Appendices

1. Tables of emissions and removals of greenhouse gases 1990 – 1999, revised in line with IPCC guidelines
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Appendix 1 – Tables of emissions and removals of greenhouse gases 1990 – 1999, revised in line with IPCC guidelines

Values revised in this submission (November 2001) are shown in italics.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1990.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	***55 994.37***	**-20 291.96**	***324.30***	***23.12***	0.00	1.12	0.00	440.05	0.00	0.00	***348.87***	***1 113.31***	***516.63***	***110.28***
1. Energy	***51 713.43***		***37.08***	***5.73***							***335.15***	***1 099.10***	***394.02***	***82.33***
A. Fuel Combustion Reference Approach[2]	53 290.17													
Sectoral Approach[2]	*51 438.74*		*37.08*	5.73							*334.86*	*1 099.00*	*368.69*	*77.98*
1. Energy Industries	10 170.40		1.10	1.34							16.44	7.20	10.23	19.06
2. Manufacturing Industries and Construction	*11 775.66*		*2.31*	*1.80*							*56.57*	*35.99*	*14.07*	*25.08*
3. Transport	18 736.19		23.16	1.46							220.71	905.16	202.36	16.34
4. Other Sectors	10 672.87		10.51	1.14							41.13	150.65	142.03	17.50
5. Other	83.63		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	274.69		0.00	0.01							0.29	0.10	25.33	4.35
1. Solid Fuels	252.62		0.00	0.01							0.00	0.03	0.01	0.16
2. Oil and Natural Gas	22.07		NE	NE							0.29	0.07	25.33	4.19
2. Industrial Processes	***4 170.15***		**0.23**	***2.81***	**0.00**	**1.12**	**0.00**	**440.05**	**0.00**	**0.00**	**13.72**	**14.21**	**25.02**	**27.95**
A. Mineral Products	1 764.97		NE	*0.05*							0.14	0.00	0.51	4.25
B. Chemical Industry	NE		0.00	2.63	NO	NO	NO	NO	NO	NO	2.23	NE	6.00	6.04
C. Metal Production	*2 374.18*		NE	NE				440.05		0.00	0.90	2.24	0.11	4.85
D. Other Production[3]	0.00										10.46	11.96	18.40	12.82
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					NE	1.12	NE	0.00	NE	0.00				
G. Other	31.00		0.23	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[III] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1990.**
Sheet 2 of 3. **Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**165.38**	**14.58**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			153.30											
B. Manure Management			12.09	2.35									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	12.23									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-20 291.96**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-24 100.00												
B. Forest and Grassland Conversion	[5]0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO_2 Emissions and Removals from Soil	[5]3 808.04	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**121.61**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		121.61									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A).
Sheet 3 of 3.

Sweden 1990.
Submission 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**3 989.00**		**0.00**	**0.00**							**52.00**	**7.00**	**2.00**	**17.00**
Aviation	1 826.00		0.00	NE							4.00	4.00	1.00	0.00
Marine	2 163.00		NE	NE							48.00	3.00	1.00	17.00
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**11 360.76**													

[7]*Memo Items are not included in the national totals.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1991.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	***56 660.34***	**-29 327.65**	**321.19**	***22.39***	**0.00**	**2.91**	**0.00**	**427.31**	**0.00**	**0.00**	***340.15***	***1 068.95***	**512.51**	***101.02***
1. Energy	***52 472.05***		***37.01***	***5.68***							***326.67***	***1 054.96***	**389.77**	***73.64***
A. Fuel Combustion Reference Approach[2]	52 965.13													
Sectoral Approach[2]	*52 207.04*		37.01	5.67							*326.14*	*1 054.87*	367.29	*69.50*
1. Energy Industries	11 280.19		1.27	1.37							14.94	8.15	12.14	14.76
2. Manufacturing Industries and Construction	*11 550.30*		*2.25*	*1.82*							*57.30*	30.79	11.21	*26.77*
3. Transport	18 806.68		22.96	1.36							213.04	865.17	201.66	11.34
4. Other Sectors	10 486.23		10.53	1.13							40.87	150.75	142.29	16.63
5. Other	83.65		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	265.00		0.00	0.01							0.53	0.09	*22.48*	4.14
1. Solid Fuels	247.45		0.00	0.01							0.26	0.03	0.01	0.16
2. Oil and Natural Gas	17.55		NE	NE							0.26	0.07	22.48	3.98
2. Industrial Processes	***4 077.51***		**0.23**	***2.69***	**0.00**	**2.91**	**0.00**	**427.31**	**0.00**	**0.00**	**13.49**	**13.99**	**25.15**	**27.38**
A. Mineral Products	1 621.90		NE	*0.05*							0.14	0.00	0.51	4.00
B. Chemical Industry	NE		0.00	2.50	NO	NO	NO	NO	NO	NO	2.14	NE	6.00	4.98
C. Metal Production	*2 424.61*		NE	NE				426.51		0.00	0.84	1.86	0.09	5.34
D. Other Production[3]	0.00										10.38	12.13	18.55	13.06
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					NE	2.91	NE	0.80	NE	0.00				
G. Other	31.00		0.23	0.14	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[III] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A).
Sheet 2 of 3.

Sweden 1991.
Submission 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**160.21**	**14.03**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			148.47											
B. Manure Management			11.74	2.30									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	11.73									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-29 327.65**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-33 100.00												
B. Forest and Grassland Conversion	[5]0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO_2 Emissions and Removals from Soil	[5]3 772.35	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**123.74**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		123.74									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1991.**
Sheet 3 of 3. **Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1]		PFCs[1]		SF_6		NO_x	CO	NMVOC	SO_2
					P	A	P	A	P	A				
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**4 470.00**		**0.10**	**0.00**							**52.20**	**6.20**	**1.50**	**15.00**
Aviation	1 910.00		0.10	NE							4.20	3.70	0.50	0.00
Marine	2 560.00		NE	NE							48.00	2.50	1.00	15.00
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**11 759.70**													

[7] *Memo Items are not included in the national totals.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1992.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	***54 957.66***	**-23 353.08**	**327.52**	***21.89***	**0.00**	**4.49**	**0.00**	**413.77**	**0.00**	**0.00**	**328.42**	**1 065.10**	**490.06**	**88.55**
1. Energy	**50 648.76**		**36.00**	**5.53**							**315.41**	**1 051.02**	**368.23**	**62.68**
A. Fuel Combustion Reference Approach[2]	50 781.91													
Sectoral Approach[2]	50 434.21		36.00	5.53							314.94	1 050.92	348.54	58.67
1. Energy Industries	11 319.44		1.25	1.39							14.25	8.12	6.96	14.14
2. Manufacturing Industries and Construction	10 260.70		2.59	1.68							52.24	37.36	14.55	23.37
3. Transport	19 031.50		21.65	1.39							208.92	855.92	185.31	9.27
4. Other Sectors	9 738.94		10.50	1.08							39.53	149.51	141.72	11.89
5. Other	83.63		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	214.56		0.00	0.00							0.46	0.11	19.69	4.02
1. Solid Fuels	194.40		0.00	0.00							0.14	0.02	0.00	0.16
2. Oil and Natural Gas	20.15		NE	NE							0.32	0.08	19.69	3.86
2. Industrial Processes	***4 198.10***		**0.23**	***2.68***	**0.00**	**4.49**	**0.00**	**413.77**	**0.00**	**0.00**	**13.01**	**14.08**	**24.24**	**25.87**
A. Mineral Products	1 521.51		NE	*0.05*							0.19	0.00	0.40	3.75
B. Chemical Industry	NE		0.00	2.50	NO	NO	NO	NO	NO	NO	2.00	NE	5.65	4.80
C. Metal Production	*2 645.60*		NE	NE				412.97		0.00	0.86	2.00	0.10	4.56
D. Other Production[3]	0.00										9.96	12.08	18.09	12.76
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					NE	4.49	NE	0.80	NE	0.00				
G. Other	31.00		0.23	0.13	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[(II)] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1992.**
Sheet 2 of 3. **Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**167.17**	**13.67**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			154.11											
B. Manure Management			13.06	2.24									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	11.43									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-23 353.08**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-27 100.00												
B. Forest and Grassland Conversion	[5]0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO2 Emissions and Removals from Soil	[5]3 808.04	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**124.12**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		124.12									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). Sheet 3 of 3. **Sweden 1992. Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**5 053.00**		**0.05**	**0.00**							**54.00**	**6.20**	**1.43**	**15.00**
Aviation	2 133.00		0.05	NE							4.00	3.70	0.43	0.00
Marine	2 920.00		NE	NE							50.00	2.50	1.00	15.00
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**12 716.44**													

[7] *Memo Items are not included in the national totals.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1993.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	**54 878.81**	**-29 332.10**	**325.19**	***22.43***	**0.00**	**17.06**	**0.00**	**402.13**	**0.00**	**0.00**	**319.19**	**1 024.77**	**480.58**	**79.45**
1. Energy	**50 533.12**		**35.67**	**5.68**							**305.91**	**1 010.22**	**358.26**	**53.91**
A. Fuel Combustion Reference Approach[2]	51 641.38													
Sectoral Approach[2]	50 280.80		35.67	5.67							305.48	1 010.11	341.45	50.19
1. Energy Industries	10 829.43		1.58	1.37							14.81	9.54	6.48	14.21
2. Manufacturing Industries and Construction	11 417.93		2.55	1.77							52.31	37.30	14.35	19.79
3. Transport	18 236.67		20.95	1.46							200.21	812.65	177.64	8.27
4. Other Sectors	9 712.87		10.60	1.08							38.15	150.61	142.98	7.92
5. Other	83.90		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	252.32		0.00	0.00							0.43	0.11	16.80	3.72
1. Solid Fuels	235.38		0.00	0.00							0.15	0.02	0.00	0.06
2. Oil and Natural Gas	16.94		NE	NE							0.29	0.08	16.80	3.66
2. Industrial Processes	**4 234.90**		**0.24**	***2.69***	**0.00**	**17.06**	**0.00**	**402.13**	**0.00**	**0.00**	**13.28**	**14.55**	**24.74**	**25.54**
A. Mineral Products	1 536.79		NE	*0.05*							0.05	0.00	0.30	4.09
B. Chemical Industry	NE		0.00	2.50	0.00	0.00	0.00	0.00	0.00	0.00	1.92	0.00	5.70	4.28
C. Metal Production	2 667.11		NE	NE				399.43		0.00	0.88	2.13	0.11	4.44
D. Other Production[3]	0.00										10.43	12.43	18.63	12.74
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					NE	17.06	NE	2.70	NE	0.00				
G. Other	31.00		0.23	0.14	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[II] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). Sheet 2 of 3. **Sweden 1993. Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**169.50**	**14.06**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			155.43											
B. Manure Management			14.07	2.14									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	11.92									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-29 332.10**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-33 100.00												
B. Forest and Grassland Conversion	[5]0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO2 Emissions and Removals from Soil	[5]3 767.90	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**119.77**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		119.77									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1993.**
Sheet 3 of 3. **Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**4 752.00**		**0.05**	**0.00**							**54.00**	**6.20**	**1.43**	**15.00**
Aviation	1 820.00		0.05	NE							4.00	3.70	0.43	0.00
Marine	2 932.00		NE	NE							50.00	2.50	1.00	15.00
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**13 577.18**													

[7]Memo Items are not included in the national totals.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A).
Sheet 1 of 3.

Sweden 1994.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	**59 232.82**	**-26 305.35**	**320.20**	***22.96***	**0.00**	**46.86**	**0.00**	**389.74**	**0.00**	**0.00**	**334.52**	**1 005.81**	**476.16**	**80.84**
1. Energy	**54 738.64**		**35.04**	**6.24**							**321.30**	**991.97**	**352.49**	**56.69**
A. Fuel Combustion Reference Approach[2]	54 271.13													
Sectoral Approach[2]	54 359.72		35.04	6.23							320.84	991.86	338.19	53.26
1. Energy Industries	13 119.17		1.87	1.60							16.26	11.24	14.95	14.54
2. Manufacturing Industries and Construction	12 861.03		2.77	1.97							61.69	27.26	12.42	23.09
3. Transport	18 561.03		20.42	1.53							200.23	812.61	176.95	8.23
4. Other Sectors	9 736.25		9.98	1.13							42.65	140.74	133.86	7.40
5. Other	82.25		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	378.92		0.00	0.01							0.46	0.11	14.30	3.43
1. Solid Fuels	367.85		0.00	0.01							0.23	0.04	0.01	0.17
2. Oil and Natural Gas	11.06		NE	NE							0.23	0.07	14.30	3.26
2. Industrial Processes	**4 383.38**		**0.22**	***2.46***	**0.00**	**46.86**	**0.00**	**389.74**	**0.00**	**0.00**	**13.22**	**13.84**	**26.08**	**24.15**
A. Mineral Products	1 628.56		NE	*0.05*							0.04	0.00	0.35	4.42
B. Chemical Industry	NE		0.00	2.28	NO	NO	NO	NO	NO	NO	1.76	NE	5.50	4.29
C. Metal Production	2 723.82		NE	NE				385.89		0.00	0.91	2.32	0.11	4.03
D. Other Production[3]	0.00										10.52	11.53	20.13	11.42
E. Production of Halocarbons and SF_6					NO					NO	NO			
F. Consumption of Halocarbons and SF_6					NE	46.86	NE	3.85	NE	0.00				
G. Other	31.00		0.22	0.14	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[III] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1994.**
Sheet 2 of 3. **Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**170.38**	**14.26**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			155.19											
B. Manure Management			15.19	2.16									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	12.10									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-26 305.35**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-30 100.00												
B. Forest and Grassland Conversion	[5]0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO_2 Emissions and Removals from Soil	[5]3 794.65	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**114.55**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		114.55									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). Sheet 3 of 3. **Sweden 1994. Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**5 263.00**		**0.07**	**0.00**							**54.00**	**6.20**	**0.58**	**15.00**
Aviation	1 811.00		0.07	NE							4.00	3.70	0.58	0.00
Marine	3 452.00		NE	NE							50.00	2.50	NE	15.00
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**15 099.54**													

[7] *Memo Items are not included in the national totals.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1995.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	**58 521.35**	**-21 292.70**	**316.40**	***22.23***	**739.27**	**93.83**	**2.80**	**389.37**	**0.01**	**0.00**	**309.74**	**993.55**	**471.48**	**68.54**
1. Energy	**53 730.65**		**35.20**	**5.93**							**296.88**	**978.93**	**347.80**	**45.36**
A. Fuel Combustion Reference Approach[2]	57 168.87													
Sectoral Approach[2]	53 389.90		35.19	5.92							296.71	978.82	334.28	44.82
1. Energy Industries	11 575.80		2.11	1.52							15.23	12.28	13.14	14.30
2. Manufacturing Industries and Construction	13 370.06		2.62	1.85							54.78	24.72	11.36	21.26
3. Transport	18 992.77		19.80	1.56							192.00	794.79	167.07	2.59
4. Other Sectors	9 358.98		10.66	0.98							34.70	147.03	142.71	6.67
5. Other	92.30		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	340.74		0.00	0.01							0.17	0.12	13.52	0.54
1. Solid Fuels	329.68		0.00	0.01							0.10	0.03	0.01	0.18
2. Oil and Natural Gas	11.06		NE	NE							0.07	0.08	13.52	0.36
2. Industrial Processes	**4 679.91**		**0.23**	***2.48***	**739.27**	**93.83**	**2.80**	**389.37**	**0.01**	**0.00**	**12.85**	**14.62**	**26.09**	**23.18**
A. Mineral Products	1 801.46		NE	*0.05*							0.04	0.00	0.35	5.62
B. Chemical Industry	NE		0.00	2.29	NO	NO	NO	NO	NO	NO	1.54	NE	5.35	4.19
C. Metal Production	2 847.45		NE	NE				380.47		0.00	0.84	2.39	0.12	3.36
D. Other Production[3]	0.00										10.43	12.23	20.28	10.01
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					739.27	93.83	2.80	8.90	0.01	0.00				
G. Other	31.00		0.23	0.14	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table $2^{(II)}$ of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A).
Sheet 2 of 3.

Sweden 1995.
Submission 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**166.72**	**13.83**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			151.78											
B. Manure Management			14.95	1.93									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	11.90									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-21 292.70**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-25 100.00												
B. Forest and Grassland Conversion	0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO2 Emissions and Removals from Soil	3 807.30	[5]0.00												
E. Other	0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**114.24**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		114.24									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table8 (a) (Recalculation – Recalculated data) and Table10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A).
Sheet 3 of 3.

