

Trends and projections in Europe 2013

Tracking progress towards Europe's climate and energy targets until 2020

Contents

List of figures and tables	5
Acknowledgements	7
Executive summary	8
1 Introduction	14
1.1 Objective.....	14
1.2 Scope	14
1.3 Approach to tracking progress.....	15
1.4 Data sources.....	15
1.5 Quality management of reported information	17
Part A – Progress towards Europe's 2008–2012 objectives (The EU ETS, the Kyoto Protocol's first commitment period)	19
2 The EU ETS in 2008–2012	20
2.1 Introduction.....	20
2.2 Coverage of the EU ETS.....	21
2.3 Emission caps	26
2.4 Emission trends in the EU ETS.....	30
2.5 Use of international emission credits	35
2.6 Supply and demand in the EU ETS in the second trading period	36
2.7 Allowance price development	39
3 2008–2012 emission targets and compliance under the Kyoto Protocol	41
3.1 Emission targets under the Kyoto Protocol's first commitment period and the burden-sharing agreement	42
3.2 Achieving 2008–2012 objectives: the 'Kyoto compliance equation'	42
3.3 Role of the Emission Trading System in the achievement of Kyoto targets.....	44
3.4 Increasing assigned amounts through carbon sinks and use of international credits	45
3.5 Implications of target over-delivery by some EU-15 Member States	46
3.6 Post-2012 emission reduction commitments in Europe under the Kyoto Protocol	47
4 Current progress towards 2008–2012 Kyoto targets	49
4.1 Total emission levels	50
4.2 Emission levels in non-ETS sectors.....	51
4.3 Contribution from carbon sinks.....	54
4.4 Use of flexible mechanisms	57
4.5 Progress of European countries	61
4.6 Progress of the EU-15	63
4.7 Calculation of current progress towards Kyoto targets for individual countries.....	65
5 Respective contributions of the ETS and non-ETS sectors towards achieving Kyoto targets in Europe	80
5.1 Kyoto targets compared to 2005 levels.....	81
5.2 Emission budgets for the ETS and non-ETS sectors compared to 2005 emissions (ex-ante).....	82
5.3 Comparison of 2008–2012 emissions with reductions targets in the ETS and non-ETS sectors ...	84

Part B – 2020: Progress towards Europe's 20/20/20 objectives (GHG emissions, renewable energy and energy efficiency)	87
6 2020 climate and energy targets in the EU	88
6.1 EU's climate and energy targets for 2020.....	88
6.2 The EU climate and energy package.....	88
6.3 Energy efficiency objectives and related policy framework.....	89
7 Progress towards 2020 GHG targets	93
7.1 EU GHG emission trends and projections	94
7.2 National 2020 GHG emission targets under the ESD	101
7.3 Progress towards annual targets in non-ETS sectors in the EU	103
7.4 Projected emissions of other EEA member countries.....	112
8 Progress towards 2020 renewable energy targets	113
8.1 Progress of EU Member States towards renewable energy targets	113
8.2 EU progress towards renewable energy targets.....	117
8.3 Contributions by renewable energy carriers (electricity, heating and cooling, and transport)	118
8.4 Main contributing technologies	119
8.5 Recent market developments/implementation challenges.....	121
9 Progress towards 2020 energy efficiency objectives	124
9.1 Definition of energy efficiency targets in EU Member States.....	124
9.2 Energy consumption trends in the EU, 2005–2011	128
9.3 Progress in implementing energy efficiency policies in EU Member States and challenges ahead	130
9.4 EU Member States' progress towards improving energy efficiency	131
10 Integrated progress towards 20/20/20 climate and energy targets	133
10.1 The integration of climate and energy 2020 targets.....	133
10.2 Integrated overview of EU Member States' climate and energy performance.....	133
Acronyms, units and terms	136
References	139

List of figures and tables

Figures

Figure 2.1	Installations and emissions in EU ETS sectors, 2008–2012	21
Figure 2.2	Installations and emissions in EU ETS countries, 2008–2012	22
Figure 2.3	Cumulated verified emissions, annual average 2008–2012	22
Figure 2.4	Perspective of the EU ETS cap up to 2050	26
Figure 2.5	Comparison of verified emissions and free allocation in all participating countries, average 2008–2012	28
Figure 2.6	Quantities of EUAs auctioned or sold by participating countries, 2008–2012	29
Figure 2.7	Verified emissions of stationary EU ETS installations by sectors, 2005–2012	31
Figure 2.8	Trend of verified emissions in key sectors, 2005–2012	31
Figure 2.9	Trend of electricity generation by fuel, 2005–2011	32
Figure 2.10	Verified emissions and production/consumption trends in key sectors, 2005–2012	33
Figure 2.11	Trend of verified emissions for selected countries, 2005–2012	34
Figure 2.12	Annual use of international credits (CERs and ERUs) in the EU ETS, 2008–2012	36
Figure 2.13	Supply and demand balance for stationary installations in all EU ETS countries, 2008–2012	38
Figure 2.14	Price trends for EUAs and CERs, 2005–2012	40
Figure 3.1	Average annual GHG emission targets in Europe under the KP (2008–2012) relative to base-year emissions (absolute and relative)	43
Figure 3.2	Possible changes in an assigned amount under the KP	44
Figure 3.3	Target over-delivery and surplus assigned amount	47
Figure 4.1	Average gaps between total GHG emissions and Kyoto or burden-sharing targets (without the use of carbon sinks and flexible mechanisms), 2008–2012	50
Figure 4.2	Total, ETS and non-ETS emission trends in the EU-15 compared to their respective targets, 2008–2012	51
Figure 4.3	Average gaps between non-ETS emissions and Kyoto or burden-sharing targets (without the use of carbon sinks and flexible mechanisms), 2008–2012	53
Figure 4.4	Absolute and relative gaps between average non-ETS 2008–2012 emissions and Kyoto targets with the use of carbon sinks	56
Figure 4.5	Absolute and relative gaps between average non-ETS 2008–2012 emissions and Kyoto targets with the use of carbon sinks and flexible mechanisms	60
Figure 4.6	Breakdown of current progress achieved by European countries towards their Kyoto targets by the end of 2012	62
Figure 4.7	Actual progress of the EU-15 towards its non-ETS KP target in absolute and relative terms	63
Figure 5.1	Kyoto targets compared to base-year and to 2005 emissions	81
Figure 5.2	2008–2012 emission budgets in the ETS and non-ETS sectors compared to respective 2005 emission levels	82
Figure 5.3	Emissions in ETS and non-ETS sectors compared to their respective emission budgets, 2008–2012	85
Figure 7.1	Trends and projections of EU total GHG emissions	96
Figure 7.2	GHG trends and projections for ETS and non-ETS emissions, 2005–2030	97
Figure 7.3	Sectoral trends and projections of EU GHG emissions	98
Figure 7.4	Share of reported policies and measures by affected sector	99
Figure 7.5	Projected emissions reductions by sector	100
Figure 7.6	GHG targets under the climate and energy package	101
Figure 7.7	National 2020 GHG emission limits under the ESD relative to 2005 emissions levels	102

