
14	Rockwool	Rockwool Adriatic	construction materials	0
15	Vetropack	Vetropack Straža d.d. (Vetropack AG)	glass	105,112
16	CMC Sisak	CMC Sisak d.o.o.	metal industry	10,115
17	Dunapack	Valoviti papir	paper industry	1,841

		Dunapack d.o.o.		
18	TZV Gredelj – Vukomerec	TZV Gredelj d.o.o.	metal industry	1,150
19	Dalmacijacement 1 – 10 August	CEMEX	cement industry	350,275
20	Dalmacijacement 2 – Sveti Juraj	CEMEX	cement industry	754,918
21	Dalmacijacement 3 – Sveti Kajo	CEMEX	cement industry	408,945
22	Knauf Insulation	Knauf Insulation d.o.o. (Knauf group)	construction materials	30,993
23	Girk Kalun – Drniš	Girk Kalun d.d.	lime	85,130
24	DIOKI	DIOKI d.d.	chemical industry	157,117
25	Petrokemija Kutina	Petrokemija d.d.	artificial fertiliser	309,848
26	Holcim	Holcim Hrvatska (Holcim group)	cement industry	427,961
27	ITV	Istarska tvornica vapna d.o.o. (Murexin group)	lime	45,588
28	INA – Molve	INA d.d.	refinery	84,831
29	INA – Rijeka	INA d.d.	refinery	980,489
30	INA – Etan	INA d.d.	refinery	32,104
31	INA – Sisak	INA d.d.	refinery	743,144
32	Našicecement	NEXE group	cement industry	620,121
33	Podravka – Energy supply	Podravka d.d.	food industry	7,232
34	Energoremont – Thermal plant	Energoremont d.d.	energy	2,872
35	Ciglana Sladojevci	Ciglana IGM d.o.o. Sladojevci	brick plant	4,250
36	Istra Cement	CALUCEM group	cement industry	112,256
37	Keramika Vojnić	Keramika Modus d.o.o.	ceramic industry	6,318
38	KIO – Orahovica	KIO keramika d.o.o.	ceramic industry	20,530
39	Lipik Glas	Lipik Glas d.o.o.	glass	15,841
40	Opeco	Opeco d.o.o.	ceramic industry	6,554
41	Tondach Bedekovčina	Tondach Hrvatska d.d.	construction material	10,444
42	Viro	Viro tvornica šećera d.d.	sugar plant	69,989
43	Varteks	Varteks d.d.	textile industry	6,357
44	Željezara Split	Željezara Split d.d.	metal industry	14,028
45	Opeka – Osijek	Opeka d.o.o.	ceramic industry	5,053
46	Wienerberger	Wienerberger	ceramic industry	23,362

47	EKO Međimurje	Eko Međimurje d.d.	ceramic industry	8,174
48	Gradip	Gradip d.d.	brick plant	5,523
49	Tehno stan	Tehno stan d.o.o.	energy	3,429
50	Toplana – Karlovac	Toplana d.o.o.	energy	26,278
51	Sojara	Agrokor	food industry	15,985
52	Dina Petrokemija	DINA Petrokemija d.d.	chemical industry	15,296
53	IGM Brick plant Cerje Tužno	IGM d.d. Lepoglava	brick plant	14,160
54	Knauf – Knin	Knauf d.o.o. (Knauf group)	construction materials	31,859
55	Sladorana	Sladorana d.d.	food industry	74,515
56	Dilj	NEXE group	brick plant	26,774
57	Ciglana Blatuša	Saša promet ciglana Blatuša d.o.o.	brick plant	4,421
58	IGM Ciglana Cerovlje	IGM d.d. Lepoglava	brick plant	7,205
59	Đuro Đaković – energy supply	Đuro Đaković Holding d.d.	energy	1,457
60	Šećerana Osijek	Kandit Premijer d.o.o.	food industry	94,028
61	Belišće – Energy supply	Belišće d.d.	paper industry	114,517
62	Karlovačka pivovara	Karlovačka pivovara d.o.o. (Heineken)	food industry	8,664
63	PAN	PAN – Papirna industrija d.o.o.	paper industry	24,684
64	KIO – Rujevac	KIO keramika d.o.o.	ceramic industry	10,458
65	IGM Ciglana – Petrinja	IGM Ciglana Petrinja d.o.o.	brick plant	11,739
66	Ciglana Finag	Finag d.d.	brick plant	8,942
67	PLIVA	Pliva Hrvatska d.o.o.	pharmaceutical industry	21,513
68	Podravka – Danica	Podravka d.d.	food industry	8,397
69	Slavonija IGM Našice	NEXE group	brick plant	11,915
70	Ciglane Zagreb	Ciglane Zagreb d.d.	brick plant	4,572
71	PIK Vrbovec	PIK Vrbovec – mesna industrija d.d.	food industry	8,264
72	Česma – Energana	Spačva d.d.	energy supply	769
73	Ciglana Mraclin	Ciglana Mraclin d.o.o.	ceramic industry	2,419
74	Tondach Đakovo	Tondach Hrvatska d.d.	ceramic industry	10,569
75	Opeka – Sarvaš	Opeka d.o.o.	ceramic industry	8,292
76	Opeka – Ilok	Opeka d.o.o.	ceramic industry	5,316