Sweden 1995.
Submission 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**5 243.00**		**0.07**	**0.08**							**23.81**	**3.43**	**0.51**	**21.92**
Aviation	1 849.00		0.07	NE							4.31	0.73	0.51	0.32
Marine	3 394.00		NE	0.08							19.50	2.70	NE	21.60
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**15 889.42**													

[7]*Memo Items are not included in the national totals.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1996.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs [1] P	HFCs [1] A	PFCs [1] P	PFCs [1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	**63 000.93**	**-22 269.05**	**315.83**	***22.91***	**539.60**	**140.72**	**10.50**	**343.34**	**0.01**	**0.00**	**309.43**	**966.19**	**471.01**	**74.34**
1. Energy	**58 107.49**		**35.87**	**6.61**							**296.88**	**951.65**	**347.38**	**50.88**
A. Fuel Combustion Reference Approach [2]	59 258.13													
Sectoral Approach [2]	57 791.18		35.86	6.60							296.72	951.59	331.58	50.04
1. Energy Industries	16 669.01		2.84	2.06							20.44	16.45	15.83	21.87
2. Manufacturing Industries and Construction	12 783.67		2.56	1.87							55.10	24.94	11.31	20.08
3. Transport	18 834.43		19.55	1.65							184.66	759.77	158.35	2.39
4. Other Sectors	9 421.92		10.91	1.02							36.51	150.43	146.09	5.69
5. Other	82.15		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	316.31		0.00	0.01							0.16	0.06	15.80	0.84
1. Solid Fuels	290.73		0.00	0.01							0.09	0.03	0.01	0.18
2. Oil and Natural Gas	25.58		NE	NE							0.07	0.03	15.79	0.67
2. Industrial Processes	**4 782.65**		**0.23**	***2.39***	**539.60**	**140.72**	**10.50**	**343.34**	**0.01**	**0.00**	**12.55**	**14.54**	**26.05**	**23.46**
A. Mineral Products	1 709.11		NE	0.05							0.04	0.00	0.35	4.89
B. Chemical Industry	NE		0.00	2.19	NO	NO	NO	NO	NO	NO	1.41	NE	5.37	4.29
C. Metal Production	3 042.54		NE	NE				330.38		0.00	0.91	2.20	0.12	3.37
D. Other Production [3]	0.00										10.20	12.34	20.22	10.91
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					539.60	140.72	10.50	12.96	0.01	0.00				
G. Other	31.00		0.23	0.14	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[II] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A).
Sheet 2 of 3.

Sweden 1996.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**166.94**	**13.92**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			151.98											
B. Manure Management			14.95	1.98									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	11.94									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-22 269.05**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-26 100.00												
B. Forest and Grassland Conversion	0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO_2 Emissions and Removals from Soil	[5]3 830.95	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**112.79**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		112.79									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A).
Sheet 3 of 3.

Sweden 1996.
Submission 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**5 536.00**		**0.06**	**0.08**							**23.46**	**3.20**	**0.44**	**21.89**
Aviation	1 940.00		0.06	NE							3.96	0.50	0.44	0.29
Marine	3 596.00		NE	0.08							19.50	2.70	NE	21.60
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**17 712.58**													

[7]Memo Items are not included in the national totals.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1997.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	**57 087.50**	**-27 287.61**	**310.80**	***22.82***	**849.88**	**239.22**	**12.50**	**315.91**	**0.01**	**0.01**	**291.92**	**883.22**	**442.40**	**65.62**
1. Energy	**52 374.93**		**32.51**	**6.13**							**279.10**	**867.56**	**317.48**	**42.00**
A. Fuel Combustion Reference Approach[2]	53 637.27													
Sectoral Approach[2]	52 114.39		32.51	6.13							278.96	867.51	302.67	41.24
1. Energy Industries	11 491.43		2.42	1.54							14.93	13.69	14.41	14.28
2. Manufacturing Industries and Construction	12 996.78		2.46	1.84							54.89	24.20	10.92	20.13
3. Transport	18 966.37		17.29	1.77							173.91	686.41	143.63	1.68
4. Other Sectors	8 617.39		10.34	0.98							35.24	143.21	133.72	5.15
5. Other	42.41		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	260.54		0.00	0.00							0.14	0.05	14.81	0.76
1. Solid Fuels	233.60		0.00	0.00							0.07	0.02	0.00	0.16
2. Oil and Natural Gas	26.94		NE	NE							0.06	0.03	14.80	0.60
2. Industrial Processes	**4 601.77**		**0.25**	***2.37***	**849.88**	**239.22**	**12.50**	**315.91**	**0.01**	**0.01**	**12.83**	**15.66**	**27.33**	**23.62**
A. Mineral Products	1 642.20		NE	0.05							0.04	0.00	0.28	4.86
B. Chemical Industry	NE		0.00	2.17	NO	NO	NO	NO	NO	NO	1.22	NE	5.39	4.55
C. Metal Production	2 897.57		NE	NE				301.94		0.00	0.90	2.56	0.13	3.56
D. Other Production[3]	31.00										10.67	13.10	21.53	10.64
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					849.88	239.22	12.50	13.97	0.01	0.00				
G. Other	31.00		0.25	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[II] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1997.**
Sheet 2 of 3. **Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**166.83**	**14.32**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			152.26											
B. Manure Management			14.57	2.07									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	12.25									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other					NO		NO				NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-27 287.61**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-31 100.00												
B. Forest and Grassland Conversion	0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO_2 Emissions and Removals from Soil	[5]3 812.39	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**111.21**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		111.21									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other		NE	NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[4] According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5] Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6] Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). Sheet 3 of 3. **Sweden 1997. Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**6 147.00**		**0.09**	**0.10**							**56.21**	**5.98**	**0.66**	**22.12**
Aviation	1 929.00		0.09	NE							7.31	3.28	0.66	0.52
Marine	4 218.00		NE	0.10							48.90	2.70	NE	21.60
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**16 264.40**													

[7]*Memo Items are not included in the national totals.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1998.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	**58 142.10**	**-24 330.90**	**303.59**	***23.66***	**1 522.27**	**303.19**	**10.72**	**305.68**	**0.02**	**0.00**	**277.56**	**956.92**	**434.17**	**65.47**
1. Energy	**53 608.18**		**31.47**	**6.74**							**265.48**	**941.46**	**309.63**	**42.89**
A. Fuel Combustion Reference Approach[2]	52 149.43													
Sectoral Approach[2]	53 311.25		31.47	6.73							265.33	941.40	295.11	42.04
1. Energy Industries	12 671.11		2.56	1.67							16.17	14.60	14.56	15.91
2. Manufacturing Industries and Construction	12 659.82		2.55	2.11							55.38	32.68	12.52	19.77
3. Transport	19 481.27		16.24	1.71							156.78	738.79	136.14	1.56
4. Other Sectors	8 469.58		10.12	1.24							37.00	155.34	131.89	4.80
5. Other	29.47		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	296.92		0.00	0.01							0.15	0.05	14.53	0.85
1. Solid Fuels	277.95		0.00	0.01							0.09	0.03	0.01	0.15
2. Oil and Natural Gas	18.97		NE	NE							0.07	0.02	14.52	0.70
2. Industrial Processes	**4 423.14**		**0.34**	***2.64***	**1 522.27**	**303.19**	**10.72**	**305.68**	**0.02**	**0.00**	**12.08**	**15.46**	**26.95**	**22.58**
A. Mineral Products	1 645.35		NE	*0.05*							0.05	0.00	0.20	6.38
B. Chemical Industry	NE		0.00	2.44	NO	NO	NO	NO	NO	NO	1.24	NE	5.28	4.33
C. Metal Production	2 746.79		NE	NE				292.46		0.00	0.94	2.53	0.10	3.36
D. Other Production[3]	0.00										9.85	12.94	21.37	8.51
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					1 522.27	303.19	10.72	13.22	0.02	0.00				
G. Other	31.00		0.33	0.15	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[II] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

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Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1998.**
Sheet 2 of 3. **Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**163.03**	**14.28**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			148.58											
B. Manure Management			14.46	2.03									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	12.25									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-24 330.90**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-28 100.00												
B. Forest and Grassland Conversion	0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO_2 Emissions and Removals from Soil	[5]3 769.10	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**108.75**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		108.75									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). Sheet 3 of 3. **Sweden 1998. Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**6 958.00**		**0.09**	**0.37**							**40.40**	**15.89**	**0.68**	**17.10**
Aviation	2 103.00		0.09	NE							6.70	4.75	0.68	0.50
Marine	4 855.00		NE	0.37							33.70	11.14	NE	16.60
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**16 603.52**													

[7]Memo Items are not included in the national totals.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). **Sweden 1999.**
Sheet 1 of 3. **Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Total National Emissions and Removals	**56 458.18**	**-24 305.31**	**293.93**	***22.94***	**1 282.15**	**375.34**	**14.29**	**329.16**	**0.02**	**0.00**	**267.24**	**910.64**	**430.84**	**53.72**
1. Energy	**52 022.40**		**30.18**	**6.68**							**255.68**	**895.32**	**306.08**	**37.71**
A. Fuel Combustion Reference Approach[2]	53 520.28													
Sectoral Approach[2]	51 722.44		30.18	6.67							255.53	895.26	291.62	36.91
1. Energy Industries	11 129.40		2.62	1.56							13.86	14.52	16.99	12.37
2. Manufacturing Industries and Construction	11 990.87		2.40	2.04							52.70	31.82	12.19	18.06
3. Transport	19 886.05		14.44	1.84							151.58	603.91	107.95	1.54
4. Other Sectors	8 691.60		10.71	1.24							37.39	245.00	154.50	4.93
5. Other	24.53		IE	IE							IE	IE	IE	IE
B. Fugitive Emissions from Fuels	299.96		0.00	0.01							0.15	0.06	14.46	0.80
1. Solid Fuels	299.96		0.00	0.01							0.09	0.03	0.01	0.16
2. Oil and Natural Gas	NO		NE	NE							0.06	0.03	14.45	0.64
2. Industrial Processes	**4 324.99**		**0.41**	***2.66***	**1 282.15**	**375.34**	**14.29**	**329.16**	**0.02**	**0.00**	**11.56**	**15.32**	**27.17**	**16.01**
A. Mineral Products	1 589.77		NE	*0.07*							0.05	0.00	0.19	0.55
B. Chemical Industry	NE		0.00	2.44	NO	NO	NO	NO	NO	NO	0.56	NE	5.34	4.04
C. Metal Production	2 704.22		NE	NE				321.58		0.00	0.84	2.46	0.11	3.28
D. Other Production[3]	0.00										10.11	12.86	21.54	8.15
E. Production of Halocarbons and SF_6						NO		NO		NO				
F. Consumption of Halocarbons and SF_6					1 282.15	375.34	14.29	7.59	0.02	0.00				
G. Other	31.00		0.41	*0.15*	NO	NO	NO	NO	NO	NO	NE	NE	NE	NE

P=Potential emissions based on Tier 1 approach of the IPCC Guidelines.
A=Actual emissions based on Tier 2 approach of the IPCC Guidelines.
[1]The emissions of HFCs and PFCs are to be expressed as CO_2 equivalent emissions. Data on disaggregated emissions of HFCs and PFCs are to be provided in Table 2[III] of this common reporting format.
[2]For verification purposes, countries are asked to report the results of their calculations using the Reference approach and to explain any differences with the Sectoral approach. Where possible, the calculations using the Sectoral approach should be used for estimating national totals. Do not include the results of both the Reference approach and the Sectoral approach in national totals.
[3]Other Production includes Pulp and Paper and Food and Drink Production.

Note: *The numbering of footnotes to all tables containing more than one sheet continue to the next sheet. Common footnotes are given only once at the first point of reference.*

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). Sheet 2 of 3. **Sweden 1999. Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions (Gg)	CO_2 removals (Gg)	CH_4 (Gg)	N_2O (Gg)	HFCs[1] P (Gg CO_2 eq.)	HFCs[1] A (Gg CO_2 eq.)	PFCs[1] P (Gg CO_2 eq.)	PFCs[1] A (Gg CO_2 eq.)	SF_6 P (Gg CO_2 eq.)	SF_6 A (Gg CO_2 eq.)	NO_x (Gg)	CO (Gg)	NMVOC (Gg)	SO_2 (Gg)
3. Solvent and Other Product Use	**110.79**			**NE**									**97.59**	
4. Agriculture	**0.00**	**0.00**	**161.08**	**13.60**							**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation			146.82											
B. Manure Management			14.25	1.94									IE	
C. Rice Cultivation			NO										NO	
D. Agricultural Soils	[4]	[4]	IE	11.66									IE	
E. Prescribed Burning of Savannas			NO	NO							0.00	0.00	0.00	
F. Field Burning of Agricultural Residues			NO	NO							NO	NO	NO	
G. Other			NO	NO							NO	NO	NO	
5. Land-Use Change and Forestry	**[5]0.00**	**[5]-24 305.31**	**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks	[5]0.00	[5]-28 100.00												
B. Forest and Grassland Conversion	[5]0.00		0.00	0.00							0.00	0.00		
C. Abandonment of Managed Lands	[5]0.00	[5]0.00												
D. CO_2 Emissions and Removals from Soil	[5]3 794.69	[5]0.00												
E. Other	[5]0.00	[5]0.00	0.00	0.00							0.00	0.00		
6. Waste	**0.00**		**102.26**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land	[6]NO		102.26									IE	IE	
B. Wastewater Handling			NE	NE							NE	NE	NE	
C. Waste Incineration	[6]IE		IE	IE							0.00	0.00	0.00	0.00
D. Other	NE		NE	NE							NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[4]According to the IPCC Guidelines (Volume 3. Reference Manual, pp. 4.2, 4.87), CO_2 emissions from agricultural soils are to be included under Land-Use Change and Forestry (LUCF). At the same time, the Summary Report 7A (Volume 1. Reporting Instructions, Tables. 27) allows for reporting CO_2 emissions or removals from agricultural soils, either in the Agriculture sector, under D. Agricultural Soils or in the Land-Use Change and Forestry sector under D. Emissions and Removals from Soil. Parties may choose either way to report emissions or removals from this source in the common reporting format, but the way they have chosen to report should be clearly indicated, by inserting explanatory comments to the corresponding cells of Summary 1.A and Summary 1.B. Double-counting of these emissions or removals should be avoided. Parties should include these emissions or removals consistently in Table 8(a) (Recalculation – Recalculated data) and Table 10 (Emission trends).

[5]Please do not provide an estimate of both CO_2 emissions and CO_2 removals. "Net" emissions (emissions - removals) of CO_2 should be estimated and a single number placed in either the CO_2 emissions or CO_2 removals column, as appropriate. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).

[6]Note that CO_2 from Waste Disposal and Incineration source categories should only be included if it stems from non-biogenic or inorganic waste streams.

Summary 1 A. Summary report for national greenhouse gas inventories (IPCC table 7A). Sheet 3 of 3. **Sweden 1999. Submission 2001.**

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	CH_4	N_2O	HFCs[1] P	HFCs[1] A	PFCs[1] P	PFCs[1] A	SF_6 P	SF_6 A	NO_x	CO	NMVOC	SO_2
	(Gg)				CO_2 equivalent (Gg)						(Gg)			
Memo Items:[7]														
International Bunkers	**6 853.68**		**0.09**	**0.33**							**40.84**	**15.26**	**0.68**	**17.19**
Aviation	2 103.40		0.09	NE							7.14	4.65	0.68	0.59
Marine	4 750.27		NE	0.33							33.70	10.61	NE	16.60
Multilateral Operations	**0.00**		**0.00**	**0.00**							**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass	**16 708.90**													

[7] *Memo Items are not included in the national totals.*

Summary 2. Summary report for CO_2 equivalent emissions. **Sweden 1990. Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 [1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	*35 702.41*	*6 810.37*	*7 167.04*	1.12	440.05	81.26	*50 202.25*
1. Energy	*51 713.43*	*778.66*	*1 777.45*				*54 269.54*
A. Fuel Combustion (Sectoral Approach)	*51 438.74*	*778.61*	*1 775.82*				*53 993.17*
1. Energy Industries	10 170.40	23.03	415.23				10 608.66
2. Manufacturing Industries and Construction	*11 775.66*	*48.48*	*557.22*				*12 381.35*
3. Transport	18 736.19	486.38	451.05				19 673.62
4. Other Sectors	10 672.87	*220.72*	352.32				11 245.91
5. Other	83.63	0.00	0.00				83.63
B. Fugitive Emissions from Fuels	274.69	0.06	1.63				276.37
1. Solid Fuels	252.62	0.06	1.63				254.31
2. Oil and Natural Gas	22.07	0.00	0.00				22.07
2. Industrial Processes	*4 170.15*	4.81	*870.70*	1.12	440.05	81.26	*5 568.09*
A. Mineral Products	1 764.97	0.00	*15.50*				1 780.47
B. Chemical Industry	NE	0.08	813.75	NO	NO	0.00	813.83
C. Metal Production	*2 374.18*	0.00	0.00		440.05	0.00	*2 814.23*
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				1.12	0.00	81.26	82.38
G. Other	31.00	4.73	41.45	0.00	0.00	0.00	77.18
3. Solvent and Other Product Use	110.79		0.00				110.79
4. Agriculture	0.00	3 473.04	4 518.89				7 991.93
A. Enteric Fermentation		3 219.23					3 219.23
B. Manure Management		253.81	727.30				981.11
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 791.59				3 791.59
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	-20 291.96	0.00	0.00				-20 291.96
6. Waste	0.00	2 553.86	0.00				2 553.86
A. Solid Waste Disposal on Land	NO	2 553.86					2 553.86
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Memo Items:							
International Bunkers	3 989.00	0.00	0.00				3 989.00
Aviation	1 826.00	0.00	0.00				1 826.00
Marine	2 163.00	0.00	0.00				2 163.00
Multilateral Operations	0.00	0.00	0.00				0.00
CO_2 Emissions from Biomass	11 360.76						11 360.76

[1]For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2]See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1990.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry	**CO_2 equivalent (Gg)**					
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-24 100.00	-24 100.00			-24 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 808.04	0.00	3 808.04			3 808.04
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 808.04	-24 100.00	-20 291.96	0.00	0.00	-20 291.96
Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]						*70 494.21*
Total CO_2 Equivalent Emissions with Land-Use Change and Forestr[a]						*50 202.25*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions.

