

Reporting on emission scenarios (UNFCCC and EU requirements)



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United Nations
Framework Convention on
Climate Change

UNFCCC REQUIREMENTS ON PROJECTIONS

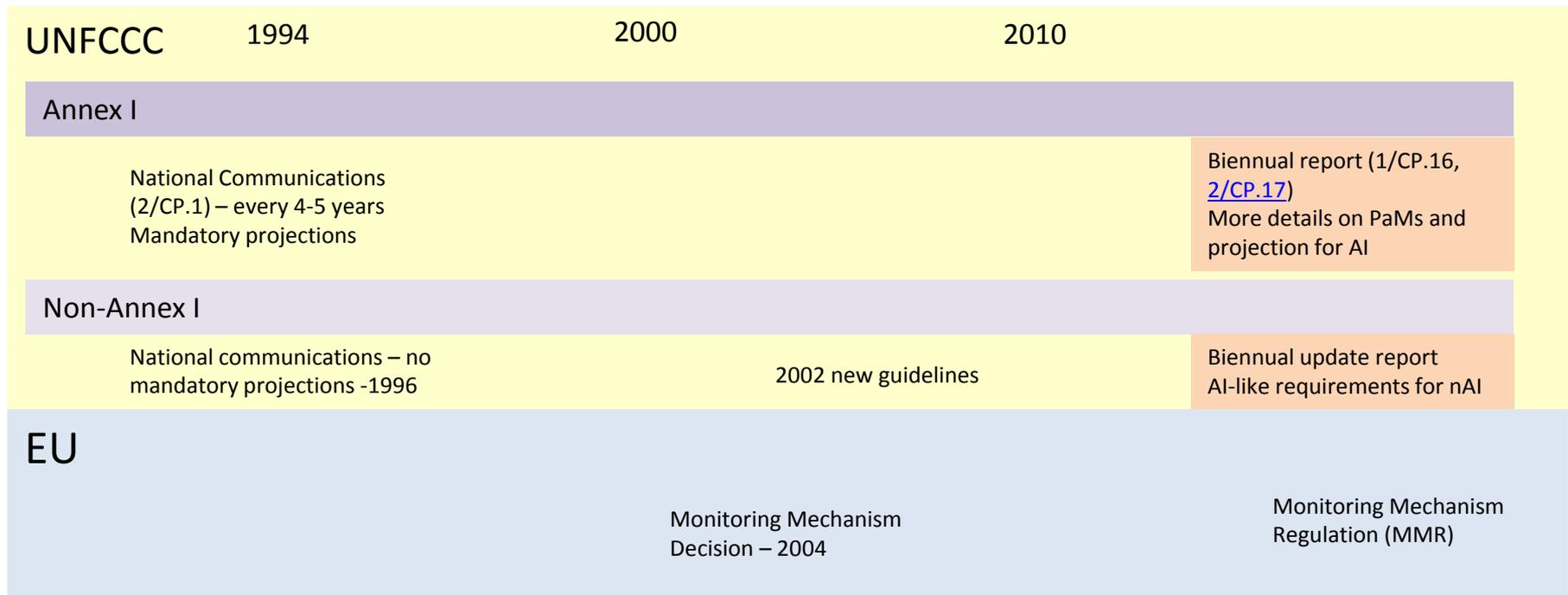


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Evolution of projection reporting



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National communications - rules

- – “UNFCCC Guidelines on Reporting and Review”, part II “UNFCCC reporting guidelines on national communications” (document FCCC/CP/1999/7, pages 80–100),
- – Decision 15/CMP.1 “Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”, Part II “Reporting of supplementary information under Article 7, paragraph 2”.



Checklist on projections – National Communications

- The primary objective of the projections section of the national communication is to give an indication *of future trends in GHG emissions and removals*, given current national circumstances and implemented and adopted policies and measures, and to give an indication of the path of emissions and removals without such policies and measures.
- At a minimum, Parties **shall** report a ‘with measures’ projection, in accordance with paragraph 29 and may report ‘without measures’ and ‘with additional measures’ projections.
- A ‘**with measures**’ projection **shall** encompass currently implemented and adopted policies and measures. If provided, a ‘**with additional measures**’ projection also encompasses planned policies and measures. If provided, a ‘**without measures**’ projection excludes all policies and measures implemented, adopted or planned after the year chosen as the starting point for this projection. In reporting, Parties may entitle their ‘without measures’ projection as a ‘baseline’ or ‘reference’ projection, for example, if preferred, but should explain the nature of this projection.