77	Opeka – Vladislavci	Opeka d.o.o.	ceramic industry	4,494
78	Badel	Badel d.o.o	food industry	3,983
79	Ferro Preis	Ferro-Preis d.o.o.	metal	5,904
80	Petrokemija – proizvodnja čađe	Petrokemija d.d.	artificial fertilisers	78,253
81	Maziva Zagreb	Maziva Zagreb d.o.o.	lubricants	5,150
Total				12,451,456

	Total
Total including reserve	annual CO2 emission allowance
Energy	6,126,218
Cement and lime	3,010,347
Petrochemical industry	2,401,081
Other	913,810
Reserve	858,310
Total	13,309,766

11. ALLOCATION OF EMISSION ALLOWANCES TO INSTALLATIONS PURSUANT TO THE NATIONAL ALLOCATION PLAN OF THE REPUBLIC OF CROATIA

The allocation of emission allowances to installations pursuant to the National Allocation Plan and the emission allowance trading procedure shall apply as of the day of accession of the Republic of Croatia to the European Union.

12. PUBLICATION OF THE NATIONAL ALLOCATION PLAN IN THE REPUBLIC OF CROATIA

This Plan shall be published in the Official Gazette.

Class: 351-02/09-02/03

Reg. No: 5030114-09-1

Zagreb, 26 June 2009.

Prime Minister
Ivo Sanader, m.p

LIST OF ABBREVIATIONS

AAU (Assigned Amount Unit)

BAT	Best Available Techniques
CEA	Croatian Environment Agency
CER	Certified Emission Reduction
CDM	Clean Development Mechanism
CH4	Methane
CITL	Community Independent Transaction Log
COP	Conference of Parties
CO2	Carbon dioxide
EIA	Environmental Impact Assessment
EC	European Commission
EKONERG	Energy and Environmental Protection Institute
FZOEU	Environmental Protection and Energy Efficiency Fund
ERU	Emission Reduction Unit
ETR	Emissions Trading Registry
ETS	Emissions Trading Scheme
EU	European Union
EUA	EU Allowance – allowance to emit 1 tonne of CO2 equivalent
EU ETS	European Union Emissions Trading Scheme
EUROSTAT	European Statistical Office
GDP	Gross Domestic Product
Gg	Gigagram = 1 000 t
GHG	Greenhouse Gas
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
ITL	International Transaction Log
JI	Joint Implementation
LULUCF	Land Use, Land Use Change and Forestry
MRDFWM	Ministry of Regional Development, Forestry and Water Management
MEPPPC	Ministry of Environmental Protection, Physical Planning and Construction
MELE	Ministry of the Economy, Labour and Entrepreneurship
MFIN	Ministry of Finance
MHSW	Ministry of Health and Social Welfare
Mt	Megatonne = 1 000 000 t
NAP	National Allocation Plan
NER	New Entrant Reserve
NGO	Non-Governmental Organisation
NIR	National Inventory Report
N2O	Nitrous Oxide

RMU	Removal Unit
SME	Small or Medium Sized Enterprise
UNFCCC	United Nations Framework Convention on Climate Change
ECFIN	Directorate General for Economic and Financial Affairs

[1] Reference: State Office for the Economy

[2] Eurostat: <http://epp.eurostat.ec.europa.eu/portal>

[3] Greenhouse gas emission projections – Ministry of Environmental Protection, Physical Planning and Construction, September 2003

[4] 2008 National Greenhouse Gas Emission Inventory Report– Ministry of Environmental Protection, Physical Planning and Construction, submitted to UNFCCC in May 2008

[5] Study »Greenhouse Gas Emission Reduction Scenarios in the Republic of Croatia for the »Post-Kyoto« period until 2020, with prospects for 2030 and 2050«, Zagreb, June 2008, based on projections made in the 2008 National Greenhouse Gas Emission Inventory Report

[6] Data from the trend analysis prepared by Ekonerg –Energy and Environmental Protection Institute (various documents) and Industrial research conducted as part of the CARDS 2004 project.

PROVISIONAL TRANSMISSION