Sweden 1991.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2[1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	***27 332.69***	***6 745.07***	***6 942.01***	**2.91**	**427.31**	**82.22**	***41 532.20***
1. Energy	***52 472.05***	***777.24***	***1 760.71***				***55 009.99***
A. Fuel Combustion (Sectoral Approach)	*52 207.04*	*777.19*	*1 759.09*				*54 743.31*
1. Energy Industries	11 280.19	26.66	424.49				11 731.34
2. Manufacturing Industries and Construction	*11 550.30*	*47.16*	*564.98*				*12 162.43*
3. Transport	18 806.68	482.18	420.05				19 708.91
4. Other Sectors	10 486.23	221.18	349.56				11 056.97
5. Other	83.65	0.00	0.00				83.65
B. Fugitive Emissions from Fuels	265.00	0.05	1.62				266.68
1. Solid Fuels	247.45	0.05	1.62				249.12
2. Oil and Natural Gas	17.55	0.00	0.00				17.55
2. Industrial Processes	***4 077.51***	**4.87**	***832.40***	**2.91**	**427.31**	**82.22**	***5 427.21***
A. Mineral Products	1 621.90	0.00	*15.50*				*1 637.40*
B. Chemical Industry	NE	0.08	775.00	NO	NO	0.00	775.08
C. Metal Production	*2 424.61*	0.00	0.00		426.51	0.00	*2 851.12*
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F Consumption of Halocarbons and SF_6				2.91	0.80	82.22	85.92
G. Other	31.00	4.79	41.90	NO	NO	0.00	77.69
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	**0.00**	**3 364.49**	**4 348.90**				**7 713.39**
A. Enteric Fermentation		3 117.87					3 117.87
B. Manure Management		246.61	711.68				958.29
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[s]		0.00	3 637.23				3 637.23
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-29 327.65**	**0.00**	**0.00**				**-29 327.65**
6. Waste	**0.00**	**2 598.47**	**0.00**				**2 598.47**
A. Solid Waste Disposal on Land	NO	2 598.47					2 598.47
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	4 470.00	2.10	0.00				4 472.10
Aviation	1 910.00	2.10	0.00				1 912.10
Marine	2 560.00	0.00	0.00				2 560.00
Multilateral Operations	0.00	0.00	0.00				0.00
CO_2 Emissions from Biomass	**11 759.70**						**11 759.70**

[1] For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2] See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1991.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-33 100.00	-33 100.00			-33 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 772.35	0.00	3 772.35			3 772.35
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 772.35	-33 100.00	-29 327.65	0.00	0.00	-29 327.65
			Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]			*70 859.85*
			Total CO_2 Equivalent Emissions with Land-Use Change and Forestry[a]			*41 532.20*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions.

Sweden 1992.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2[1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	***31 604.58***	**6 877.99**	***6 785.08***	**4.49**	**413.77**	**81.74**	***45 767.64***
1. Energy	**50 648.76**	**756.03**	**1 715.65**				**53 120.43**
A. Fuel Combustion (Sectoral Approach)	50 434.21	755.98	1 714.35				52 904.54
1. Energy Industries	11 319.44	26.31	429.57				11 775.32
2. Manufacturing Industries and Construction	10 260.70	54.48	521.08				10 836.26
3. Transport	19 031.50	454.67	429.35				19 915.52
4. Other Sectors	9 738.94	220.52	334.35				10 293.80
5. Other	83.63	0.00	0.00				83.63
B. Fugitive Emissions from Fuels	214.56	0.04	1.30				215.90
1. Solid Fuels	194.40	0.04	1.30				195.74
2. Oil and Natural Gas	20.15	0.00	0.00				20.15
2. Industrial Processes	***4 198.10***	**4.86**	***832.32***	**4.49**	**413.77**	**81.74**	***5 535.28***
A. Mineral Products	1 521.51	0.00	*15.50*				*1 537.01*
B. Chemical Industry	NE	0.08	775.00	NO	NO	0.00	775.08
C. Metal Production	*2 645.60*	0.00	0.00		412.97	0.00	*3 058.57*
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				4.49	0.80	81.74	87.02
G. Other	31.00	4.78	41.82	NO	NO	0.00	77.60
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	0.00	3 510.57	4 237.11				7 747.68
A. Enteric Fermentation		3 236.40					3 236.40
B. Manure Management		274.17	693.05				967.22
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 544.06				3 544.06
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-23 353.08**	**0.00**	**0.00**				**-23 353.08**
6. Waste	0.00	2 606.53	0.00				2 606.53
A. Solid Waste Disposal on Land	NO	2 606.53					2 606.53
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	5 053.00	1.05	0.00				5 054.05
Aviation	2 133.00	1.05	0.00				2 134.05
Marine	2 920.00	0.00	0.00				2 920.00
Multilateral Operations	**0.00**	**0.00**	**0.00**				**0.00**
CO_2 Emissions from Biomass	**12 716.44**						**12 716.44**

[1] For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2] See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1992.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-27 100.00	-27 100.00			-27 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 746.92	0.00	3 746.92			3 746.92
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 746.92	-27 100.00	-23 353.08	0.00	0.00	-23 353.08
	Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]					*69 120.71*
	Total CO_2 Equivalent Emissions with Land-Use Change and Forestry[a]					*45 767.64*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions.

Sweden 1993.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2[1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	**25 546.71**	**6 828.89**	***6 952.75***	**17.06**	**402.13**	**88.43**	***39 835.97***
1. Energy	**50 533.12**	**749.15**	**1 759.49**				**53 041.76**
A. Fuel Combustion (Sectoral Approach)	50 280.80	749.10	1 757.99				52 787.89
1. Energy Industries	10 829.43	33.14	424.89				11 287.46
2. Manufacturing Industries and Construction	11 417.93	53.47	548.10				12 019.50
3. Transport	18 236.67	439.97	451.05				19 127.69
4. Other Sectors	9 712.87	222.51	333.95				10 269.34
5. Other	83.90	0.00	0.00				83.90
B. Fugitive Emissions from Fuels	252.32	0.05	1.50				253.87
1. Solid Fuels	235.38	0.05	1.50				236.93
2. Oil and Natural Gas	16.94	0.00	0.00				16.94
2. Industrial Processes	**4 234.90**	**5.00**	***833.58***	**17.06**	**402.13**	**88.43**	***5 581.09***
A. Mineral Products	1 536.79	0.00	*15.50*				*1 552.29*
B. Chemical Industry	NE	0.08	775.00	0.00	0.00	0.00	775.08
C. Metal Production	2 667.11	0.00	0.00		399.43	17.93	3 084.46
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				17.06	2.70	70.51	90.26
G. Other	31.00	4.91	43.08	NO	NO	0.00	78.99
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	**0.00**	**3 559.50**	**4 359.69**				**7 919.19**
A. Enteric Fermentation		3 264.04					3 264.04
B. Manure Management		295.46	664.18				959.63
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 695.51				3 695.51
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-29 332.10**	**0.00**	**0.00**				**-29 332.10**
6. Waste	**0.00**	**2 515.24**	**0.00**				**2 515.24**
A. Solid Waste Disposal on Land	NO	2 515.24					2 515.24
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	**4 752.00**	**1.05**	**0.00**				**4 753.05**
Aviation	1 820.00	1.05	0.00				1 821.05
Marine	2 932.00	0.00	0.00				2 932.00
Multilateral Operations	**0.00**	**0.00**	**0.00**				**0.00**
CO_2 Emissions from Biomass	**13 577.18**						**13 577.18**

[1]For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2]See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1993.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-33 100.00	-33 100.00			-33 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 767.90	0.00	3 767.90			3 767.90
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 767.90	-33 100.00	-29 332.10	0.00	0.00	-29 332.10
Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]						*69 168.06*
Total CO_2 Equivalent Emissions with Land-Use Change and Forestry[a]						*39 835.97*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions.

Sweden 1994.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2[1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	**32 927.47**	**6 724.15**	***7 117.73***	**46.86**	**389.74**	**96.80**	***47 302.74***
1. Energy	**54 738.64**	**735.91**	**1 934.76**				**57 409.31**
A. Fuel Combustion (Sectoral Approach)	54 359.72	735.83	1 932.41				57 027.96
1. Energy Industries	13 119.17	39.21	497.41				13 655.79
2. Manufacturing Industries and Construction	12 861.03	58.09	610.96				13 530.08
3. Transport	18 561.03	428.86	473.68				19 463.57
4. Other Sectors	9 736.25	209.67	350.36				10 296.27
5. Other	82.25	0.00	0.00				82.25
B. Fugitive Emissions from Fuels	378.92	0.08	2.35				381.35
1. Solid Fuels	367.85	0.08	2.35				370.28
2. Oil and Natural Gas	11.06	0.00	0.00				11.06
2. Industrial Processes	**4 383.38**	**4.64**	***762.75***	**46.86**	**389.74**	**96.80**	***5 684.17***
A. Mineral Products	1 628.56	0.00	*15.50*				*1 644.06*
B. Chemical Industry	NE	0.08	705.25	NO	NO	0.00	705.33
C. Metal Production	2 723.82	0.00	0.00		385.89	26.29	3 136.00
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				46.86	3.85	70.51	121.21
G. Other	31.00	4.56	42.00	NO	NO	0.00	77.56
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	**0.00**	**3 578.07**	**4 420.22**				**7 998.28**
A. Enteric Fermentation		3 259.06					3 259.06
B. Manure Management		319.01	669.53				988.54
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 750.68				3 750.68
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-26 305.35**	**0.00**	**0.00**				**-26 305.35**
6. Waste	**0.00**	**2 405.54**	**0.00**				**2 405.54**
A. Solid Waste Disposal on Land	NO	2 405.54					2 405.54
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	**5 263.00**	**1.47**	**0.00**				**5 264.47**
Aviation	**1 811.00**	**1.47**	**0.00**				**1 812.47**
Marine	3 452.00	0.00	0.00				3 452.00
Multilateral Operations	0.00	0.00	0.00				0.00
CO_2 Emissions from Biomass	**15 099.54**						**15 099.54**

[1]For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2]See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1994.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-30 100.00	-30 100.00			-30 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 794.65	0.00	3 794.65			3 794.65
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 794.65	-30 100.00	-26 305.35	0.00	0.00	-26 305.35
			Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]			*73 608.09*
			Total CO_2 Equivalent Emissions with Land-Use Change and Forestry[a]			*47 302.74*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions. **Sweden 1995. Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 [1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	**37 228.64**	**6 644.30**	***6 892.35***	**93.83**	**389.37**	**114.72**	***51 363.21***
1. Energy	**53 730.65**	**739.14**	**1 838.04**				**56 307.83**
A. Fuel Combustion (Sectoral Approach)	53 389.90	739.07	1 835.89				55 964.87
1. Energy Industries	11 575.80	44.34	472.31				12 092.45
2. Manufacturing Industries and Construction	13 370.06	55.12	574.60				13 999.78
3. Transport	18 992.77	415.82	483.79				19 892.38
4. Other Sectors	9 358.98	223.79	305.20				9 887.96
5. Other	92.30	0.00	0.00				92.30
B. Fugitive Emissions from Fuels	340.74	0.07	2.14				342.96
1. Solid Fuels	329.68	0.07	2.14				331.90
2. Oil and Natural Gas	11.06	0.00	0.00				11.06
2. Industrial Processes	**4 679.91**	**4.91**	***767.66***	**93.83**	**389.37**	**114.72**	***6 050.41***
A. Mineral Products	1 801.46	0.00	*15.50*				*1 816.96*
B. Chemical Industry	NE	0.08	708.35	NO	NO	0.00	708.43
C. Metal Production	2 847.45	0.00	0.00		380.47	19.12	3 247.04
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				93.83	8.90	95.60	198.33
G. Other	31.00	4.83	43.81	NO	NO	0.00	79.64
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	**0.00**	**3 501.15**	**4 286.65**				**7 787.80**
A. Enteric Fermentation		3 187.30					3 187.30
B. Manure Management		313.86	598.15				912.00
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 688.50				3 688.50
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-21 292.70**	**0.00**	**0.00**				**-21 292.70**
6. Waste	**0.00**	**2 399.09**	**0.00**				**2 399.09**
A. Solid Waste Disposal on Land	NO	2 399.09					2 399.09
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	**5 243.00**	**1.37**	**24.80**				**5 269.17**
Aviation	1 849.00	1.37	0.00				1 850.37
Marine	3 394.00	0.00	24.80				3 418.80
Multilateral Operations	**0.00**	**0.00**	**0.00**				**0.00**
CO_2 Emissions from Biomass	**15 889.42**						**15 889.42**

[1]For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2]See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1995.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-25 100.00	-25 100.00			-25 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 807.30	0.00	3 807.30			3 807.30
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 807.30	-25 100.00	-21 292.70	0.00	0.00	-21 292.70
	Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]					*72 655.91*
	Total CO_2 Equivalent Emissions with Land-Use Change and Forestry[a]					*51 363.21*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions.

Sweden 1996.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2[1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	**40 731.88**	**6 632.51**	***7 103.05***	**140.72**	**343.34**	**103.01**	***55 054.50***
1. Energy	**58 107.49**	**753.22**	**2 048.94**				**60 909.65**
A. Fuel Combustion (Sectoral Approach)	57 791.18	753.16	2 047.04				60 591.38
1. Energy Industries	16 669.01	59.73	638.78				17 367.53
2. Manufacturing Industries and Construction	12 783.67	53.78	580.98				13 418.43
3. Transport	18 834.43	410.61	512.31				19 757.35
4. Other Sectors	9 421.92	229.03	314.98				9 965.92
5. Other	82.15	0.00	0.00				82.15
B. Fugitive Emissions from Fuels	316.31	0.06	1.90				318.27
1. Solid Fuels	290.73	0.06	1.90				292.69
2. Oil and Natural Gas	25.58	0.00	0.00				25.58
2. Industrial Processes	**4 782.65**	**4.93**	***739.49***	**140.72**	**343.34**	**103.01**	***6 114.13***
A. Mineral Products	1 709.11	0.00	*15.50*				*1 724.61*
B. Chemical Industry	NE	0.08	679.83	NO	NO	0.00	679.91
C. Metal Production	3 042.54	0.00	0.00		330.38	31.07	3 403.99
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				140.72	12.96	71.94	225.61
G. Other	31.00	4.85	44.16	NO	NO	0.00	80.01
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	**0.00**	**3 505.66**	**4 314.62**				**7 820.28**
A. Enteric Fermentation		3 191.64					3 191.64
B. Manure Management		314.02	613.80				927.82
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 700.83				3 700.83
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-22 269.05**	**0.00**	**0.00**				**-22 269.05**
6. Waste	**0.00**	**2 368.69**	**0.00**				**2 368.69**
A. Solid Waste Disposal on Land	NO	2 368.69					2 368.69
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	**5 536.00**	**1.18**	**24.80**				**5 561.98**
Aviation	1 940.00	1.18	0.00				1 941.18
Marine	3 596.00	0.00	24.80				3 620.80
Multilateral Operations	**0.00**	**0.00**	**0.00**				**0.00**
CO_2 Emissions from Biomass	**17 712.58**						**17 712.58**

[1]For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2]See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1996.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-26 100.00	-26 100.00			-26 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 830.95	0.00	3 830.95			3 830.95
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 830.95	-26 100.00	-22 269.05	0.00	0.00	-22 269.05
	Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]					*77 323.55*
	Total CO_2 Equivalent Emissions with Land-Use Change and Forestr[a]					*55 054.50*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions. **Sweden 1997. Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 [1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	**29 799.89**	**6 526.75**	***7 074.53***	**239.22**	**315.91**	**146.03**	***44 102.32***
1. Energy	**52 374.93**	**682.70**	**1 900.75**				**54 958.39**
A. Fuel Combustion (Sectoral Approach)	52 114.39	682.65	1 899.22				54 696.26
1. Energy Industries	11 491.43	50.74	475.86				12 018.04
2. Manufacturing Industries and Construction	12 996.78	51.75	570.12				13 618.66
3. Transport	18 966.37	363.03	548.89				19 878.28
4. Other Sectors	8 617.39	217.14	304.35				9 138.88
5. Other	42.41	0.00	0.00				42.41
B. Fugitive Emissions from Fuels	260.54	0.05	1.53				262.12
1. Solid Fuels	233.60	0.05	1.53				235.18
2. Oil and Natural Gas	26.94	0.00	0.00				26.94
2. Industrial Processes	**4 601.77**	**5.24**	***734.69***	**239.22**	**315.91**	**146.03**	***6 042.86***
A. Mineral Products	1 642.20	0.00	*15.50*				*1 657.70*
B. Chemical Industry	NE	0.04	671.46	NO	NO	0.00	671.50
C. Metal Production	2 897.57	0.00	0.00		301.94	40.63	3 240.15
D. Other Production	31.00						31.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				239.22	13.97	105.40	358.58
G. Other	31.00	5.20	47.73	0.00	0.00	0.00	83.93
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	**0.00**	**3 503.42**	**4 439.09**				**7 942.51**
A. Enteric Fermentation		3 197.39					3 197.39
B. Manure Management		306.02	641.59				947.61
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 797.51				3 797.51
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-27 287.61**	**0.00**	**0.00**				**-27 287.61**
6. Waste	**0.00**	**2 335.38**	**0.00**				**2 335.38**
A. Solid Waste Disposal on Land	NO	2 335.38					2 335.38
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	**6 147.00**	**1.79**	**31.00**				**6 179.79**
Aviation	1 929.00	1.79	0.00				1 930.79
Marine	4 218.00	0.00	31.00				4 249.00
Multilateral Operations	**0.00**	**0.00**	**0.00**				**0.00**
CO_2 Emissions from Biomass	**16 264.40**						**16 264.40**