Checklist on projections – National Communications

- Emission projections **shall** be presented relative to actual inventory data for the preceding years
- For the ‘with measures’ and ‘with additional measures’ projections, the **starting point should generally be the latest year for which inventory data are available** in the national communication. For the ‘without measures’ projection, the starting point may be 1995, or Parties may provide a ‘without measures’ projection starting from an earlier year such as 1990 or another base year, as appropriate.
- Parties may use ‘normalized’ data in making their projections. However, Parties **should present their projections relative to unadjusted inventory data for the preceding years**. In addition, Parties may present their projections relative to adjusted inventory data. In this case, Parties **shall** explain the nature of the adjustments



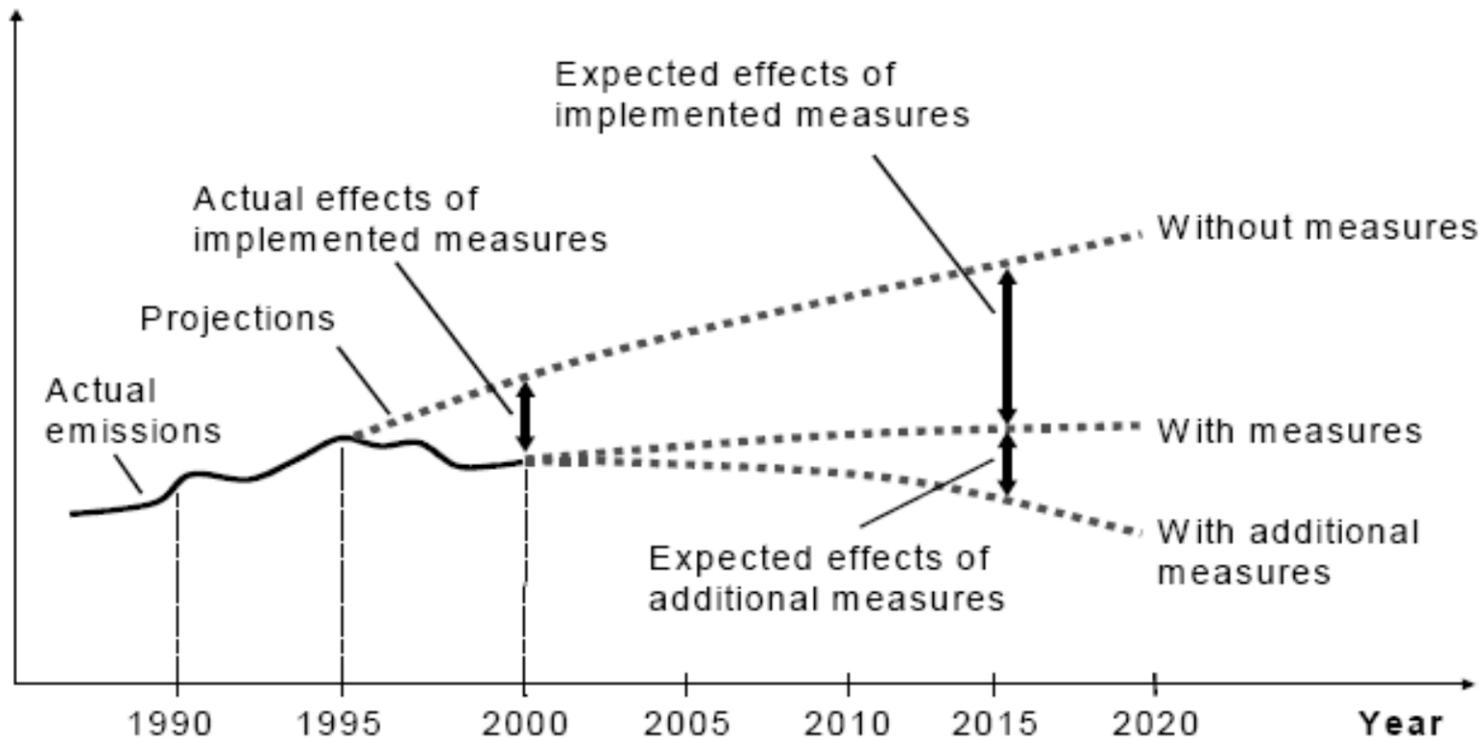
Checklist on projections – National Communications