List of figures and tables

Figure 7.8	Current progress in meeting national targets in 2013 in the sectors not covered by the EU ETS	104
Figure 7.9	EU-28 GHG emissions from sectors covered by the ESD.....	106
Figure 7.10	Projected emissions in 2020 in non-EU ETS sectors compared to targets for 2020	107
Figure 7.11	Historic GHG trends and emission projections in EEA member countries which are not EU Member States, 1990–2030	112
Figure 8.1	Share of renewable energy in gross final energy consumption in EEA countries	114
Figure 8.2	Actual RES progress in the EU-28, indicative trajectory (RED) and expected trajectories (NREAPs).....	118
Figure 8.3	Breakdown of EU renewable energy share into RES-E, RES-H/C and RES-T and comparison with NREAP 2020.....	120
Figure 8.4	Renewable energy technologies: historic and expected contributions	122
Figure 9.1	Primary energy consumption in 2011 and national targets for 2020 in EU Member States	126
Figure 9.2	Final energy consumption in 2011 and targets for 2020 in EU Member States	127
Figure 9.3	Primary and final energy consumption in EU-28 over the period 2005–2011 and target values for 2020.....	129
Figure 9.4	Primary energy intensity trends in EU-27 from 1990–2011.....	129
Figure 9.5	The scope of National Energy Efficiency Action Plans	130

Tables

Table ES.1	Progress towards 2020 climate and energy targets in the EU.....	12
Table 1.1	Main national targets for GHG emissions.....	16
Table 1.2	Data sources and related reporting requirements.....	18
Table 2.1	Description of the sectors covered by the EU ETS.....	21
Table 2.2	Scope correction, 2005–2012.....	25
Table 2.3	Allowances issued by participating countries, 2008–2012.....	27
Table 2.4	Entitlements for the use of CDM and JI credits for stationary installations	37
Table 2.5	Surplus of allowances in the EU ETS, 2008–2012	39
Table 3.1	Overview table of QELRCs submitted by European countries.....	48
Table 4.1	Current progress towards Kyoto or burden-sharing targets based on historic domestic GHG emissions (assuming no use of flexible mechanisms or LULUCF)	52
Table 4.2	Actual (2008–2011) average annual emissions and removals from LULUCF activities	55
Table 4.3	Current progress towards Kyoto or burden-sharing targets based on historic domestic GHG emissions with carbon sinks (assuming no use of flexible mechanisms)	57
Table 4.4	Planned average annual Kyoto units from flexible mechanism, 2008–2012	59
Table 4.5	Overview of input data for the EU-15 for the calculation of the overachievement/gap between 2008–2012 GHG emissions and targets for the sectors not covered by the EU ETS ...	64
Table 5.1	2008–2012 reduction targets compared to 2005 emissions	83
Table 5.2	Emissions in ETS and non-ETS sectors compared to their respective emission budgets, 2008–2012.....	86
Table 6.1	Evolution of the EU policy framework relevant to energy over the period 2009–2013	91
Table 7.1	Calculation of current progress towards 2013 ESD targets — difference between 2012 emissions and 2013 ESD target.....	105
Table 7.2	Planned policies and measures in Bulgaria, Germany, Italy, Latvia, the Netherlands and Slovenia.....	108
Table 7.3	Calculation of projected progress towards 2020 ESD targets — difference between non-ETS WEM and WAM projections and ESD targets	110
Table 7.4	EU Member States according to their current and projected progress towards ESD GHG emission targets.....	111
Table 8.1	Actual and planned RES contributions to gross final consumption	115
Table 8.2	Indicative EU-28 trajectory (RED), and expected trajectory (NREAP)	117
Table 8.3	Contribution by renewable energy carriers (electricity, heating/cooling, transport).....	119
Table 8.4	Breakdown by RES technologies for electricity (E), heating and cooling (H/C) and transport (T) for EU-27	121
Table 9.1	Implementation progress concerning energy efficiency in EU Member States	132
Table 10.1	Progress towards 2020 climate and energy targets in the EU.....	135