[1]For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2]See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1997.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-31 100.00	-31 100.00			-31 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 812.39	0.00	3 812.39			3 812.39
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 812.39	-31 100.00	-27 287.61	0.00	0.00	-27 287.61
			Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]			*71 389.93*
			Total CO_2 Equivalent Emissions with Land-Use Change and Forestr[a]			*44 102.32*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions. **Sweden 1998. Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 [1] c	CH_4	N_2O	HFCs	PFCs	SF_6	Total
Total (Net Emissions)[1]	**33 811.20**	**6 375.45**	***7 334.99***	**303.19**	**305.68**	**92.25**	***48 222.77***
1. Energy	**53 608.18**	**660.84**	**2 089.62**				**56 358.64**
A. Fuel Combustion (Sectoral Approach)	53 311.25	660.78	2 087.84				56 059.88
1. Energy Industries	12 671.11	53.80	517.32				13 242.24
2. Manufacturing Industries and Construction	12 659.82	53.61	654.30				13 367.73
3. Transport	19 481.27	340.94	530.68				20 352.88
4. Other Sectors	8 469.58	212.43	385.55				9 067.56
5. Other	29.47	0.00	0.00				29.47
B. Fugitive Emissions from Fuels	296.92	0.06	1.78				298.76
1. Solid Fuels	277.95	0.06	1.78				279.79
2. Oil and Natural Gas	18.97	0.00	0.00				18.97
2. Industrial Processes	**4 423.14**	**7.07**	***817.66***	**303.19**	**305.68**	**92.25**	***5 948.99***
A. Mineral Products	1 645.35	0.00	*15.19*				*1 660.54*
B. Chemical Industry	NE	0.04	756.40	NO	NO	0.00	756.44
C. Metal Production	2 746.79	0.00	0.00		292.46	31.07	3 070.32
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				303.19	13.22	61.18	377.59
G. Other	31.00	7.03	46.07	NO	NO	0.00	84.10
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	**0.00**	**3 423.72**	**4 427.72**				**7 851.44**
A. Enteric Fermentation		3 120.10					3 120.10
B. Manure Management		303.62	629.01				932.64
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 798.70				3 798.70
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-24 330.90**	**0.00**	**0.00**				**-24 330.90**
6. Waste	**0.00**	**2 283.81**	**0.00**				**2 283.81**
A. Solid Waste Disposal on Land	NO	2 283.81					2 283.81
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	**6 958.00**	**1.83**	**115.63**				**7 075.46**
Aviation	2 103.00	1.83	0.00				2 104.83
Marine	4 855.00	0.00	115.63				4 970.63
Multilateral Operations	**0.00**	**0.00**	**0.00**				**0.00**
CO_2 Emissions from Biomass	**16 603.52**						**16 603.52**

[1]For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2]See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1998.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-28 100.00	-28 100.00			-28 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 769.10	0.00	3 769.10			3 769.10
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 769.10	-28 100.00	-24 330.90	0.00	0.00	-24 330.90
	Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]					*72 553.67*
	Total CO_2 Equivalent Emissions with Land-Use Change and Forestr[a]					*48 222.77*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Summary 2. Summary report for CO_2 equivalent emissions. **Sweden 1999. Revised submission. November 2001.**

Greenhouse gas source and sink categories	CO_2 [1]	CH_4	N_2O	HFCs	PFCs	SF_6	Total
				CO_2 equivalent (Gg)			
Total (Net Emissions)[1]	**32 152.87**	**6 172.59**	***7 111.88***	**375.34**	**329.16**	**96.32**	***46 238.17***
1. Energy	**52 022.40**	**633.83**	**2 071.02**				**54 727.25**
A. Fuel Combustion (Sectoral Approach)	51 722.44	633.77	2 069.10				54 425.31
1. Energy Industries	11 129.40	55.12	484.83				11 669.35
2. Manufacturing Industries and Construction	11 990.87	50.49	631.18				12 672.55
3. Transport	19 886.05	303.22	568.85				20 758.12
4. Other Sectors	8 691.60	224.93	384.23				9 300.76
5. Other	24.53	0.00	0.00				24.53
B. Fugitive Emissions from Fuels	299.96	0.07	1.93				301.95
1. Solid Fuels	299.96	0.07	1.93				301.95
2. Oil and Natural Gas	NO	0.00	0.00				0.00
2. Industrial Processes	**4 324.99**	**8.65**	***823.67***	**375.34**	**329.16**	**96.32**	***5 958.14***
A. Mineral Products	1 589.77	0.00	*20.77*				*1 610.54*
B. Chemical Industry	NE	0.04	756.40	NO	NO	0.00	756.44
C. Metal Production	2 704.22	0.00	0.00		321.58	31.07	3 056.86
D. Other Production	0.00						0.00
E. Production of Halocarbons and SF_6				NO	NO	0.00	0.00
F. Consumption of Halocarbons and SF_6				375.34	7.59	65.25	448.18
G. Other	31.00	8.61	*46.50*	NO	NO	0.00	*86.11*
3. Solvent and Other Product Use	**110.79**		**0.00**				**110.79**
4. Agriculture	**0.00**	**3 382.67**	**4 217.19**				**7 599.86**
A. Enteric Fermentation		3 083.32					3 083.32
B. Manure Management		299.35	601.85				901.20
C. Rice Cultivation		0.00					0.00
D. Agricultural Soils[2]		0.00	3 615.34				3 615.34
E. Prescribed Burning of Savannas		0.00	0.00				0.00
F. Field Burning of Agricultural Residues		0.00	0.00				0.00
G. Other		0.00	0.00				0.00
5. Land-Use Change and Forestry[1]	**-24 305.31**	**0.00**	**0.00**				**-24 305.31**
6. Waste	**0.00**	**2 147.43**	**0.00**				**2 147.43**
A. Solid Waste Disposal on Land	NO	2 147.43					2 147.43
B. Wastewater Handling		0.00	0.00				0.00
C. Waste Incineration	IE	0.00	0.00				0.00
D. Other	NE	0.00	0.00				0.00
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:							
International Bunkers	**6 853.68**	**1.83**	**102.30**				**6 957.80**
Aviation	2 103.40	1.83	0.00				2 105.23
Marine	4 750.27	0.00	102.30				4 852.57
Multilateral Operations	**0.00**	**0.00**	**0.00**				**0.00**
CO_2 Emissions from Biomass	**16 708.90**						**16 708.90**

[1]For CO_2 emissions from Land-Use Change and Forestry the net emissions are to be reported. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+). [2]See footnote 4 to Summary 1.A of this common reporting format.

Summary 2. Summary report for CO_2 equivalent emissions – continued.

Sweden 1999.
Revised submission. November 2001.

Greenhouse gas source and sink categories	CO_2 emissions	CO_2 removals	Net CO_2 emissions/ removals	CH_4	N_2O	Total emissions
Land-Use Change and Forestry			**CO_2 equivalent (Gg)**			
A. Changes in Forest and Other Woody Biomass Stocks	0.00	-28 100.00	-28 100.00			-28 100.00
B. Forest and Grassland Conversion	0.00		0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands	0.00	0.00	0.00			0.00
D. CO_2 Emissions and Removals from Soil	3 794.69	0.00	3 794.69			3 794.69
E. Other	0.00	0.00	0.00	0.00	0.00	0.00
Total CO_2 Equivalent Emissions from Land-Use Change and Forestry	3 794.69	-28 100.00	-24 305.31	0.00	0.00	-24 305.31
			Total CO_2 Equivalent Emissions without Land-Use Change and Forestry[a]			*70 543.48*
			Total CO_2 Equivalent Emissions with Land-Use Change and Forestr[a]			*46 238.17*

[a] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report emissions and removals from Land-Use Change and Forestry.*

Next page:
[1] *Fill in the base year adopted by the Party under the Convention, if different from 1990.*
[2] *See footnote 4 to Summary 1.A of this common reporting format.*
[3] *Take the net emissions as reported in Summary 1.A of this common reporting format. Please note that for the purposes of reporting, the signs for uptake are always (-) and for emissions (+).*
[4] *The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report CO_2 emissions and removals from Land-Use Change and Forestry.*

Table 10. Emissions trends (CO_2). Sweden 1999.
Sheet 1 of 5. *See footnote on previous page.* Revised submission. November 2001.

Greenhouse gas source and sink categories	Base year(1)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
						(Gg)					
1. Energy	**0.00**	***51 713.43***	***52 472.05***	**50 648.76**	**50 533.12**	**54 738.64**	**53 730.65**	**58 107.49**	**52 374.93**	**53 608.18**	**52 022.40**
A. Fuel Combustion (Sectoral Approach)	0.00	*51 438.74*	*52 207.04*	50 434.21	50 280.80	54 359.72	53 389.90	57 791.18	52 114.39	53 311.25	51 722.44
1. Energy Industries		10 170.40	11 280.19	11 319.44	10 829.43	13 119.17	11 575.80	16 669.01	11 491.43	12 671.11	11 129.40
2. Manufacturing Industries and Construction		*11 775.66*	*11 550.30*	10 260.70	11 417.93	12 861.03	13 370.06	12 783.67	12 996.78	12 659.82	11 990.87
3. Transport		18 736.19	18 806.68	19 031.50	18 236.67	18 561.03	18 992.77	18 834.43	18 966.37	19 481.27	19 886.05
4. Other Sectors		10 672.87	10 486.23	9 738.94	9 712.87	9 736.25	9 358.98	9 421.92	8 617.39	8 469.58	8 691.60
5. Other		83.63	83.65	83.63	83.90	82.25	92.30	82.15	42.41	29.47	24.53
B. Fugitive Emissions from Fuels	0.00	274.69	265.00	214.56	252.32	378.92	340.74	316.31	260.54	296.92	299.96
1. Solid Fuels		252.62	247.45	194.40	235.38	367.85	329.68	290.73	233.60	277.95	299.96
2. Oil and Natural Gas		22.07	17.55	20.15	16.94	11.06	11.06	25.58	26.94	18.97	NO
2. Industrial Processes	**0.00**	***4 170.15***	***4 077.51***	***4 198.10***	**4 234.90**	**4 383.38**	**4 679.91**	**4 782.65**	**4 601.77**	**4 423.14**	**4 324.99**
A. Mineral Products		1 764.97	1 621.90	1 521.51	1 536.79	1 628.56	1 801.46	1 709.11	1 642.20	1 645.35	1 589.77
B. Chemical Industry		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C. Metal Production		*2 374.18*	*2 424.61*	*2 645.60*	2 667.11	2 723.82	2 847.45	3 042.54	2 897.57	2 746.79	2 704.22
D. Other Production		0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.00	0.00	0.00
E. Production of Halocarbons and SF_6											
F. Consumption of Halocarbons and SF_6											
G. Other		31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00	31.00
3. Solvent and Other Product Use		**110.79**	**110.79**	**110.79**	**110.79**	**110.79**	**110.79**	**110.79**	**110.79**	**110.79**	**110.79**
4. Agriculture	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
A. Enteric Fermentation											
B. Manure Management											
C. Rice Cultivation											
D. Agricultural Soils(2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E. Prescribed Burning of Savannas											
F. Field Burning of Agricultural Residues											
G. Other											
5. Land-Use Change and Forestry(1)	**0.00**	**-20 291.96**	**-29 327.65**	**-23 353.08**	**-29 332.10**	**-26 305.35**	**-21 292.70**	**-22 269.05**	**-27 287.61**	**-24 330.90**	**-24 305.31**
A. Changes in Forest and Other Woody Biomass Stocks		-24 100.00	-33 100.00	-27 100.00	-33 100.00	-30 100.00	-25 100.00	-26 100.00	-31 100.00	-28 100.00	-28 100.00
B. Forest and Grassland Conversion									0.00	0.00	0.00
C. Abandonment of Managed Lands									0.00	0.00	0.00
D. CO_2 Emissions and Removals from Soil		3 808.04	3 772.35	3 746.92	3 767.90	3 794.65	3 807.30	3 830.95	3 812.39	3 769.10	3 794.69
E. Other									0.00	0.00	0.00
6. Waste	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
B. Wastewater Handling											
C. Waste Incineration		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total Emissions/Removals with LUCF(4)	**0.00**	***35 702.41***	***27 332.69***	***31 604.58***	**25 546.71**	**32 927.47**	**37 228.65**	**40 731.88**	**29 799.89**	**33 811.20**	**32 152.87**
Total Emissions without LUCF(4)	**0.00**	***55 994.37***	***56 660.34***	***54 957.66***	**54 878.81**	**59 232.82**	**58 521.35**	**63 000.93**	**57 087.50**	**58 142.10**	**56 458.18**
Memo Items:											
International Bunkers	**0.00**	**3 989.00**	**4 470.00**	**5 053.00**	**4 752.00**	**5 263.00**	**5 243.00**	**5 536.00**	**6 147.00**	**6 958.00**	**6 853.68**
Aviation		1 826.00	1 910.00	2 133.00	1 820.00	1 811.00	1 849.00	1 940.00	1 929.00	2 103.00	2 103.40
Marine		2 163.00	2 560.00	2 920.00	2 932.00	3 452.00	3 394.00	3 596.00	4 218.00	4 855.00	4 750.27
Multilateral Operations		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Table 10. Emissions trends (CH_4).
Sheet 2 of 5.

Sweden 1999.
Revised submission. November 2001.

Greenhouse gas source and sink categories	Base year(1)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
						(Gg)					
Total Emissions	**0.00**	***324.30***	***321.19***	**327.52**	**325.19**	**320.20**	**316.40**	**315.83**	**310.80**	**303.59**	**293.93**
1. Energy	**0.00**	***37.08***	**37.01**	**36.00**	**35.67**	**35.04**	**35.20**	**35.87**	**32.51**	**31.47**	**30.18**
A. Fuel Combustion (Sectoral Approach)	0.00	*37.08*	37.01	36.00	35.67	35.04	35.19	35.86	32.51	31.47	30.18
1. Energy Industries		1.10	1.27	1.25	1.58	1.87	2.11	2.84	2.42	2.56	2.62
2. Manufacturing Industries and Construction		*2.31*	*2.25*	2.59	2.55	2.77	2.62	2.56	2.46	2.55	2.40
3. Transport		23.16	22.96	21.65	20.95	20.42	19.80	19.55	17.29	16.24	14.44
4. Other Sectors		10.51	10.53	10.50	10.60	9.98	10.66	10.91	10.34	10.12	10.71
5. Other		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
B. Fugitive Emissions from Fuels	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1. Solid Fuels		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2. Oil and Natural Gas		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Industrial Processes	**0.00**	**0.23**	**0.23**	**0.23**	**0.24**	**0.22**	**0.23**	**0.23**	**0.25**	**0.34**	**0.41**
A. Mineral Products		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
B. Chemical Industry		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C. Metal Production		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
D. Other Production											
E. Production of Halocarbons and SF_6											
F. Consumption of Halocarbons and SF_6											
G. Other		0.23	0.23	0.23	0.23	0.22	0.23	0.23	0.25	0.33	0.41
3. Solvent and Other Product Use											
4. Agriculture	**0.00**	**165.38**	**160.21**	**167.17**	**169.50**	**170.38**	**166.72**	**166.94**	**166.83**	**163.03**	**161.08**
A. Enteric Fermentation		153.30	148.47	154.11	155.43	155.19	151.78	151.98	152.26	148.58	146.82
B. Manure Management		12.09	11.74	13.06	14.07	15.19	14.95	14.95	14.57	14.46	14.25
C. Rice Cultivation		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
D. Agricultural Soils(2)		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
E. Prescribed Burning of Savannas		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agricultural Residues		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Land-Use Change and Forestry(1)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks											
B. Forest and Grassland Conversion											
C. Abandonment of Managed Lands											
D. CO_2 Emissions and Removals from Soil											
E. Other											
6. Waste	**0.00**	**121.61**	**123.74**	**124.12**	**119.77**	**114.55**	**114.24**	**112.79**	**111.21**	**108.75**	**102.26**
A. Solid Waste Disposal on Land		121.61	123.74	124.12	119.77	114.55	114.24	112.79	111.21	108.75	102.26
B. Wastewater Handling		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C. Waste Incineration		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:											
International Bunkers	**0.00**	**0.00**	**0.10**	**0.05**	**0.05**	**0.07**	**0.07**	**0.06**	**0.09**	**0.09**	**0.09**
Aviation		0.00	0.10	0.05	0.05	0.07	0.07	0.06	0.09	0.09	0.09
Marine		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Multilateral Operaations		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO_2 Emissions from Biomass											

Table 10. Emissions trends (N_2O).
Sheet 3 of 5.

Sweden 1999.
Revised submission. November 2001.

