Luxembourg

Sources of information

- Strategie nationale de reduction des emissions de gaz a effet de serre — First part, May 2000.

Quality and transparency of reporting

The strategy document describes six major areas for intervention. Each of these is subdivided into specific measures, which are described in detail. There are no estimates of the separate contributions from each action and it is unclear as to whether the 'with measures' scenario already includes some contributions from these actions.

Table 1: Information provided on policies and measures

Information provided	Level provided	Comments
Policy names	+++	
Objectives of policies	+++	Mainly actions are described
Which GHGs?	CO_2, CH_4, N_2O + industrial gases	
Status of implementation	+	Qualitative descriptions of opportunities only
Implementation body specified	–	
Quantitative assessment of implementation	–	No quantitative assessments made
Interaction with other P&Ms discussed	–	Not examined

+, ++, +++ level of information available increases as the number of + signs increases

Projections of emissions are provided for all gases separately and at the sector level for CO_2. There is no information on forecasting methodologies and this needs discussion with national officials.

Table 2: Information provided on projections

Category of information	Level of information provided	Comments
Scenarios considered	++	With and without measures scenarios given
Expressed relative to inventory for previous years	++	With measures forecast starts at 1999 (inventory available for 1998)
Starting year	1999	For the with measures scenario. Without measures base year, 1990
Split of projections	Shown for all gases	
Presentation of results	–	CO_2 by sector. National total for other gases
Description of model (level of detail, approach and assumptions)	++	No description of modelling approach. Basic economic scenario assumptions provided
Discussion of uncertainty	–	No discussion of uncertainty in the projections.
Details of parameters and assumptions	+	Upper and lower range provided for projections. List of assumptions.

+, ++, +++ level of information available increases as the number of + signs increases

Assessment of policies and measures

A baseline scenario of non-intervention is provided together with an intermediate intervention scenario. All gases are considered and for CO_2, a sector analysis is also provided.

Table 3: Summary of the effect of policies and measures included in the projections ($MtCO_2$)

	With measures[b]	With additional measures
Industry	4.659	
Domestic	0.142	
Road transport	0.182	
Other	0.482	
Total	5.465	

b) 'Intermediate intervention' scenario

Six areas of intervention are defined and each of these is subdivided into specific actions.

Table 4: Detailed information on polices and measures

Sector	Name	Objective	GHG affected	Type of instrument	Status	Implementing entity	Estimate of savings ($MtCO_2$)		CCPM
							2010	2020	
Policies and measures in the with measures projection									
Energy supply	Renewable energy — wind,solar, biomas, hydro, biofuels, biogas, wood	Lower CO_2 of electricity generation	Mainly CO_2	Regulation and fiscal (subsidy)	Implemented*	Not given	Not provided		Y
Energy supply	Improved efficiency in power and heat generation	Lower CO_2 systems	Mainly CO_2	Fiscal (subsidy)	Implemented*	Not given	Not provided		N
Commercial and residential	Energy efficiency	Reduced energy demand	Mainly CO_2	Regulation, fiscal and voluntary agreement	Implemented / Adopted*	Not given	Not provided		Y
Cross sectoral	Fiscal measures — taxation	Reduced energy demand	Mainly CO_2	Fiscal (taxation)	Adopted*	Not given	Not provided		N
Transport	Transport – new technologies, community transport, information	Reduce demand	Mainly CO_2	Fiscal and other	Adopted*	Not given	Not provided		Y
Business	International co-operation, trading, CDM,JI, sinks	Mainly CO_2	No discussion	Economic and other	Adopted*	Not given	Not provided		Y

*Status interpreted from limited information

Evaluation of projections

The latest business as usual projections shows total greenhouse gases increases of 20.5 % between 1990 and 2010. This projection is named 'scenario de non-intervention' and it is assumed that it does not include any abatement policies. This is not made clear in the strategy document. The 'scenario d'intervention intermediaire' gives a 23 % emissions reduction compared with Luxembourgs' commitment under the EU burden sharing agreement of –28 %. Between 1990 and 1998 emissions fell by 32.6 % resulting mainly from industrial reductions.

Table 5: Summary of projections by gas in 2010 ($MtCO_2$)

	Base year	Without measures[a]	With measures[b]
CO_2	11.7	14.2	8.7
CH4	0.50	0.50	0.54
N_20	0.20	0.20	0.22
HFC, PFC, SF6 *	0.02	0.11	0.11
Total	**12.4**	**15.0**	**9.6**
% change relative to base year		20.5 %	–22.9 %

* the base year for halogenated gases is 1995
a) This scenario is 'non-intervention' and appears to be a without measures reference scenario
b) 'Intermediate intervention' scenario

According to the May 2000 strategy, the largest percentage increase is projected for the halogenated gases although these are still a small fraction of the total. Methane and agricultural N_2O are projected to remain constant under the 'non-intervention' scenario and to increase slight under the 'intermediate intervention' scenario.

The existing policies and measures are projected to have the largest impact on the industry sector, where CO_2 emissions are cut by 62 % relative to 1990 emissions. With no intervention, the transport sector CO_2 emissions are predicted to increase by 74 % between 1990 and 2010, with existing measures, the increase over this time frame is still high at 53 %.

Table 6: Summary of projections by sector in 2010 ($MtCO_2$)

	Base year	Without measures[a]	% change relative to 1990	With measures[b]	% change relative 1990 (with measures)
CO_2					
Industry	6.7	7.2	7 %	2.5	–62 %
Domestic	1.3	1.9	49 %	1.8	38 %
Transport	0.9	1.6	74 %	1.4	53 %
Other	1.3	1.4	5 %	0.9	–32 %
Sinks	–0.3	–0.3	0 %	–0.3	0 %
Fuel export sold	1.8	2.5	35 %	2.5	35 %
Non-CO_2 gases	0.7	0.8	13 %	0.9	23 %
Total	**12.4**	**15.0**		**9.6**	

a) This scenario is 'non-intervention' and appears to be a without measures reference scenario
b) 'Intermediate intervention' scenario

Under the intermediate intervention scenario, which is assumed to include existing policies and measures, emissions decrease by 23 % between 1990 and 2010. The resultant shortfall of 0.6 Mt of CO_2 equiv to reach the Kyoto target is small in comparison to the base year emissions and should not be difficult to make-up.

Table 7: Assessment of the target

	$MtCO_2$ equiv.	% of 1990 level (six gas basket)
Base year (from projections)	12.42	
Commitment	8.94	–28.0 %
With existing P&Ms[b]	9.57	–22.9 %
Gap (-ve means no gap)	0.63	5.1 %
Effect of additional P&Ms	0.00	–

b) 'Intermediate intervention' scenario

Description of modelling approach

Describe the modelling approach and main input assumptions. MS should provide the information indicated in the reporting guidelines.

Modelling parameters

Parameter	2000	2010	Unit

Country conclusions

Luxembourg has the largest reduction target in the EU at –28 %, and by 1998 had achieved reductions of almost 33 %. The intermediate intervention (with measures) scenario is forecast to achieve reductions of –22.9 %, although it is not clear in the current strategy document which measures are included and the policies and measures included in the strategy are not analysed to assess contribution. A comprehensive set of policies and measures is nevertheless identified.

The gap between target and forecast is approximately 5 % of 1990 emissions equivalent to 0.63 Mt CO_2 and the contribution from measures defined in the intermediate intervention scenario is 5.5 Mt CO_2. The additional 5 % required should not therefore prove difficult, although additional measures to be adopted are not yet clear.