- Projections **shall** be presented on a sectoral basis, to the extent possible, using the same sectoral categories used in the policies and measures section.
- Projections **shall** be presented on a gas-by-gas basis for the following greenhouse gases: CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs collectively in each case).
- In addition, projections **shall** be provided in an aggregated format for each sector as well as for a national total, using global warming potential (GWP) values agreed upon by the Conference of the Parties
- To ensure consistency with inventory reporting, emissions projections related to fuel sold to ships and aircraft engaged in **international transport shall**, to the extent possible, be reported separately and not included in the totals.
- Parties should include projections on a quantitative basis for the years 2005, 2010, 2015 and 2020. Projections should be presented in a tabular format by sector and gas for each of these years, together with actual data for the period 1990 to 2000 or the latest year available. For Parties using a base year different from 1990 for their inventories, in accordance with Article 4.6 of the Convention, actual data for that year **shall** be given.



Hypothetical Party's projection for emissions of one gas

Figure 1: Hypothetical Party's projection for emissions of one gas



Checklist on projections – National Communications

- The estimated and expected effects of individual policies are addressed in the policies and measures section of the national communication. In the projections section of the national communication, Parties **shall** present **the estimated and expected total effect of implemented and adopted policies and measures**. Parties may also present the total expected effect of **planned policies and measures**.
- Parties **shall** provide an estimate of the total effect of their policies and measures, in accordance with the ‘with measures’ definition, compared to a situation without such policies and measures. This effect **shall** be presented in terms of GHG emissions avoided or sequestered, by gas (on a CO2 equivalent basis), in 1995 and 2000, and should also be presented for 2005, 2010, 2015 and 2020 (not cumulative savings). This information may be presented in tabular format.
- To provide the reader with an understanding of emission trends in the years 1990 to 2020, Parties **shall present relevant information on factors and activities for each sector**. This information on factors and activities may be presented in tabular format.



Biennial report – rules

- **Reporting and review requirements:**
- – Decision 2/CP.17 (2011), Annex I “UNFCCC biennial reporting guidelines for developed country Parties”
- – Decision 19/CP.18 (2012) “Common tabular format for UNFCCC biennial reporting guidelines for developed country Parties”
- – Decision 23/CP.19 (2013) “Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention”



Checklist on projections and PaMs – BR (1)

- Each Annex I Party **shall** provide information on its mitigation actions, including on the **policies and measures** it has implemented or plans to implement since its last national communication or biennial report to achieve its economy-wide emission reduction target.
- To the extent appropriate, Parties **shall organize the reporting of mitigation actions by sector** (energy, industrial processes and product use, agriculture, LULUCF, waste and other sectors) and by gas (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride).



Checklist on projections and PaMs – BR (2)

- Each Annex I Party **shall** report the updated projections for 2020 and 2030 consistent with the “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications” (hereinafter referred to as the UNFCCC Annex I reporting guidelines on national communications).
- Each Annex I Party should report on the changes since its most recent national communication in the model or methodologies used for the preparation of projections and should provide supporting documentation
- **Biennial report common tabular format (BR CTF): table 3 (mitigation actions and their effects), table 5 (variables and assumptions), tables 6a, 6b and 6c (projection scenarios)**



Assumption table

Table 5

AUT_BR1_v1.0

Summary of key variables and assumptions used in the projections analysis^a

<i>Key underlying assumptions</i>		<i>Historical^b</i>						<i>Projected</i>			
<i>Assumption</i>	<i>Unit</i>	<i>1990</i>	<i>1995</i>	<i>2000</i>	<i>2005</i>	<i>2010</i>	<i>2011</i>	<i>2015</i>	<i>2020</i>	<i>2025</i>	<i>2030</i>
<i>GDP growth rate</i>	%					3.70		1.50	1.50	1.50	1.50
<i>Population</i>	thousands					8,382.00		8,555.00	8,733.00	8,889.00	9,034.00
<i>Stock of dwellings</i>	thousands					3,683.00		3,820.00	3,957.00	4,096.00	4,166.00
<i>International oil price</i>	USD/bbl					99.20		105.00	109.00	113.00	116.00
<i>International coal price</i>	USD / t					78.10		106.00	118.00	127.00	135.00
<i>International gas price</i>	EUR / GJ					7.10		9.30	10.40	11.30	11.90

^a Parties should include key underlying assumptions as appropriate.

^b Parties should include historical data used to develop the greenhouse gas projections reported.