Greenhouse gas source and sink categories	Base year(1)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
						(Gg)					
Total Emissions	**0.00**	***23.12***	***22.39***	***21.89***	***22.43***	***22.96***	***22.23***	***22.91***	***22.82***	***23.66***	***22.94***
1. Energy	**0.00**	***5.73***	**5.68**	**5.53**	**5.68**	**6.24**	**5.93**	**6.61**	**6.13**	**6.74**	**6.68**
A. Fuel Combustion (Sectoral Approach)	0.00	*5.73*	5.67	5.53	5.67	6.23	5.92	6.60	6.13	6.73	6.67
1. Energy Industries		1.34	1.37	1.39	1.37	1.60	1.52	2.06	1.54	1.67	1.56
2. Manufacturing Industries and Construction		1.80	1.82	1.68	1.77	1.97	1.85	1.87	1.84	2.11	2.04
3. Transport		1.46	1.36	1.39	1.46	1.53	1.56	1.65	1.77	1.71	1.84
4. Other Sectors		1.14	1.13	1.08	1.08	1.13	0.98	1.02	0.98	1.24	1.24
5. Other		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
B. Fugitive Emissions from Fuels	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.01
1. Solid Fuels		0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.01	0.01
2. Oil and Natural Gas		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
2. Industrial Processes	**0.00**	***2.81***	***2.69***	***2.68***	***2.69***	***2.46***	***2.48***	***2.39***	***2.37***	***2.64***	***2.66***
A. Mineral Products		*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.07*
B. Chemical Industry		2.63	2.50	2.50	2.50	2.28	2.29	2.19	2.17	2.44	2.44
C. Metal Production		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
D. Other Production											
E. Production of Halocarbons and SF_6											
F. Consumption of Halocarbons and SF_6											
G. Other		0.13	0.14	0.13	0.14	0.14	0.14	0.14	0.15	0.15	*0.15*
3. Solvent and Other Product Use		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
4. Agriculture	**0.00**	**14.58**	**14.03**	**13.67**	**14.06**	**14.26**	**13.83**	**13.92**	**14.32**	**14.28**	**13.60**
A. Enteric Fermentation											
B. Manure Management		2.346	2.296	2.236	2.143	2.160	1.930	1.98	2.07	2.03	1.94
C. Rice Cultivation											
D. Agricultural Soils[2]		12.231	11.733	11.432	11.921	12.099	11.898	11.94	12.25	12.3	11.66
E. Prescribed Burning of Savannas		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
F. Field Burning of Agricultural Residues		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
G. Other		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
5. Land-Use Change and Forestry[1]	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
A. Changes in Forest and Other Woody Biomass Stocks											
B. Forest and Grassland Conversion		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C. Abandonment of Managed Lands											
D. CO_2 Emissions and Removals from Soil											
E. Other		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6. Waste	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
A. Solid Waste Disposal on Land											
B. Wastewater Handling		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
C. Waste Incineration		IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
D. Other		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
7. Other (please specify)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Memo Items:											
International Bunkers	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.08**	**0.10**	**0.37**	**0.33**
Aviation		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Marine		NE	IE	NE	NE	NE	IE	0.08	0.10	0.37	0.33
Multilateral Operations		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
CO_2 Emissions from Biomass											

Table 10. Emission trends (HFCs, PFCs and SF_6). **Sweden 1999.**
Sheet 4 of 5. **Submission 2001.**

Greenhouse gas source and sink categories	Base year(1)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
						(Gg)					
Emissions of HFCs[5]–CO2 equivalent (Gg)	**0.00**	**1.12**	**2.91**	**4.49**	**17.06**	**46.86**	**93.83**	**140.72**	**239.22**	**303.19**	**375.34**
HFC-23		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-32		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-41		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-43-10mee		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-125		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-134		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-134a		0.00	0.00	0.00	0.01	0.03	0.07	0.10	0.16	0.20	0.25
HFC-152a		0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.14	0.14	0.13
HFC-143		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-143a		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-227ea		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-236fa		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HFC-245ca		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions of PFCs[5]–CO_2 equivalent (Gg)	**0.00**	**440.05**	**427.31**	**413.77**	**402.13**	**389.74**	**389.37**	**343.34**	**315.91**	**305.68**	**329.16**
CF_4		0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04
C_2F_6		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
C_3F_8		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_4F_{10}		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-C_4F_8		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_5F_{12}		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C_6F_{14}		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions of SF6[5]–CO_2 equivalent (Gg)	**0.00**	**81.26**	**82.22**	**81.74**	**88.43**	**96.80**	**114.72**	**103.01**	**146.03**	**92.25**	**96.32**
SF_6		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00

[5]Enter information on the actual emissions. Where estimates are only available for the potential emissions, specify this in a comment to the corresponding cell. Only in this row the emissions are expressed as CO2 equivalent emissions in order to facilitate data flow among spreadsheets.

Table 10. Emission trends (Summary). **Sweden 1999.**
Sheet 5 of 5. **Revised submission. November 2001.**

Greenhouse gas emissions	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	CO_2 equivalent (Gg)										
Net CO_2 emissions/removals	0.00	*35 702.41*	*27 332.69*	*31 604.58*	25 546.71	32 927.47	37 228.65	40 731.88	29 799.89	33 811.20	32 152.87
CO_2 emissions (without LUCF)[6]	0.00	*55 994.37*	*56 660.34*	*54 957.66*	54 878.81	59 232.82	58 521.35	63 000.93	57 087.50	58 142.10	56 458.18
CH_4	0.00	*6 810.37*	*6 745.07*	6 877.99	6 828.89	6 724.15	6 644.30	6 632.51	6 526.75	6 375.45	6 172.59
N_2O	0.00	*7 167.04*	*6 942.01*	*6 785.08*	*6 952.75*	*7 117.73*	*6 892.35*	*7 103.05*	*7 074.53*	*7 334.99*	*7 111.88*
HFCs	0.00	1.12	2.91	4.49	17.06	46.86	93.83	140.72	239.22	303.19	375.34
PFCs	0.00	440.05	427.31	413.77	402.13	389.74	389.37	343.34	315.91	305.68	329.16
SF_6	0.00	81.26	82.22	81.74	88.43	96.80	114.72	103.01	146.03	92.25	96.32
Total (with net CO_2 emissions/removals)	**0.00**	***50 202.25***	***41 532.20***	***45 767.63***	***39 835.96***	***47 302.74***	***51 363.21***	***55 054.50***	***44 102.32***	***48 222.77***	***46 238.17***
Total (without CO_2 from LUCF)[6]	**0.00**	***70 494.21***	***70 859.85***	***69 120.71***	***69 168.06***	***73 608.09***	***72 655.91***	***77 323.55***	***71 389.93***	***72 553.67***	***70 543.48***

Table 10. Emission trends (Summary). **Sweden 1999.**
Sheet 5 of 5. **Revised submission. November 2001.**

Greenhouse gas source and sink Categories	Base year[1]	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	CO_2 equivalent (Gg)										
1. Energy	0.00	*54 269.54*	*55 009.99*	53 120.43	53 041.76	57 409.31	56 307.83	60 909.65	54 958.39	56 358.64	54 727.25
2. Industrial Processes	0.00	*5 568.09*	*5 427.21*	*5 535.28*	*5 581.09*	*5 684.17*	*6 050.41*	*6 114.13*	*6 042.86*	*5 948.99*	*5 958.14*
3. Solvent and Other Product Use	0.00	110.79	110.79	110.79	110.79	110.79	110.79	110.79	110.79	110.79	110.79
4. Agriculture	0.00	7 991.93	7 713.39	7 747.68	7 919.19	7 998.28	7 787.80	7 820.28	7 942.51	7 851.44	7 599.86
5. Land-Use Change and Forestry[7]	0.00	-20 291.96	-29 327.65	-23 353.08	-29 332.10	-26 305.35	-21 292.70	-22 269.05	-27 287.61	-24 330.90	-24 305.31
6. Waste	0.00	2 553.86	2 598.47	2 606.53	2 515.24	2 405.54	2 399.09	2 368.69	2 335.38	2 283.81	2 147.43
7. Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[6]*The information in these rows is requested to facilitate comparison of data, since Parties differ in the way they report CO2 emissions and removals from Land-Use Change and Forestry.*
[7]*Net emissions.*

Appendix 2

Acronyms and abbreviations, in alphabetical order

ACEA	Association des Constructions Européene d'Automobiles
AFREPREN	African Energy Policy Network
AIJ	Activities Implemented Jointly
ARRPEEC	Asian Regional Research Programme in Energy/Environment and Climate
CEC	Commission of the European Community
CFC	chlorofluorocarbons
CGIAR	Consultative Group for International Agricultural Research
CH_4	methane
CHP	Combined heating and power
CO_2	carbon dioxide
CSE	Centre for Science and Environment
DESS	The Energy Supply Committee of Southern Sweden
E	Economic instruments
EEPSEA	Economy and Environment Program for Southeast Asia
EU	European Union
FORMAS	Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning
G	giga (10^9, billion)
GEF	Global Environment Fund
GIS	Geographic Information System
GIWA	Global International Water Assessment
GNI	Gross National Income
GWh	Gigawatt hour
GWP	Global Water Partnership
GWP	Global Warming Potential
HCFC	hydrochlorofluorocarbons
HFC	hydrofluorocarbons
IIED	International Institute for Environment and Development
Info	Information instruments
IPCC	Intergovernmental Panel of Climate Change
ISO	International Standards Organisation.
ISO 14 001	Standard for environmental management systems
IT	Information Technology

IUCN	International Union for the Conservation of Nature
IVL	Swedish Environmental Research Institute
J	Joule (J) unit of energy
JI	Joint Implementation
kW	kilowatt (unit of power)
kWh	kilowatt hour (unit energy)
LCA	Life-Cycle Analysis
LIP	Local Investment Programme
M	mega (10^6, million)
m	milli (10^{-3}, one thousandth)
micro	one millionth (10^{-6})
MISTRA	Foundation for Swedish Environmental Research
MWh	Megawatt hour (unit of energy; 1 MWh = 3600 MJ)
N_2O	nitrous oxide
NC	Not calculated
NIU	Measure not in use at the time
NOx	nitrogen oxides
NUTEK	Swedish National Board for Industrial and Technical Development
OECD	Organisation for Economic Co-operation and Development
OPET	Organisation for Promotion of Energy Technology
P	peta (10^{15}, one thousand trillion)
PAIB	Protección Ambiental en la Industria Boliviana
PFC	perfluorocarbons
ppm	Parts per million
PPP	Polluter Pays Principle
R&D	Research and Development
RETsAsia	Renewable Energy Technologies in Asia
SAVE	Specific Actions for Vigorous Energy Efficiency
SCB	Statistics Sweden
SEI	Stockholm Environment Institute
SEK	Swedish kronor
SF_6	sulphur hexafluoride
Sida	Swedish International Development Cooperation Agency
SIKA	Swedish Institute for Transport and Communication Analysis
SMHI	Swedish Meteorological and Hydrological Institute
SO_2	sulphur dioxide
SOU	Swedish Government Official Report

Swedish EPA	Swedish Environmental Protection Agency
T	tera (10^{12}, one trillion)
TWh	Terawatt hour (unit of energy)
UN	United Nations
UNCED	United Nation Conference on Environment and Development
UNDP	United Nation Development Program
UNEP	United Nation Environmental Program
UNFCCC	UN Framework Convention on Climate Change
USD	US dollars
VINNOVA	Swedish Agency for Innovation Systems
V	Voluntary commitment
WCRP	World Climate Research Programme
WHO	World Health Organisation
WMO	World Meteorological Organisation
WRI	World Resources Institute
WTO	World Trade Organisation

Appendix 3 – Normal-year correction of greenhouse gas emissions, method description and results

The Swedish climate varies a great deal from year to year. The variables are temperature, wind conditions, radiation and precipitation. Temperature, radiation and wind influence the amount of energy needed to heat buildings to maintain normal indoor temperatures.

Precipitation affects the quantity of water flowing in watercourses and hence the potential for generating electric energy using hydropower. Normal-year correction allows relevant comparisons between the years.

When preparing its two previous national communications, and also in the interim, Sweden has calculated what its emissions would have been in the years in question under normal conditions. A new normal-year correction model has been used for the Third National

Communication. This model differs in terms of calculation method and results. Normal-year correction involves estimating emissions a normal year from the heating of buildings and from electricity generation. These two areas are described below.

Correction of carbon dioxide emissions from heating

The Swedish Meteorological and Hydrological Institute (SMHI) has developed a method of calculating variations in Swedish carbon dioxide emissions from heating, which are due to deviations from normal weather conditions. Calculations have been made for each of the years 1990 – 1999, and for a 30-year normal period 1965 – 95. The overall impact of weather on building heating requirements has been calculated month by month for a number of locations in Sweden using the ENLOSS model, developed by SMHI (see, inter alia, Taesler (1986) and CADET Energy Efficiency (1999). This is a model employing detailed calculation of energy consumption for heating of buildings, taking account of temperature, wind, cloud cover, the sun's elevation and air turbidity (affects radiation).

ENLOSS calculates an "equivalent temperature" taking account of the weather parameters and their interaction with the position, characteristics and use of the building. This equivalent temperature is then used as a basis for calculating an Energy Index, which is a measure of the quantity of energy required to heat a specific building to normal room temperature (21°C) in relation to the requirement during the same period under normal weather conditions. These days, the Energy Index calculated using the ENLOSS model is also used commercially in Sweden for optimum financial savings, function and comfort in relation to the energy and power requirements of buildings.

All calculations of normal-year correction have been made for a "standard building" possessing the following characteristics:

- Represents mixed building development
- Mechanical ventilation
- Heating requirement for hot water NOT included
- Heat from lighting, people in the building, electrical equipment and the like have been eliminated from the heating requirement using a standard formula
- 24-hour time constant for description of heat storage in the building

Using ENLOSS calculations of the heating requirement at up to 87 meteorological stations as a basis, a geographical distribution of the heating requirement over Sweden has been determined with the help of optimal interpolation. This has been done for each month and the figures have then been added together to give annual values, weighted to take account of the population distribution in each county. This information in turn provides a basis for determining a county-specific Energy Index for each year. These standardised values for the heating requirement in each county, together with Statistics Sweden figures on actual heating of buildings in each county using various fuels and electric energy (summarised in Table 1 below) have then formed the basis for estimated normal-year corrections of carbon dioxide emissions for each year during the period 1990 – 1999. Statistics Sweden's figures are based on the "regional energy balances", which, been collated for all counties, comprise Statistics Sweden's annual energy balances. Emissions are calculated using the same emission factors as those used in the national communications under the Climate

Convention and in other reports. Emissions from electricity use are calculated using an emission factor that is the quotient of carbon dioxide emissions from fossil fuel combustion for electricity production in Sweden divided by total net production of electric energy in Sweden. Oil has been assumed to be the marginal fuel for heating.

Table 1
Industries and sectors in energy balances for which fuels and electric energy have been added together for use in the calculation

Balance number	Heat producer	Fuels
3.6.1	CHP production. district heating	All
3.7.	Separate heating plants	All
9.1	Agriculture, forestry, fisheries	fuel oils
9.4.	Public sector	fuel oils
9.6	Other services	fuel oils
9.7	Household fuel oils.	wood fuels and 53% of electricity

Source: National Energy Administration

Table 1 Industries and sectors in energy balances for which fuels and electric energy have been added together for use in the calculation

Summarised normal-year-corrected carbon dioxide emissions from heating are greater than the actual emissions each year of the 1990s, except for 1996. The difference between actual and normal-year-corrected emissions was greatest in 1990.

Correction of carbon dioxide emissions depending on variations in hydropower supply

Most electricity in Sweden is generated using hydropower and nuclear power. A small proportion is produced using combined heat and power. That portion varied between 7 and 15 per cent in the 1990s. The balance between electricity supply and demand in Sweden in the 1990s was also adjusted by export and import of electricity. In an average year, hydropower accounts for 64.2 TWh of electric energy. But the figure varies a great deal. Some years production may be considerably higher; others it may be much lower. These variations are due to precipitation. Hydropower may be regarded as the basic source of electricity generation in Sweden, ie, the source of first choice, depending on factors such as the electricity price. A deficit of electric energy as compared with the "normal" year must be replaced by electricity from other sources, ie, nuclear power, combined heat and power or import. Thus, since some of the electricity that is to replace a shortfall in hydropower is generated by burning fossil fuels, carbon dioxide emissions will occur. These depend on the degree of deviation from the normal year. The opposite occurs in years when hydropower produces a surplus as compared with the normal year.

Carbon dioxide emissions have been estimated by calculating the surplus/deficit of hydropower, ie, the quantity of electricity generation minus normal year production, and multiplying this by an emission factor for carbon dioxide emissions. This emission factor has been calculated by dividing an average emission of carbon dioxide from electricity generated using combined heat and power by the sum of electricity generated using nuclear power, combined heat and power and import minus export, ie, total net production of electricity not including electricity generated using hydropower. This has been done for each year of the 1990s. Statistics from Statistics Sweden and the National Energy Administration have been used for this purpose. This calculation differs from the previous model in that a varying emission factor is used. The previous model used a standard assumption that 7 per cent of electricity was generated using fossil fuels.

