

# Greenhouse gas emission trends and projections in Europe 2012

Tracking progress towards Kyoto and 2020 targets



# Contents

<b>List of figures and tables</b> .....	<b>4</b>
<b>Acknowledgements</b> .....	<b>6</b>
<b>Executive summary</b> .....	<b>7</b>
<b>1 Introduction</b> .....	<b>15</b>
1.1 Objective and scope .....	15
1.2 Data sources .....	15
1.3 Quality management of reported information .....	17
<b>2 2008–2012 emission targets and compliance under the Kyoto Protocol</b> .....	<b>19</b>
2.1 Emission targets under the Kyoto Protocol's first commitment period and the Burden-Sharing Agreement .....	19
2.2 Achieving 2008–2012 objectives: the 'Kyoto compliance equation' .....	20
2.3 Role of the EU Emission Trading System in the achievement of Kyoto targets .....	22
2.4 Increasing assigned amounts through flexible mechanisms and carbon sinks .....	22
2.5 Implications of target over-delivery by some EU-15 Member States .....	24
<b>3 Current progress towards 2008–2012 Kyoto targets</b> .....	<b>25</b>
3.1 Total emission levels .....	26
3.2 Emission levels in the non-ETS sectors .....	26
3.3 Use of flexible mechanisms and LULUCF .....	29
3.4 Current progress of European countries .....	35
3.5 Current progress of the EU-15 .....	38
<b>4 The European Union Emissions Trading System</b> .....	<b>41</b>
4.1 Introduction to the EU ETS .....	41
4.2 EU ETS emissions in the second trading period .....	43
4.3 Price development .....	48
4.4 Use of JI and CDM by operators .....	49
4.5 Aviation in the EU ETS .....	51
4.6 Outlook for the third trading period (2013–2020) .....	51
<b>5 2020 GHG emission targets in the EU and European countries</b> .....	<b>54</b>
5.1 The EU Climate and Energy Package .....	54
5.2 National 2020 GHG emission targets under the Effort Sharing Decision .....	55
5.3 Use of flexibility options in the ESD annual compliance cycle .....	56
5.4 Post-2012 emission reduction commitments in Europe under the Kyoto Protocol .....	57
<b>6 Projected progress towards 2020 targets</b> .....	<b>59</b>
6.1 EU projected progress towards its 2020 target and beyond .....	59
6.2 Sectoral projections until 2020 .....	61
6.3 Projected progress towards national 2020 targets in non-ETS sectors .....	62
6.4 Projected emissions of other EEA member countries .....	64
<b>7 Glossary of terms and abbreviations</b> .....	<b>66</b>
<b>8 References</b> .....	<b>69</b>
<b>9 Calculation of progress towards Kyoto and 2020 targets</b> .....	<b>72</b>
<b>10 Country profiles</b> .....	<b>89</b>

# List of figures and tables

## Figures

Figure ES.1	Actual progress of the EU-15 towards its burden-sharing target in absolute and relative terms .....	8
Figure ES.2	Intended (2008–2012) and actual (2008–2011) average annual use of the Kyoto mechanisms.....	9
Figure ES.3	Absolute and relative gaps between average 2008–2011 non-ETS emissions and Kyoto target for non-ETS sectors .....	11
Figure ES.4	Projected gaps between 2020 GHG emissions and national targets in sectors not covered by the EU ETS .....	12
Figure ES.5	Comparison of available emission units and verified emissions in all 30 EU ETS countries, 2005–2011 .....	14
Figure 2.1	GHG emission targets in Europe under the KP (2008–2012) relative to base-year emissions (absolute and relative).....	20
Figure 2.2	Possible changes in an assigned amount under the KP .....	21
Figure 2.3	Target over-delivery and surplus assigned amount .....	24
Figure 3.1	Gaps between average total 2008–2011 emissions and Kyoto targets without the use of carbon sinks and flexible mechanisms .....	27
Figure 3.2	Gap between average non-ETS 2008–2011 emissions and Kyoto targets without the use of carbon sinks and flexible mechanisms .....	28
Figure 3.3	Intended (2008–2012) and actual (2008–2011) average annual use of the Kyoto mechanisms .....	33
Figure 3.4	Breakdown of current progress achieved by European countries towards their Kyoto targets by the end of 2011.....	35
Figure 3.5	Absolute and relative gaps between average 2008–2011 non-ETS emissions and Kyoto target for non-ETS sectors (AAU initial - ETS issued) (with and without the use of carbon sinks and flexible mechanisms) .....	37
Figure 3.6	Actual progress of the EU-15 towards its burden-sharing target in absolute and relative terms .....	38
Figure 3.7	Total, ETS and non-ETS emission trends in the EU-15 compared to their respective targets, 2008–2011 .....	40
Figure 4.1	Comparison of average verified emissions and free allocation for all 30 countries participating in the EU ETS, 2008–2011 .....	43
Figure 4.2	Comparison of available emission units and verified emissions in all 30 EU ETS countries, 2005–2011 .....	44
Figure 4.3	Development of sectoral emissions 2008–2011 compared to 2008 levels.....	47
Figure 4.4	EUA future prices 2008–2012 .....	48
Figure 4.5	Credits from CDM and JI surrendered in 2008–2011 .....	49
Figure 4.6	Perspective of the EU ETS cap up to 2050 .....	52
Figure 5.1	GHG targets under the Climate and Energy Package.....	55
Figure 5.2	National 2020 GHG emission limits under the ESD relative to 2005 emissions levels .....	56
Figure 6.1	Trends and projections of EU total GHG emissions, 1990–2030 .....	61
Figure 6.2	Sectoral trends and projections of EU GHG emissions .....	62
Figure 6.3	Projected gaps between 2020 GHG emissions and national targets in sectors not covered by the EU ETS.....	63
Figure 6.4	Historic GHG trends and emission projections in EEA member countries that are not EU Member States, and Croatia, 1990–2020 .....	65

---

**Tables**

Table 1.1	Information on countries covered in the report .....	16
Table 1.2	Data sources used for assessments in this report, and related reporting requirements ...	17
Table 1.3	Accounting of key factors in the projections reported by Member States.....	18
Table 3.1	Current progress towards Kyoto or burden-sharing targets based on historic domestic GHG emissions (no use of flexible mechanisms or LULUCF).....	29
Table 3.2	Actual (2008–2010) and expected (2008–2012) average annual emissions and removals from LULUCF activities .....	30
Table 3.3	Actual (2008–2011) and planned (2008–2012) average annual Kyoto units from flexible mechanisms.....	34
Table 3.4	Overview of input data for EU-15 for the calculation of the overachievement/gap between 2008–2011 GHG emissions and targets for the sectors not covered by the EU ETS.....	39
Table 4.1	Sectors covered by the EU ETS.....	42
Table 4.2	Comparison of available emission units and verified emissions in all 30 EU ETS countries, 2005–2011 .....	45
Table 4.3	Verified emissions, free allocation and sold/auctioned allowances per EU ETS country, 2008–2011 .....	46
Table 4.4	Verified emissions per trading sector in all 30 EU ETS countries, 2005–2011.....	47
Table 4.5	Limit on the use of JI and CDM credits by EU ETS operators .....	50
Table 5.1	Overview table of QELRCs submitted by European countries .....	58
Table 9.1	Calculation of progress towards 2008–2012 Kyoto targets.....	72
Table 9.2	Calculation of projected progress towards 2020 targets .....	88