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Table 6(a)

 Information on updated greenhouse gas projections under a 'with measures' scenario^a

	GHG emissions and removals ^b							GHG emission projections	
	(kt CO ₂ eq)							(kt CO ₂ eq)	
	Base year (1990)	1990	1995	2000	2005	2010	2011	2020	2030
<i>Sector^{d,e}</i>									
Energy	28,596.07	28,596.07	28,065.14	26,279.36	30,540.79	26,698.54	25,239.66	21,690.80	21,109.63
Transport	14,029.13	14,029.13	16,010.36	18,965.49	25,042.61	22,451.00	21,750.07	23,800.48	23,964.97
Industry/industrial processes	23,389.16	23,389.16	23,839.34	24,487.28	27,554.76	26,593.96	26,568.74	27,283.67	30,426.29
Agriculture	8,556.70	8,556.70	8,719.60	7,909.85	7,414.05	7,466.75	7,577.10	7,732.63	7,686.65
Forestry/LULUCF	-9,926.54	-9,926.54	-11,499.84	-14,935.76	-7,297.47	-3,517.69	-3,491.28	5,031.06	5,031.06
Waste management/waste	3,587.28	3,587.28	3,096.47	2,558.17	2,344.70	1,804.00	1,708.31	1,127.99	846.53
Other (specify)									
<i>Gas</i>									
CO ₂ emissions including net CO ₂ from LULUCF	52,091.43	52,091.43	52,404.88	50,997.00	72,390.15	69,023.08	66,913.30	74,962.90	77,703.51
CO ₂ emissions excluding net CO ₂ from LULUCF	62,059.59	62,059.59	63,943.97	65,969.68	79,723.67	72,590.80	70,455.49	69,981.87	72,722.48
CH ₄ emissions including CH ₄ from LULUCF	8,306.26	8,306.26	7,619.69	6,624.97	6,085.75	5,538.16	5,364.11	5,016.03	4,797.51
CH ₄ emissions excluding CH ₄ from LULUCF	8,305.68	8,305.68	7,619.60	6,624.85	6,085.66	5,538.02	5,363.98	5,015.89	4,797.37
N ₂ O emissions including N ₂ O from LULUCF	6,238.95	6,238.95	6,645.27	6,325.90	5,484.00	5,234.23	5,344.57	5,193.36	5,031.23
N ₂ O emissions excluding N ₂ O from LULUCF	6,197.91	6,197.91	6,606.11	6,289.10	5,448.03	5,184.34	5,293.79	5,143.47	4,981.34
HFCs	22.55	22.55	339.64	646.82	997.37	1,285.65	1,349.01	1,153.13	1,208.57
PFCs	1,079.24	1,079.24	68.39	67.46	125.04	63.93	60.07	71.00	74.00
SF ₆	493.37	493.37	1,153.20	602.25	517.12	351.50	321.53	270.20	250.31
Other (specify)									
Total with LULUCF/	68,231.80	68,231.80	68,231.07	65,264.40	85,599.43	81,496.55	79,352.59	86,666.62	89,065.13
Total without LULUCF	78,158.34	78,158.34	79,730.91	80,200.16	92,896.89	85,014.24	82,843.87	81,635.56	84,034.07

Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry.

^a In accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications", at a minimum Parties shall report a 'with measures' scenario, and may report 'without measures' and 'with additional measures' scenarios. If a Party chooses to report 'without measures' and/or 'with additional measures' scenarios they are to use tables 6(b) and/or 6(c), respectively. If a Party does not choose to report 'without measures' or 'with additional measures' scenarios then it should not include tables 6(b) or 6(c) in the biennial report.



BR – Non-Annex 1

- Non-Annex I Parties should provide information, **in a tabular format**, on actions to mitigate climate change, by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.
- For each mitigation action or groups of mitigation actions including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties **shall provide the following information** to the extent possible:
 - (a) Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators;
 - (b) Information on methodologies and assumptions;
 - (c) Objectives of the action and steps taken or envisaged to achieve that action;
 - (d) Information on the progress of implementation of the mitigation actions and the underlying steps taken or envisaged, and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible;
 - (e) Information on international market mechanisms.
- Parties should provide information on the description of domestic measurement, reporting and verification arrangements.