For all years in the 1990s except 1991, 1994 and 1996, the calculation produces a positive normal-year

Table 2
Overall normal-year correction, expressed as carbon dioxide, thousand tonnes:

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Hydropower	159	-40	349	410	-239	140	-911	182	389	274
Heating	3,008	1,040	1,631	291	655	393	-936	1,134	391	1,647
Normal-year correction	3,167	1,000	1,980	701	416	533	-1,847	1,316	780	1,921
Previous model	2,117	642	1,491	1,037	207	297	-1,185	518	903	-

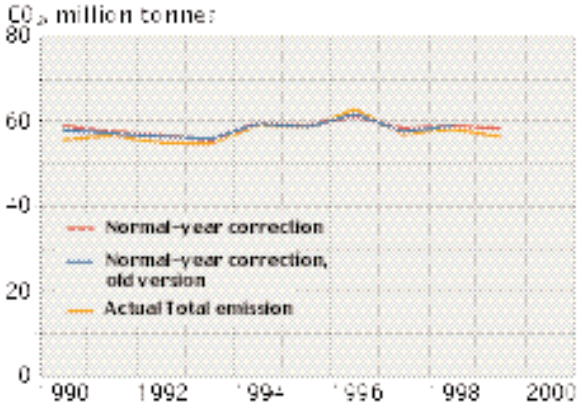
Source: Statistics Sweden and Swedish Environmental Protection Agency

correction, ie, a higher figure than the actual national emission.

As may be seen from the table, the calculation differs somewhat from the previous model (for which no calculation has been made for 1999).

Normal-year correction is added to the actual figure. As the diagram below shows, the normal-year correction evens out the curve showing carbon dioxide emissions. The new calculation model produces a result well in line with the previous model. The fact that the curve nonetheless varies is mainly a result of variations in the economic cycle, although it cannot be ruled out that there are factors that should be represented in some other way in the calculation. For example, the question of the choice of marginal fuel should be further examined, as should the choice of emission factor for estimating emissions from hydropower.

Table 1
Industries and sectors in energy balances for which fuels and electric energy have been added together for use in the calculation



Source: Swedish Environmental Protection Agency and Statistics Sweden

Appendix 4 – Method description and background data for projected emissions of carbon dioxide from the energy sector

A. Method for scenario calculations

The scenarios for carbon dioxide emissions from the energy sector are based on calculations and assessments of future developments in the energy system. The energy system includes energy use as well as supply. Scenarios are produced for various sub-sectors of the energy system. These are then compiled to form an energy balance. Energy use should balance energy supply. In addition to end use in the industrial, housing, service and transport sectors, the user side includes conversion and distribution losses and international shipping. The supply side comprises total fuel supply and hydropower production, nuclear power production, wind power and net import of electricity.

Different calculation methods are used for each sector. These are described below. The methods and analyses used are based on a socio-economic perspective. One basic premise is that total energy consumption and the relative amounts of each kind of energy are adjusted in line with expected energy prices, the economic climate and technological developments. Account is also taken of the impact of international developments on the Swedish energy system. Work in this field is based on existing governmental and parliamentary decisions within the scope of current energy and environment policy.

Calculations using the MARKAL model have been used as a basis for the scenarios for the Third National Communication (NC3). The model is outlined briefly below.

Method for the industrial sector

The scenarios for industrial energy use to 2010 and 2020 are based partly on results from the National Institute of Economic Research EMEC model and, to some extent, also on the MARKAL model. The EMEC model provides the economic conditions for a number of industries and for the manufacturing industry as a whole. Estimates have been made for the industries not specified by the EMEC model. However, these must fall within the scope of the total growth rate for manufacturing industry. In other words, no industry can be estimated to have a growth rate causing the overall EMEC growth rate for manufacturing industry to be exceeded.

A scenario for industrial energy use has been pro duced on the basis of the assumptions as to economic conditions and assumed energy prices. This has involved in-depth discussions with the various industrial trade organisations and associations, as well as the National Energy Administration's own experts in certain fields. The EMEC model results have been discussed, as have the prospects for various products in a given industry and likely investments during the period. Production trends for various products are a central factor, since the total demand for energy and its components are dependent on these trends. The technology that may be put to use during the period is naturally also of great importance.

All materials and all know-how generated during this process are examined and placed in relation to each other to arrive at the scenarios.

The scenarios for industrial energy demand have also served as an input in the MARKAL model calculations. The results from the MARKAL model have been carefully examined and cross-checked with other calculation results.

Method for the housing and service sector

Much of the energy consumed in the housing and service sector goes on heating homes and commercial/industrial premises. Economic growth and population growth determine the extent of new production, renovation, modernisation of housing and commercial/industrial premises. This in turn influences the need for heating.

The energy used for heating depends on the outdoor temperature. Energy consumption is temperature-corrected to take account of this. Temperature-corrected energy consumption tells us how much energy would have been used a given year if temperatures that year had been normal. Temperature correction is carried out to allow comparison of energy consumption from

year to year and to see how it is influenced by other factors. The calculations disregard the effect of temperature by assuming that a forecast year will be normal in terms of temperature (part of the "normal-year correction"). Temperature correction is based on daily temperature statistics from the Swedish Meteorological and Hydrological Institute (SMHI).

As well as heating, electric energy is used to operate commercial and industrial premises and appliances in the home. Energy consumption is also calculated for the sub-sectors agriculture, forestry and fisheries, second homes and other services.

The heating sector

In the short term, energy consumption for heating purposes is largely determined by the type of heating systems installed in buildings. The exceptions to this are houses fitted with combination boilers. These are capable of switching instantly from electric power to oil. Heating systems are usually replaced when an existing system wears out.

The heating requirement has been estimated with the help of a model (the "DoS model").

The following input data is required to make a forecast for the heating sector using thismodel:

- Energy consumption broken down into heating systems and types of building (individual houses, apartment buildings/commercial premises)
- Forecast new production and demolition
- Average improvements in energy efficiency during the period
- Average lifespan of the respective heating systems (which determines the need for replacement during the forecast period)
- The cost of investing in various energy systems, cost of capital and depreciation period
- Energy prices (not power prices, since DoS forecasts all power prices)
- Conversion efficiency of the various heating systems and estimated improvements in this
- Maximum potential of various heating systems.

Since the model assumes that consumers will choose the most economical alternative when replacing an existing system, the user of the DoS model must insert a number of limitations. Even though heat pumps are the most economical alternative, not all people will choose them; perhaps 20 per cent will.

On the basis of these premises, the model calculates the consumption of various types of energy at different electricity prices. The model also optimises the operation of combination systems.

The MARKAL model has also been used to estimate heating requirements for housing and commercial/industrial premises (see separate description). DoS results and MARKAL results have been compared. The final results have then been obtained following an assessment of the reasonableness of the results produced by the two models.

Household electricity and operating electricity

Household electricity and operating electricity in commercial/industrial premises is estimated using a growth factor based on assumptions made as to economic growth.

Consumer spending and public spending are important factors.

Energy use throughout the sector

Energy consumption in housing and commercial/industrial premises is obtained by adding household electricity and operating electricity to heating. These together represent just over 85 per cent of total energy use in the sector. Additional to this is energy consumption in agriculture, forestry and fisheries, second homes and other services (electricity, gas, water supply and sewage, street lighting etc). Use in these minor sub-sectors is usually estimated fairly roughly, often on the basis of the stated economic conditions in each sector.

Method for the transport sector

The scenarios for emissions from the transport sector have been produced in two stages: (i) scenarios for total transport (person/tonne kilometres); and (ii) scenarios for energy consumption (broken down into various types of energy).

Total transport (tonnes/person kilometres)

The scenarios for transport in this communication have been produced using model systems developed jointly by the Swedish Institute of Transport and Communication Analysis (SIKA), the transport authorities and the Swedish Agency for Innovation Systems (Vinnova) (formerly the Swedish Transport and Communications Research Board).

Passenger transport

Information on actual travel, the range of transport available, population structure etc has been gathered as a basis for developing the SAMPERS modelling system for passenger transport. Information on actual travel comes from the national travel survey: "Riks-RVU" (now RES). Some 30,000 interviews during the period 1994 – 1997 have been taken from the survey. Statistics on travel habits, available range of transport and demography have then been used to formulate

models for passenger transport demand. Travel frequency is one parameter that is modelled, ie, the number of journeys per person and day, choice of destination and mode of transport chosen. This is known as the "logit model".[1] Choice of route is also modelled with the help of the Canadian net analysis system Emme/2.

Forecasting requires input data in the form of assumptions as to economic growth, demographic changes and changes in the transport system. The system is suitable for analysing the impact of, for example, changes in the range of transport available, price changes or demographic changes. SAMPERS comprises five regional models for short journeys, a nationwide model for long domestic journeys, and a model for foreign travel.

Analyses can be made and results presented at regional, national and international level.

Goods transport

The Swedish national modelling system for goods transport (SAMGODS) may best be described as a collection of separate models, to some extent developed for quite different purposes than analyses of national goods demand, but which have been linked together to serve as a fairly effective and consistent method. The system primarily consists of two parts:

one with models dealing with demand for transport, and a model dealing with the transport network and transport market. Geographical disaggregated matrices for goods demand in Sweden and between Swedish and foreign regions are obtained from the demand models. This demand is then broken down by the network models into various modes of transport and transport routes. The modelling system uses a cost-minimising algorithm to allow forecasts of transport streams for various types of transport and to analyse transport chains and the impact on the transport system of transport policy measures or changes in the infrastructure.

Fuel use

Petrol consumption accounts for almost 60 per cent of the energy used for domestictransport. A "top-down" demand model is used to estimate petrol consumption trends.

Petrol demand is based on assumptions as to changes in the petrol price and disposable incomes2, as well as estimated elasticities. Price elasticity is assumed to be -0.7 and income elasticity 0.6.3 Also included are assumptions as to technological developments (rate of efficiency improvements). The model is limited in the sense that it does not have a built-in adjustment mechanism, which, among other things, means that it cannot tell us when a petrol price rise will have the greatest impact on petrol demand.

Diesel consumption accounts for just over 30 per cent of the energy used for domestic transport. Here too, a "top-down" demand model has been used to estimate diesel consumption trends. The model is based on assumptions about future growth in various industries. The industries that have been found to have the greatest impact on diesel consumption are the pulp and paper industry, the petrochemicals industry and the engineering industry. The model also takes into account estimates of diesel price trends (price elasticity -0.2) and technological developments.

Aviation fuel for domestic air traffic accounts for approximately 4 per cent of energy consumption in the transport sector. Estimates of aviation fuel consumption are based on Civil Aviation forecasts of the number of landings at Swedish airports. This forecast is in turn derived from forecast passenger numbers. The number of landings is obtained from assumptions about the aircraft models in use and cabin factor trends (average number of seats available). Passenger forecasts have been produced using a demand function, which uses the correlation between the demand for air travel and economic growth, together with the price of air travel.

Electricity use represents 4 per cent of energy consumption in the transport sector.

Estimates of electricity consumption trends are mainly based on decided investments in expansion rail transport.

Fuel oils for domestic shipping account for 2 per cent of energy consumption in the transport sector. Changes in the use of Fuel oil 1 and Fuel oils 2 – 5 are mainly a result of traffic between the island of Gotland and the mainland. Estimates of the consumption of fuel oils in international shipping ("bunkers") are based on assumptions about future import and export trends.

Estimates of future use of alternative fuels are based on information about technical developments in relation

[1] The "conditioned logit model" (D McFadden, 1974) may be described as follows. We assume that the individual can choose between a number (say J) of options. Let X represent the characteristics of the options and Z the characteristics of the individuals the scientist can observe in his data. In one study, the options may be car, bus or underground train; X may include details of journey costs and time, while Z could include details of age, income and educational background. However, in addition to X and Z, there are a number of other characteristics of individuals and options that determine the choice they make to achieve maximum benefit, but which the scientist cannot observe. These are summarised in a "random term". Models of this kind are regularly used in studies of individual's choice of mode of travel, but have also been used in a number of other areas, such as studies of choice of housing, place of residence and education. (Source: Royal Swedish Academy of Sciences, Populärvetenskaplig information, Swedish Riksbank Nobel prize in economics 2000).

[2] Forecasts of consumer spending are used as a measure of future income trends.

[3] "Bensinskatteförändringars effekter" (Effects of Changes in Petrol Taxation"). Expert Group for Studies in Public Sector Economics, government report Ds 1994:55

to the various fuels, and also on political decisions. Technologies now exist allowing operation using a series of alternative fuels. The reason these are not widely used at present is that fuel and vehicle costs are higher than those for petrol and diesel. The limited number of distribution outlets and service stations also inhibits the introduction and use of alternative fuels. There is currently considerable uncertainty about future taxation of alternative fuels, which also impacts on estimates about their future use.

Electricity and heat production

Estimated trends for electricity and heat production in the scenarios are based on an iterative process. A test is made to see whether the production system balances demand, and an assessment is also made as to whether the energy system as a whole is adequate.

However, electricity and district heating production are given on the basis of demand in the user sectors.

Economic conditions and fuel prices represent input data both for the user sectors and for supply, ie, for electricity and district heating production. Derived fuel prices and tax and subsidy systems are input data for calculating electricity production costs for new power and for calculating variable production costs for existing power.

Some account is taken of improvements in production technologies for electric energy and district heating. Account is also taken of increased production capacity for some types of power as a result of various forms of subsidy.

The current electricity production systems have been fairly well surveyed. Information is available about existing capacity for producing various kinds of power and about the limitations of the overall production system. Where applicable, special studies are also made of costs in the electricity production system.

Estimates for combined power and heating are based on data on current power and heating systems. In the calculations regarding a future system, district heating productionis also given by the use within the housing and service sectors and in industry. The basic approach is to optimise the cost-effectiveness of each district heating system individually.

In other words, the cheapest boilers or heat pumps are used at any given time. Moreover, combined power and heating must be optimised in relation to the electricity prices prevailing over a year.

Estimates of changes in the power balance are based on the principle that types of energy are used in order of cost. That is, the cheapest form of energy is used first. Marginal cost pricing means that the price reflects the cost of producing an additional kilowatt hour of electricity. The short-term marginal cost for one year is defined as a time-weighted mean figure for the variable cost of the most expensive form of power used at different times plus a "scarcity cost" component. The scarcity cost is intended to reflect the production system's capacity to supply. When there is overcapacity, the scarcity cost is low; but it rises when demand rises within the framework of a given system.

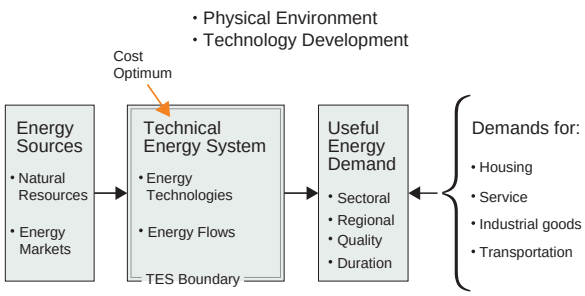
Outline of MARKAL and its use

MARKAL is a dynamic linear programming model developed in the mid-1970s by IEA-ETSAP for analysis of the technical energy system. The model has been continuously improved and is widely used throughout the world. Briefly, an extrinsically specified demand for various energy services in a number of sectors of society drives the MARKAL model. The model attempts to achieve the specified demand at the lowest possible cost.

The model specifies a large number of technologies, present and future. These cover everything from large-scale power production to small-scale energy conversion technologies used by the end user, as well as measures taken to improve energy efficiency. There are also a large number of boundary conditions such as environmental requirements and technical performance. The time horizon is normally 10 – 25 years.

MARKAL is usually used for scenario analyses, in which the scenarios are formed (selected) on the basis of different forecast trends for factors surrounding the energy system. The flow chart shown below describes the technical energy system and its surroundings, in which outside factors are gathered under four headings: energy markets, energy demand, technological developments and environmental requirements.

Figure 2
MARKAL's theoretical construction in relation to the technical energy system (TES) and the four external factors. The arrow pointing diagonally towards TES represents the objective of the model, usually to minimise system costs under the stated boundary conditions.



MARKAL optimises development of the technical energy system during the period studied on the basis of:

- a predetermined objective;
- forecast trends for the four external factors; and
- set boundary conditions (system limitations).

The commonest objective in MARKAL is to minimise costs on the basis of socio-economic criteria. The model results then comprise the most cost-effective development of the energy system, given the assumptions made about trends for the external factors and given the boundary conditions.

The models also offer the possibility of choosing objectives other than economic ones. For example, the aim in MARKAL may be to minimise greenhouse gas emissions.

The boundary conditions may comprise a long series of limitations. For example: capacity restrictions (for developing given technologies or for transfer between countries), potentials (eg, limitations in available quantities of waste fuels), emission limitations (eg, of greenhouse gases under the Kyoto Protocol) etc.

B. Statistics and scenarios

Table 3
Energy supply, actual trend 1990, 1997, 1999 and scenarios for 1997–2010, TWh

	1990	1997 base yr	1999	2005	2010	2020 Scen. 1 %	2020 Scen. 2 %	Trend 1997–2020 Scen. 1 %	Trend 1997–2020 Scen. 2 %
Use									
End use	365	382	384	400	415	435	432	14	13
comprising:									
Industry	140	153	153	162	172	183	178	20	17
Transport	75	76	80	84	86	91	91	19	19
Housing, services etc	150	153	151	154	157	161	162	5	6
International shipping	15	23	26	29	32	38	38	65	65
Non-energy purposes	29	22	18	20	22	27	27	24	24
Distribution and conversion losses	175	189	198	183	184	188	144	-1	-24
including losses in nuclear power	139	145	152	138	138	138	89	-5	-38
Total use	**583**	**616**	**625**	**632**	**653**	**688**	**641**	**12**	**4**
Supply									
Total fuel supply	298	327	326	345	363	398	417	22	27
comprising:									
Oil products	195	201	199	207	213	232	234	15	16
Natural gas och city gas	7	9	10	8	9	9	24	4	171
Coal och coke	30	27	26	27	27	27	27	2	0
Biomass fuels, peat etc	67	90	91	102	114	129	132	42	46
Waste heat. boiler heat	8	9	10	9	9	9	7	2.0	-18
Hydropower, gross	73	70	72	68	70	71	72	1	3
Nuclear power, gross	206	213	224	203	203	203	132	-5.0	-38
Wind power, gross	0.0	0.2	0.4	1.4	3.9	4.2	10.5	21 times*)	52 times*)
Import-export electricity	-2	-3	-7	7	4	4	4		
Total supply	**583**	**616**	**625**	**632**	**653**	**688**	**641**	**12**	**4**

[1] Energy after the reactor according to UN/ECE

[2] Not including input electricity

Source: Statistics Sweden and National Energy Administration

*) Not expressed as a percentage but as the number of times over production is expected to increase.

Table 4
Electricity balance, TWh

	1990	1997 base yr	1999	2005	2010	2020 Scen. 1	2020 Scen. 2	Percentage change 1997–2020 Scen. 1	Percentage change 1997–2020 Scen. 2
Use									
Total use, net	139.9	142.6	143.3	148.4	152.0	158.4	153.6	11	8
comprising:									
Industry	53.0	52.7	54.5	56.7	58.6	62.0	59.2	18	12
Transport	2.5	3.0	3.0	3.1	3.2	3.2	3.2	7	7
Housing, services etc	65.0	69.6	68.9	71.8	74.2	76.9	75.9	10	9
Supply									
Net production	141.7	145.3	150.8	141.8	147.9	154.3	149.6	6	3
comprising:									
Hydropower	71.4	68.2	70.9	66.2	68.6	69.2	70.1	1	3
Wind power	0.0	0.2	0.4	1.4	3.9	4.2	10.5	21 times*)	52 times*)
Nuclear power	65.2	66.9	70.2	63.6	63.6	63.6	41.3	-5	-38
CPH in industry	2.6	4.2	3.9	4.5	4.9	5.6	6.4	33	52
CPH in district heating systems	2.2	5.3	5.2	6.0	6.8	11.7	13.5	121	156
Condensing fossil fuels	0.2	0.4	0.2	0.1	0.1	0.0	7.9	-100	20 times*)
Gas turbines	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Import-export	-1.8	-2.7	-7.5	6.6	4.2	4.0	4.0		
Total supply, net	**139.9**	**142.6**	**143.3**	**148.4**	**152.0**	**158.4**	**153.6**	**11**	**8**

*) Not expressed as a percentage but as the number of times over production is expected to increase.

Table 5
Fuel input for electricity generation, TWh

	1990	1997 base year	1999	2005	2010	2020 Scen. 1	2020 Scen. 2	Trend 1997–2020 Scen. 1, %	Trend 1997–2020 Scen. 2, %
Fuel input:	7.1	13.9	13.2	14.2	15.7	22.5	38.8	62	179
Oils (inc.LP-gas)	1.8	5.6	5.0	5.1	4.5	4.0	4.4	-29	-22
Natural gas	0.5	0.7	0.6	0.5	0.7	1.0	15.7	40	22 times*)
Biomass fuels, peat etc	2.5	3.9	3.6	4.6	7.3	14.8	15.5	272	291
Coal (inc. foundry gas)	2.4	3.7	4.0	3.9	3.2	2.8	3.2	-24	-12

*) Not expressed as a percentage but as the number of times over production is expected to increase.

Source: Statistics Sweden and National Energy Administration

Table 6
District heating balance, 1990,1997,1999 and scenarios for 2010 och 2020, TWh

	1990	1997	1999	2005	2010	2020 (1)	2020 (2)	Percentage change 1997–2020 (1) %	Percentage change 1997–2020 (2) %
Use									
Total end use	34.3	41.9	43.3	45.9	48.0	49.9	49.8	19	19
comprising:									
Industry	3.6	4.3	4.0	4.6	5.0	5.9	5.8	38	36
Housing, services etc	30.7	37.6	39.3	41.3	43.0	44.0	44.0	17	17
Distrib. and conv. losses	6.8	7.9	7.0	6.8	6.7	6.9	7.1	-12	-11
Total use	41.1	49.8	50.3	52.7	54.8	56.8	56.9	14	14
Supply									
Fuel input:									
Oils including LP-gas	4.1	6.1	5.1	4.3	3.6	2.4	2.6	-61	-57
Biomass fuels	10.4	23.9	24.8	30.3	34.9	39.9	41.9	67	75
Coal, inc. foundry gas	8.2	4.0	3.3	2.8	2.3	1.4	1.5	-65	-62
Natural gas	2.0	3.1	3.2	3.0	2.8	2.5	2.6	-21	-17
Other supply:									
Electric boilers	6.3	1.8	1.5	0.9	0.0	0.0	0.0	-100	-100
Heat pumps	7.1	7.0	7.5	7.2	6.9	6.3	4.0	-10	-43
Waste heat1	3.0	3.8	4.8	4.3	4.3	4.3	4.3	13	13
Total supply	41.1	49.8	50.3	52.7	54.8	56.8	56.9	14	14

Scenario 1:
Nuclear power remains in operation for as long as it is profitable.
An assessment of necessary reinvestments has been made.

Scenario 2: Nuclear power is phased out at the end of its 40-year lifespan

1) Heat received from industry and the housing and services sector.

Note: As a result of rounding up or down, the individual figures do not always add up to the total.

Source: Statistics Sweden and National Energy Administration

Table 7
Industrial energy use in 1990, 1997 and 1999 and scenarios for 2010 och 2020, TWh

Type of energy	1990	1999	1997 base yr	2010	2020 Scen. 1	2020 Scen. 2	1997–2010 %	2010–2020 (1) %	2010–2020 (2) %
Energy coal	7.1	4.9	5.3	6.1	6.8	6.3	15	11	3
Coke [1)]	9.7	9.9	10.6	11.4	12.0	11.5	8	4	0
Biomass fuels, peat etc [2)]	42.8	52.2	51.5	60.4	61.6	61.6	17	2	2
Natural gas	2.8	3.7	3.1	3.5	3.7	3.6	13	6	3
Diesel oil	0.3	0.2	0.2	0.2	0.2	0.2	0	0	0
Fuel oil 1	4.6	3.6	4.9	5.2	6.4	6.2	6	23	19
Fuel oil 2-5	11.6	13.6	14.5	14.9	17.7	17.5	3	19	17
LP-gas	4.1	5.9	5.5	6.1	6.5	6.3	11	7	3
city gas 3)	0.1	0	0	0	0	0	0	0	0
District heating	3.6	4.0	4.3	5.0	5.9	5.8	16	18	16
Electricity	53.0	54.5	52.7	58.6	62.0	59.2	11	6	1
Total	140	153	153	172	183	178	12	6	3
Production value, SEK bn	828	1,116	1,011	1,360	1,667	1,646	34.5	22.6	21.0
Specific energy use, kWh/SEK prod. value	0.169	0.137	0.151	0.126	0.110	0.108	16	15	14
Specific energy use, kWh/SEK prod. value	0.064	0.049	0.052	0.043	0.037	0.037	17	14	14

Scenario 1:
Nuclear power remains in operation for as long as it is profitable.
An assessment of necessary reinvestments has been made.

Scenario 2:
Nuclear power is phased out at the end of its 40-year lifespan

[1)] Coke includes coke gas and blast furnace gas.

[2)] Biomass fuels include spent liquor in the pulp and paper industry.

[3)] City gas is reported together with natural gas for the forecast years.

Note: As a result of rounding up or down, the individual figures do not always add up to the total.

Source: Statistics Sweden and National Energy Administration

Table 8
Energy use in various industries 1990, 1997 och 1999 and scenarios for 2010 och 2020, TWh

	1990	1999	1997 base yr	2010	2020 Scen. 1		1997–2010 %		2010–2020 %
Energy coal	7.1	4.9	5.3	6.1	6.8	6.3	15	11	3
Coke [1]	9.7	9.9	10.6	11.4	12.0	11.5	8	4	0
Biomass fuels, peat etc [2]	42.8	52.2	51.5	60.4	61.6	61.6	17	2	2
Natural gas	2.8	3.7	3.1	3.5	3.7	3.6	13	6	3
Diesel oil	0.3	0.2	0.2	0.2	0.2	0.2	0	0	0
Fuel oil 1	4.6	3.6	4.9	5.2	6.4	6.2	6	23	19
Fuel oil 2-5	11.6	13.6	14.5	14.9	17.7	17.5	3	19	17
LP-gas	4.1	5.9	5.5	6.1	6.5	6.3	11	7	3
city gas [3]	0.1	0	0	0	0	0	0	0	0
District heating	3.6	4.0	4.3	5.0	5.9	5.8	16	18	16
Electricity	53.0	54.5	52.7	58.6	62.0	59.2	11	6	1
Total	140	153	153	172	183	178	12	6	3
Production value, SEK bn	828	1,116	1,011	1,360	1,667	1,646	34.5	22.6	21.0
Specific energy use, kWh/SEK prod. value	0.169	0.137	0.151	0.126	0.110	0.108	16	15	14
Specific energy use, kWh/SEK prod. value	0.064	0.049	0.052	0.043	0.037	0.037	17	14	14

Scenario 1:
Nuclear power remains in operation for as long as it is profitable.
An assessment of necessary reinvestments has been made.

Scenario 2:
Nuclear power is phased out at the end of its 40-year lifespan

[1] Coke includes coke gas and blast furnace gas.

[2] Biomass fuels include spent liquor in the pulp and paper industry.

[3] City gas is reported together with natural gas for the forecast years.

Note: As a result of rounding up or down, the individual figures do not always add up to the total.

Source: Statistics Sweden and National Energy Administration

Table 9
Temperature-corrected energy use in housing, services etc, broken down into energy type, 1990, 1997 och 1999, with estimated values for 2010 och 2020, TWh.

	1990	1999	1997 base yr	2010	2020 Scen. 1	2020 Scen. 2	1997–2010 %	2010–2020 (1) %	2010–2020 (2) %
Total energy use	162.3	156.6	156.3	157.2	161.2	162.2	0.6	2.5	3.2
Electricity, total	68.2	70.3	70.3	74.2	76.9	75.9	5.5	3.6	2.3
Electric heating	29.0	22.8	26.8	27.6	26.0	25.0	3.0	-5.8	-9.4
Household electricity	17.9	19.2	18.7	21.1	23.2	23.2	12.8	10.0	10.0
Operating electricity in commercial/industrial premises	15.8	19.2	18.0	18.5	20.8	20.8	2.8	12.4	12.4
Electricity used in agriculture, forestry and fisheries	1.5	1.4	1.6	1.5	1.4	1.4	-6.3	-6.7	-6.7
Electricity used for other services	4.0	7.7	5.2	5.5	5.5	5.5	5.8	0.0	0.0
District heating, total	34.5	41.7	38.6	43.0	44.0	44.0	11.4	2.3	2.3
Oils, total	45.1	31.6	34.1	26.8	26.0	27.8	-21.4	-3.0	3.7
Wood fuels	12.5	10.8	11.3	11.2	12.4	12.6	-0.9	10.7	12.5
Coal	0.5	0.0	0.1	0.0	0.0	0.0	-100.0	0.0	0.0

Scenario 1:
Nuclear power remains in operation for as long as it is profitable.
An assessment of necessary reinvestments has been made.

Scenario 2:
Nuclear power is phased out at the end of its 40-year lifespan

Note: Oils include LP-gas. Gas comprises city gas and natural gas.

Source: Statistics Sweden "Annual balances" och "Energy statistics for individual houses, apartment buildings and commercial and industrial premises". Also: scenario calculations by the National Energy Administration.

Table 10
Passenger and goods transport to 2020

Traffic and transport	1990	1997	1999	2010	2020	1997–2010	2010–2020
Traffic, vehicle kilometres, billions							
Automobile	61.4	65.8	68.4	87.3	99.5	33%	14%
Bus	1.0	1.2	1.2	1.3	1.2	8%	-5%
Heavy trucks	1.8	2.3	2.3	3.2	4.2	41%	28%
Light commercial vehicles	5.3	5.0	5.7	7.0	9.0	41%	28%
Transport, person kilometres, billions							
Automobile	86.9	93.1	96.9	119.7	135.6	29%	13%
Bus	12.4	13.9	14.6	15.0	14.3	8%	-5%
Railway	6.5	6.9	7.6	8.7	8.9	26%	2%
Domestic air traffic	5.2	3.8	4.3	4.7	5.5	24%	18%
Transport, tonne kilometres, billions							
Heavy trucks	27.5	34.4	34.0	47.4	54.0	38%	26%
Railway	18.4	18.4	18.2	20.3	21.1	10%	7%
Shipping	25.6	29.0	27.9	34.8	37.5	20%	14%

Source: Swedish Institute for Transport and Communication Analysis

Table 11
Energy use in the transport sector 1990-2020

Fuel	Unit	1990	1999	1997 base yr	2010	2020	1997–2010 %	2010–2020 %
Domestic transport								
Petrol	1,000 m3	5,589	5,453	5,576	5,770	5,990	4	4
Diesel	1,000 m3	2,052	2,565	2,097	2,940	3,180	40	8
Fuel oil 1	1,000 m3	96	115	74	100	130	35	30
Fuel oil 2-5	1,000 m3	64	41	33	30	25	-9	-17
Aviation fuel	1,000 m3	235	299	298	223	274	-25	23
Electricity	GWh	2,475	3,024	2,954	3,150	3,150	7	0
Total	TWh	75.4	80.5	76.4	86.1	91.1	13	6
International transport								
Diesel/fuel oil 1	1,000 m3	179	257	291	372	440	28	18
Fuel oil 2-5	1,000 m3	568	1,371	1,174	1,556	1,830	32	18
Aviation fuel	1,000 m3	706	851	767	1,170	1,436	52	23
Total	TWh	14.7	25.5	22.9	31.7	36.9	39	16
Total	TWh	90.1	106.0	99.3	117.7	129.0	18	10

Note: Domestic and international aviation fuel use is broken down in line with Civil Aviation Administration estimates. According to the administration, domestic air traffic had a share of 25 per cent in 1990 and 28 per cent in 1997. It is expected to account for 16 per cent by 2010 and 2020. International shipping and air traffic is not included in the estimates of Swedish carbon dioxide emissions.

C. Tables – Underlying assumptions

Table 12
Actual and forecast growth in GNI and industrial production, annual percentage change.

	GNI	Industrial production
Actual growth		
1960-1970	4.6	5.8
1970-1980	2.0	1.2
1980-1990	2.2	1.8
1990-1999	1.5 [1)]	3.4 [2)]
Forecast		
1997-2010	1.9	2.3
2010-2020	1.1	2.1

Note: Statistics Sweden has reported GNI using a revised method since 1980
[1)] 1990-1993: –1.6%.1993-1999: 3.1%
[2)] 1990-1993: – 3.5%. 1993-1999: 7.0%.

Source: Statistics Sweden and National Institute of Economic Research

Table 13
Actual and forecast growth in consumer spending and public spending, annual percentage change.

	Consumer spending	Public spending
Actual growth		
1960–-1970	3.8	5.7
1970–1980	1.6	3.2
1980–1990	1.7	1.7
1990–1999	1.0	0.7
Forecast		
1997–2010	2.4	1.2
2010–2020	1.9	0.8

Source: Statistics Sweden and National Institute of Economic Research

Table 14
Fuel prices for large heating plants, heat distribution stations, large and small factories, SEK/kWh, including energy and environmental taxes.

	1997[1]	1999[2]	2010[3]	2020[3]
Large heating plants				
Fuel oil 1	0.312 (0.173)	0.308 (0.181)	0.349 (0.224)	0.372 (0.224)
Fuel oil 5	0.256 (0.167)	0.266 (0.175)	0.292 (0.215)	0.327 (0.215)
Coal	0.222 (0.177)	0.227 (0.186)	0.282 (0.240)	0.293 (0.240)
Heat distribution stations				
Fuel oil 1	0.341 (0.181)	0.329 (0.181)	0.369 (0.224)	0.393 (0.224)
Fuel oil 5	0.275 (0.175)	0.278 (0.175)	0.304 (0.214)	0.336 (0.214)
Coal	0.232 (0.177)	0.234 (0.182)	0.286 (0.234)	0.297 (0.234)
Large factories				
Fuel oil 1	0.193 (0.054)	0.018 (0.053)	0.179 (0.054)	0.202 (0.054)
Fuel oil 5	0.148 (0.059)	0.150 (0.058)	0.136 (0.059)	0.172 (0.06)
Coal	0.126 (0.081)	0.123 (0.082)	0.123 (0.081)	0.137 (0.084)
Natural gas	0.153 (0.037)	0.150 (0.04)	0.157 (0.041)	0.203 (0.041)
Small factories				
Fuel oil 1	0.213 (0.053)	0.201 (0.053)	0.2 (0.054)	0.223 (0.054)
Fuel oil 5	0.159 (0.059)	0.161 (0.058)	0.149 (0.059)	0.181 (0.059)
Coal	0.136 (0.081)	0.132 (0.080)	0.133 (0.081)	0.144 (0.081)

Note: The tax is shown in brackets.

[1] The price includes the average tax in 1997. The tax was altered on 1 July 1997.

[2] The price for 1999 includes the tax from 1 January 1999.

[3] The price for 2010 and 2020 includes the latest tax in force from 1 January 2001.

Source: Swedish Tax Administration and National Energy Administration

Table 15
Fuel prices for commercial premises and individual houses, SEK/kWh, including taxes and VAT.