EU REPORTING REQUIREMENTS ON EMISSION SCENARIO PROJECTION



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Kyoto Protocol's compliance procedures

Under Kyoto Protocol's compliance :8% reduction target for EU-15 as a whole

- *Each Member State is responsible for its target under the burden sharing agreement.*
- *European Commission can start infringement procedures against individual non-compliant EU-15 MS*

Compliance systems also as part of the EU Climate and Energy Package with consequences on annual basis for MS in case of non compliance



New Monitoring Mechanism Regulation (MMR, Reg. 525/2013)

- Replacing Decision 280/2004/EC concerning a mechanism for monitoring Community greenhouse gases and for implementing Kyoto Protocol
- Entered into force in July 2013
- Enhance reporting rules on greenhouse gas emissions to meet requirements arising from the UNFCCC and the Kyoto Protocol and to implement internal legislation (Climate and Energy Package)



Rules of MMR

- 30/06/2014 - Commission Implementing Regulation (EU) No 749/2014 of 30 June 2014 on structure, format, submission processes and review of information reported by Member States pursuant to Regulation (EU) No 525/2013 of the European Parliament and of the Council
- 12/03/2014 - C(2014) 1539 - Commission delegated regulation (EU) establishing substantive requirements for a Union inventory system and taking into account changes in the global warming potentials and internationally agreed inventory guidelines pursuant to Regulation (EU) No 525/2013 of the European Parliament and of the Council
- 21/05/2013 - Regulation (EU) No 525/2013 of the European Parliament and of the Council on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change



Contents of the MMR

- *Low-carbon development strategies => new elements*
- *Reporting on historical greenhouse gas emissions and removals => new elements*
- *Reporting on approximated GHG inventories => new*
- *Registries*
- *Reporting on policies and measures and on projections => new elements*
- *Reporting on other information relevant for climate change => new*
- *Union expert review of greenhouse gas emissions => new*
- *Reporting on progress towards Union and international commitments => new elements*
- *Reporting on other information relevant for climate change => new*



Greenhouse gas inventories

Timeline, frequency and main provisions remain the same as in Decision 280/2004: annual GHG inventory submissions by 15 January/15 March

New elements:

- *Change of methodology from 2015 (new 2006 IPCC Guidelines)*
- *New gas included (NF3)*
- *New Global warming potentials*
- *Reporting on consistency checks, where relevant, with data under the EU ETS, NEC Directive, F-gas Regulation and Energy Statistics Regulation*
- *Reporting of allocation of ETS emissions to CRF categories*

Discussions are on-going on the format and structure of reporting (future implementing act)



Policies and Measures and Projections

New elements:

- Obligation to submit *annually in case of substantial changes* as compared to the most recent report (complementing the already existing obligation to report biannually)
- Obligation to put into place and report on a *national system for policies and measures and projections*
- Obligation to report on *quantitative estimates of the effects on emissions* of PAMS broken down in ETS /ESD, ex-ante, ex-post
- Obligation to report on the estimates of the *projected costs and benefits of PAMs* broken down in ETS/ESD



Article 14 - Reporting on projections

1. By 15 March 2015, and every two years thereafter, Member States shall report to the Commission national projections of anthropogenic greenhouse gas emissions by sources and removals by sinks, organised by gas or group of gases (HFCs and PFCs) listed in Annex I and by sector. Those projections shall include quantitative estimates for a sequence of four future years ending with 0 or 5 immediately following the reporting year. National projections shall take into consideration any policies and measures adopted at Union level and shall include:

- (a) **projections without measures where available, projections with measures, and, where available, projections with additional measures;**
- (b) **total greenhouse gas projections and separate estimates for the projected greenhouse gas emissions for the emission sources covered by Directive 2003/87/EC and by Decision No 406/2009/EC;**
- (c) **the impact of policies and measures identified pursuant to Article 13. Where such policies and measures are not included, this shall be clearly stated and explained;**
- (d) **results of the sensitivity analysis performed for the projections;**
- (e) **all relevant references to the assessment and the technical reports that underpin the projections referred to in paragraph 4.**

2. Member States shall communicate to the Commission any substantial changes to the information reported pursuant to this Article during the first year of the reporting period, by 15 March of the year following the previous report.

3. Member States shall report the most up-to-date projections available. Where a Member State does not submit complete projection estimates by 15 March every second year, and the Commission has established that gaps in the estimates cannot be filled by that Member State once identified through the Commission's QA or QC procedures, the Commission may prepare estimates as required to compile Union projections, in consultation with the Member State concerned.

4. Member States shall make available to the public, in electronic form, their national projections of greenhouse gas emissions by sources and removals by sinks along with relevant technical reports that underpin those projections. Those projections should include descriptions of the models and methodological approaches used, definitions and underlying assumptions.