	1997[1]	1999[2]	2010[3]	2020[3]
Commercial premises				
Fuel oil 1	0.421 (0.261)	0.411 (0.263)	0.4638 (0.317)	0.491 (0.322)
Fuel oil 5	0.340 (0.240)	0.348 (0.245)	0.381 (0.291)	0.421 (0.299)
Coal	0.290 (0.235)	0.293 (0.241)	0.358 (0.306)	0.371 (0.308)
Individual houses				
Fuel oil 1	0.448 (0.267)	0.439 (0.269)	0.49 (0.322)	0.516 (0.327)
Natural gas	0.396 (0.173)	0.409 (0.187)	0.464 (0.234)	0.558 (0.253)

Note: Tax including VAT is shown in brackets.

[1] The price includes 25 per cent VAT and the average tax in 1997. The tax was altered on 1 July 1997.

[2] The price for 1999 includes 25 per cent VAT and the tax from 1 January 1999.

[3] The price for 2010 and 2020 includes 25 per cent VAT and the latest tax in force from 1 January 2001.

Source: Swedish Tax Administration and National Energy Administration

Table 16
Electricity prices och distribution charges for various types of customer, including selective purchase taxes and VAT, SEK/kWh

	Electricity-intensive industry	Medium-sized factory	Electric heating	Household electricity
1997				
Electricity price	0.234	0.244	0.276	0.292
Distribution charge	0.057	0.093	0.216	0.411
Selective purchase tax	0.0	0.0	0.126	0.126
Total price inc. purchase tax och VAT	0.291	0.337	0.772	1.036
1999				
Electricity price	0.197	0.196	0.214	0.218
Distribution charge	0.057	0.093	0.206	0.398
Selective purchase tax	0.0	0.0	12.8	0.128
Total price inc. purchase tax and VAT	0.254	0.289	0.685	0.93
2010				
Electricity price	0.23	0.235	0.245	0.25
Distribution charge	0.05	0.082	0.19	0.362
Selective purchase tax	0.0	0.0	0.181	0.181
Total price inc. purchase tax and VAT	0.28	0.317	0.77	0.991
2020 reinvest. in nuc. power				
Electricity price	0.24	0.245	0.255	0.26
Distribution charge	0.047	0.077	0.179	0.34
Selective purchase tax			0.181	0.181
Total price inc. purchase tax and VAT	0.287	0.322	0.768	0.976
2020 nuclear power 40 years				
Electricity price	0.31	0.315	0.3.5	0.33
Distribution charge	0.047	0.077	0.179	0.34
Selective purchase tax			18.1	18.1
Total price inc. purchase tax and VAT	0.357	0.392	0.856	1.064

Source: National Energy Administration

Table 17
Energy and environmental taxes from 1 January 2001, not including VAT

	Energy tax	CO_2 tax	Sulphur tax	Total tax	Tax SEK/kWh
Fuels[1]					
Fuel oil 1, SEK/m³ (< 0.1% sulphur)	688	1,527	-	2,215	0.224
Fuel oil 5, SEK/m³ (0.4% sulphur)	688	1,527	108	2,323	0.215
Coal, SEK/tonne (0.5% sulphur)	293	1,329	150	1,772	0.234
LP-gas, SEK/tonne	134	1,606	-	1,740	0.136
Natural gas/methane, SEK/1,000 m³	223	1,144	-	1,367	0.141
Raw tall oil, SEK/m³	2,215	-	-	2,215	0.221
Peat, SEK/tonne, 45% moisture content (0.24% sulphur)	-	-	40	40	0.015
Motor fuels[2]					
Petrol, environmental class 1, SEK/l	3.26	1.24	-	4.5	0.516
Petrol, environmental class 2, SEK/l	3.29	1.24	-	4.5	0.519
Other petrol, SEK/l	3.92	1.24	-	5.16	0.592
Diesel, environmental class 1, SEK/l	1.51	1.53	-	3.04	0.311
Diesel, environmental class 2, SEK/l	1.79	1.53	-	3.27	0.334
Diesel, environmental class 3 or other, SEK/l	2.04	1.53	-	3.57	0.358
Natural gas/methane, SEK/m³	0	1.04		1.04	0.107
LP-gas, SEK/kg	0	1.26		1.26	0.106
Electricity use					
Elec. N Sweden, SEK/kWh Elec.	0.125	-	-	0.125	0.125
Other Sweden SEK/kWh	0.181	-	-	0.181	0.181
Electricity, gas, heating or water supply, SEK/kWh					
N Sweden,	0.125	-	-	0.125	0.125
Other Sweden	0.158	-	-	0.158	0.158
Electric boilers, output > 2 MW, 1/11-31/3, SEK/kWh					
N Sweden,	0.148	-	-	0.148	0.148
Other Sweden	0.181	-	-	0.181	0.181

Note: VAT at a rate of 25 per cent is payable in addition to other taxes, although not by industry. An environmental charge of SEK 40/kg is payable for emissions of nitrogen oxides from boilers, gas turbines and stationary combustion plants having a power output of at least 25 GWh. The charge is refunded in proportion to the energy production and emissions of each plant. Nuclear power is subject to a tax based on the thermal output of the reactors. Under certain operating conditions, the output tax is SEK 0.027/kWh. A tax of SEK 0.015/kWh is also levied under the "Studsvik Act", and a further SEK 0.01/kWh is levied under the Funding of Future Costs for Spent Nuclear Fuels Act.

Fuels used for electricity generation are exempt from the energy and carbon dioxide taxes but are subject to the sulphur tax. Fossil fuels used for heat production at combined power and heating plants are subject to half-rate energy tax, as well as full carbon dioxide and sulphur tax.

[2] Aviation fuel is not specifically taxed. However, domestic air traffic pays tax via the Civil Aviation Administration landing and passenger charges.

Source: Swedish Tax Administration and National Energy Administration

Table 18
Energy and environmental taxes for industry, agriculture, forestry and aquaculture from 1 January 2001, not including VAT

	Energy tax	CO_2 tax	sulphur tax	Total tax	Tax SEK/kWh
Fuel oil 1, SEK/m^3	0	534	-	534	0.054
Fuel oil 5, SEK/m^3	0	534	108	642	0.059
Coal, SEK/tonne	0	465	150	615	0.081
LP-gas, SEK/tonne	0	562	-	562	0.044
Natural gas, SEK/1,000 m^3	0	400	-	400	0.041
Raw tall oil, SEK/m3	534	-	-	534	0.053
Peat, SEK/tonne, 45% moisture content (0.24% sulphur)	-	-	40	40	0.015

Note: When purchasing energy, industry may receive a refund of 65 per cent of the carbon dioxide tax on fuels used to generate heat.

Source: Swedish Tax Administration and National Energy Administration

Appendix 5 – Bilateral and regional funding related to implementation of the Climate Convention 1997 – 2000

Table 19
Bilateral and regional funding related to implementation of the Climate Convention, 1997 (millions SEK)

Recipient country/ region	Measures to reduce emissions and increase removals of greenhouse gases							Adjustment			Other-
	Energy	Transport	Forestry	Agriculture	Waste	Industry management	Air pollution/ other	Capacity developm./ research	Adm. Coastal areas	Other vulnerability reduction	
Non-Annex 1 countries											
1. Tanzania	25.03		2.07	3.43				5.10	0.23	34.27	0.20
2. India	41.44		5.03	0.85		2.02	3.52		1.00	0.01	
3. Uganda	46.72										
4. Mozam-bique	18.17	0.08		5.57				2.39		7.00	5.76
5. Thailand	21.00		0.70				1.23				
6. Kenya			0.04	18.51				0.23		3.22	
7. Laos			14.01					3.30			
8. Zambia	1.62			13.47						0.15	
9. Costa Rica			9.56			1.23				0.70	
10. Bolivia			10.01								
11. China	5.92			0.12							1.04
12. Lesotho								1.37		5.13	
13. Vietnam			0.46	0.15	0.60	1.69			0.12		1.38
14. Ethiopia			2.78							0.42	
15. Chile					0.26	1.91					
16. Philippines						1.19	0.95				
17. Africa regional	9.50	1.83		10.64			2.30	4.95		6.97	
18. Asia regional	3.00							1.30			
19. Latin America reg.							2.37				
20. Global progr.	17.21	4.08	15.09	4.20	0.99		14.71	4.60		30.90	
21. Other	1.40	0.30	0.49	1.12	2.05	0.73	1.00	0.11	1.44	0.68	-
Sub-total	**191.02**	**6.29**	**60.23**	**58.06**	**3.90**	**11.14**	**23.70**	**23.35**	**2.79**	**89.44**	**8.37**
Other countries											
22. Latvia	3.78	1.27				0.57					
23. Poland	1.36						3.96				
24. Estonia	1.28					1.03					
25. Other	1.30	-	-	0.20	0.57	-	-	-	-	-	-
Sub-total	**7.72**	**1.27**	**-**	**0.20**	**0.57**	**1.60**	**3.96**	**-**	**-**	**-**	**-**
TOTAL:	**198.74**	**7.56**	**60.23**	**58.26**	**4.47**	**12.74**	**27.66**	**23.35**	**2.79**	**89.44**	**8.37**
Including credits:	72.42	-	-	-	-	2.37	-	-	-	-	-

Source: Sida

Table 20
Bilateral and regional funding related to implementation of the Climate Convention, 1998, (millions SEK)

Recipient country/ region	Measures to reduce emissions and increase removals of greenhouse gases							Adjustment			Other-
	Energy	Transport	Forestry	Agriculture	Waste	Industry management	Air pollution/ other	Capacity developm./ research	Adm. Coastal areas	Other vulnerability reduction	
Non-Annex 1 countries											
1. Tanzania	86.67	1.83						27.20	2.07	35.14	0.04
2. Vietnam	35.59				0.21	1.03	1.71	13.22	2.32		
3. Kenya					0.96			2.94		43.97	
4. Bangladesh										41.78	
5. Mozam-bique	9.13	0.32						27.86		2.74	
6. India	2.54		0.28	17.17	1.00	3.19		5.32			
7. Laos			12.10					0.85			
8. Bolivia			0.49			3.63		8.41			
9. Ethiopia								12.53			
10. Ecuador	4.71					7.18					
11. Nicaragua	3.89							5.70		0.30	
12. Zambia	6.93	1.19									
13. Zimbabwe		1.86						2.32			3.93
14. Philippines			0.39		0.40	4.38	0.85	1.59			
15. Guatemala								0.03		6.05	
16. Chile		0.84				2.75	0.04	0.57			
17. Africa regional	9.50			19.97		1.43		16.80	17.70	3.77	1.31
18. Asia regional	4.47							10.47	2.00	1.60	
19. Latin America reg.								0.90	3.48	1.80	
20. Global programmes	14.55	4.90	7.97	9.71	2.80	10.66	5.42	135.54	7.59	16.96	0.79
21. Other	2.31	0.94	0.44	1.10	1.63	3.81	1.19	6.07	0.95	2.17	1.44
Sub-total	**180.29**	**10.06**	**23.49**	**48.91**	**6.03**	**38.05**	**10.10**	**280.92**	**34.43**	**154.48**	**7.51**
Other countries											
22. Poland	1.48	7.60	0.07		3.31		7.70				0.59
23. Latvia	11.54	0.40	0.03		0.55						
24. Russia	3.32	3.62	1.59	0.28			2.48				
25. C/E Europe regional	11.36	1.30		3.58	0.71		4.00		0.94		
26. Other	0.87	4.50	0.65	0.60	-	-	0.34	3.53	-	1.61	-
Sub-total	**28.56**	**17.43**	**2.33**	**4.46**	**4.57**	**-**	**14.52**	**3.53**	**0.94**	**1.61**	**0.59**
TOTAL:	**208.8**	**27.5**	**25.8**	**53.4**	**10.6**	**38.1**	**24.6**	**284.4**	**35.4**	**156.1**	**8.1**
including credits:	17.32	-	-	-	-	-	-	-	-	-	-

Source: Sida

Table 21
Bilateral and regional funding related to implementation of the Climate Convention, 1999, (millions SEK)

Recipient country/ region	Measures to reduce emissions and increase removals of greenhouse gases							Adjustment			Other-
	Energy	Transport	Forestry	Agriculture	Waste	Industry management	Air pollution/ other	Capacity developm./ research	Adm. Coastal areas	Other vulnerability reduction	
Non-Annex 1 countries											
1. Tanzania	69.50		2.41					37.42	3.20	35.09	0.03
2. Bangladesh										76.82	
3. Vietnam	39.14					2.24	0.24	13.24	0.00		
4. Mozam-bique	36.95		0.02					13.32		1.52	
5. Kenya								1.56		33.14	
6. Zambia	9.14	0.80		6.55				12.13		0.19	
7. India	5.94	0.21	2.28	6.11		2.79	0.29				
8. Bolivia						7.14		7.14			
9. Honduras								0.09		12.32	
10. Zimbabwe		1.84			0.97			4.25			2.57
11. Tunisia		2.05			0.93					6.18	
12. Eritrea	8.33										
13. Nicaragua								8.09			0.21
14. Laos			8.00								
15. Guatemala				2.00		0.30				5.52	
16. Africa regional	6.50			30.35		2.22		18.53	15.91	11.79	0.10
17. Asia regional	14.93					0.19	1.61	15.50	16.27	16.20	
18. Latin Amer. reg., Carib						0.71	0.90	17.37	4.25	1.70	
19. Global programmes	15.56	7.34	7.31	13.17	3.19	14.10	10.46	108.54	15.91	10.92	1.43
20. Other	1.14	1.58	0.28	5.34	2.49	12.91	1.97	6.08	0.97	4.06	-
Sub-total	**207.13**	**13.83**	**20.29**	**63.52**	**7.58**	**42.59**	**15.48**	**263.27**	**56.52**	**215.47**	**4.33**
Other countries											
21. Russia	14.71	0.62	0.56	0.67		0.35	1.86				0.57
22. Latvia	5.76		1.44		4.63						0.61
23. Poland	0.29	0.70	0.86				7.74				0.18
24. Kosovo	30.78	0.74									
25. C./E.. Europe reg	0.41			3.00	1.47		4.00		0.28	7.36	
26. Other	6.13	6.60	2.53	2.70	-	-	0.87	2.78	-	7.08	-
Sub-total	**58.08**	**8.65**	**5.39**	**6.37**	**6.10**	**0.35**	**14.47**	**2.78**	**0.28**	**14.44**	**1.36**
TOTAL	**265.2**	**22.5**	**25.7**	**69.9**	**13.7**	**42.9**	**29.9**	**266.0**	**56.8**	**229.9**	**5.7**
including credits:	-	-	-	-	-	-	-	-	-	-	-

Source: Sida

Table 22
Bilateral and regional funding related to implementation of the Climate Convention, 2000, (millions SEK)

Recipient country/ region	Measures to reduce emissions and increase removals of greenhouse gases							Adjustment			Other-
	Energy	Transport	Forestry	Agriculture	Waste	Industry management	Air pollution/ other	Capacity developm./ research	Adm. Coastal areas	Other vulnerability reduction	
Non-Annex 1 countries											
1. Tanzania	71.99		2.08	1.00				35.68	3.87	31.62	0.09
2. Vietnam	63.91					4.90	0.56	12.64			
3. Bangladesh										74.43	
4. Kenya				0.37				13.95		29.74	
5. Sri Lanka						32.14					
6. Zambia	7.27			7.09				15.02		0.41	
7. Mozam-bique	9.76		0.01					19.28			
8. Uganda	20.00										
9. Ghana	19.50										
10. Honduras							0.11	5.18		12.06	
11. Laos			14.77					1.31			
12. Zimbabwe		0.93						9.66			1.57
13. North Korea			12.00								
14. India	1.01		0.35	1.15	1.00	1.94	0.54	5.52			
15. Nicaragua								10.74			0.08
16. Africa regional	15.18		0.00	23.08		0.78		35.01	4.39	7.07	0.01
17. Asia regional	13.95						5.12	11.22		9.29	
18. Latin Am. reg., Carib.	2.50						0.90	11.72	1.58	7.40	
19. Global programmes	20.96	3.86	3.28	13.45	2.36	14.95	6.67	160.45	17.39	10.50	4.68
20. Other	11.94	4.18	0.18	14.94	2.31	9.74	4.35	0.70	3.94	9.71	3.92
Sub-total	**257.95**	**8.96**	**20.69**	**73.07**	**5.67**	**64.46**	**18.24**	**348.08**	**31.17**	**192.24**	**10.35**
Other countries											
21. Kosovo	46.43	4.27			5.00						
22. Russia	19.22	2.64		0.70		2.75	0.44				0.44
23. Bosnia-Herzogovina		0.53		12.72							
24. Ukraine	4.29		2.65					1.63		2.69	
25. C/E. Europe reg	1.98		0.23	13.00	0.86		4.30		0.02	12.94	0.70
26. Other	4.42	2.37	1.19	4.80	1.77	-	5.93	0.26	-	5.01	0.81
Sub-total	**76.35**	**9.81**	**4.07**	**31.23**	**7.63**	**2.75**	**10.68**	**1.89**	**0.02**	**20.64**	**1.94**
TOTAL	**334.3**	**18.8**	**24.8**	**104.3**	**13.3**	**67.2**	**28.9**	**350.0**	**31.2**	**212.9**	**12.3**
including credits:	73.90	-	-	-	-	-	-	-	-	-	-

Source: Sida