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|---|---|---|
| <p>1. Energy</p> <p>A. Fuel combustion</p> <p>1. Energy industries</p> <p>a. Public electricity and heat production</p> <p>b. Petroleum refining</p> <p>c. Manufacture of solid fuels and other energy industries</p> <p>2. Manufacturing industries and construction</p> <p>3. Transport</p> <p>a. Domestic aviation</p> <p>b. Road transportation</p> <p>c. Railways</p> <p>d. Domestic navigation</p> <p>e. Other transportation</p> <p>4. Other sectors</p> <p>a. Commercial/Institutional</p> <p>b. Residential</p> <p>c. Agriculture/Forestry/Fishing</p> <p>5. Other</p> <p>B. Fugitive emissions from fuels</p> <p>1. Solid fuels</p> <p>2. Oil and natural gas and other emissions from energy production</p> <p>C. CO2 transport and storage</p> | <p>2. Industrial processes</p> <p>A. Mineral Industry of which cement production</p> <p>B. Chemical industry</p> <p>C. Metal industry of which Iron and steel production</p> <p>D. Non-energy products from fuels and solvent use</p> <p>E. Electronics industry</p> <p>F. Product uses as substitutes for ODS (2)</p> <p>G. Other product manufacture and use</p> <p>H. Other</p> <p>3. Agriculture</p> <p>A. Enteric fermentation</p> <p>B. Manure management</p> <p>C. Rice cultivation</p> <p>D. Agricultural soils</p> <p>E. Prescribed burning of savannahs</p> <p>F. Field burning of agricultural residues</p> <p>G. Liming</p> | <p>H. Urea application</p> <p>I. Other carbon-containing fertilizers</p> <p>J. Other (please specify)</p> <p>4. Land Use, Land-Use Change and Forestry</p> <p>A. Forest land</p> <p>B. Cropland</p> <p>C. Grassland</p> <p>D. Wetlands</p> <p>E. Settlements</p> <p>F. Other Land</p> <p>G. Harvested wood products</p> <p>H. Other</p> <p>5. Waste</p> <p>A. Solid Waste Disposal</p> <p>B. Biological treatment of solid waste</p> <p>C. Incineration and open burning of waste</p> <p>D. Wastewater treatment and discharge</p> <p>E. Other (please specify)</p> |
|---|---|---|



- General parameters
- Population
- Gross domestic product (GDP)
 - Real growth rate
 - Constant prices
- Gross value added (GVA) total industry
- Exchange rates EURO (for non-EURO countries), if applicable
- Exchange rates US DOLLAR, if applicable
- EU ETS carbon price
- International (wholesale) fuel import prices
 - Electricity Coal
 - Crude Oil
 - Natural gas
- Energy parameters
- National retail fuel prices (with taxes included) Coal, industry
 - Coal, households
 - Heating oil, industry
 - Heating oil, households
 - Transport, gasoline
 - Transport, diesel
 - Natural gas, industry
 - Natural gas, households
- National retail electricity prices (with taxes included)
 - Industry
 - Households
- Gross inland (primary energy) consumption
 - Coal
 - Oil
 - Natural gas
 - Renewables
 - Nuclear
 - Other
 - Total
- Gross electricity production
 - Coal
 - Oil
 - Natural gas
 - Renewables
 - Nuclear
 - Other
 - Total
- Total net electricity imports
- Gross final energy consumption
- Final energy consumption Industry
 - Transport
 - Residential
 - Agriculture/Forestry
 - Services
 - Other
 - Total
- Number of heating degree days (HDD)
- Number of cooling degree days (CDD)
- Transport parameters
- Number of passenger-kilometres (all modes)
 - Freight transport tonnes-kilometres (all modes)
 - Final energy demand for road transport
 - Buildings parameters
 - Number of households
 - Household size
 - Agriculture parameters
 - Livestock Dairy cattle
 - Non-dairy cattle
 - Sheep
 - Pig
 - Poultry
 - Nitrogen input from application of synthetic fertilizers
 - Nitrogen input from application of manure
 - Nitrogen fixed by N-fixing crops
 - Nitrogen in crop residues returned to soils
 - Area of cultivated organic soils
 - Waste parameters
 - Municipal solid waste (MSW) generation
 - Municipal solid waste (MSW) going to landfills
 - Share of CH4 recovery in total CH4 generation from landfills
 - Other parameters



Thank you for your attention!



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