EUROPEAN
COMMISSION

Brussels, 26.10.2018
SWD(2018) 453 final

PART 1/6

COMMISSION STAFF WORKING DOCUMENT

Technical information

Accompanying the document

Report from the European Commission to the European Parliament and the Council

EU and the Paris Climate Agreement: Taking stock of progress at Katowice COP

{COM(2018) 716 final}

Contents

Part 1: Country fact sheets

Country fact sheet: Austria

1. Total greenhouse gas emissions

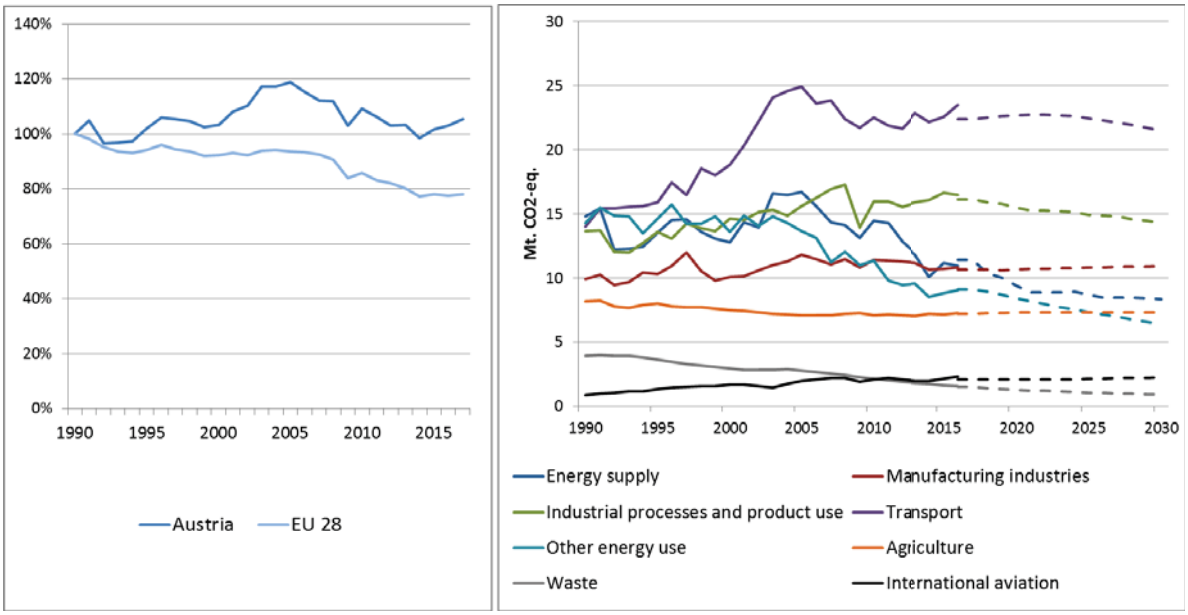

Figure 1: Left hand side: Total greenhouse gas emissions[1] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[2] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

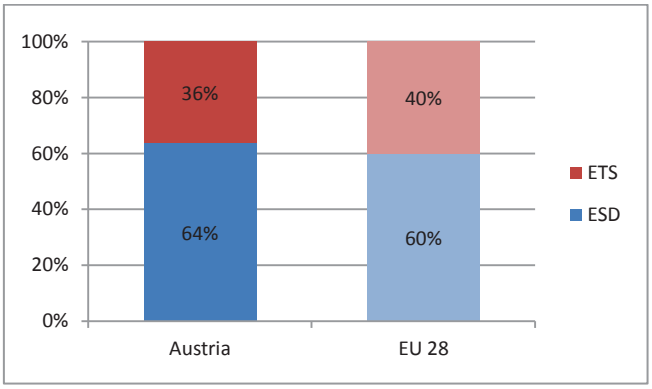

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[3]

[1] National total, including international aviation.
[2] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[3] Excluding international aviation, CO_2 from domestic aviation and NF_3.

4. ETS emissions

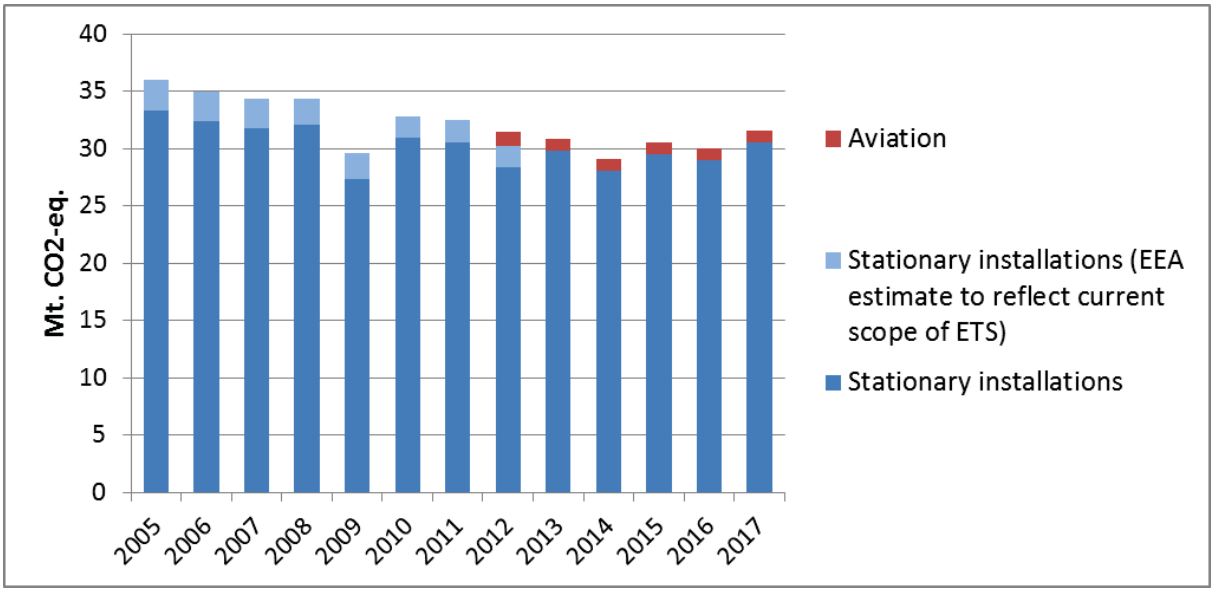

Figure 3: ETS emissions (Mt CO_2-eq.).[4]

3. Emissions in Effort Sharing sectors

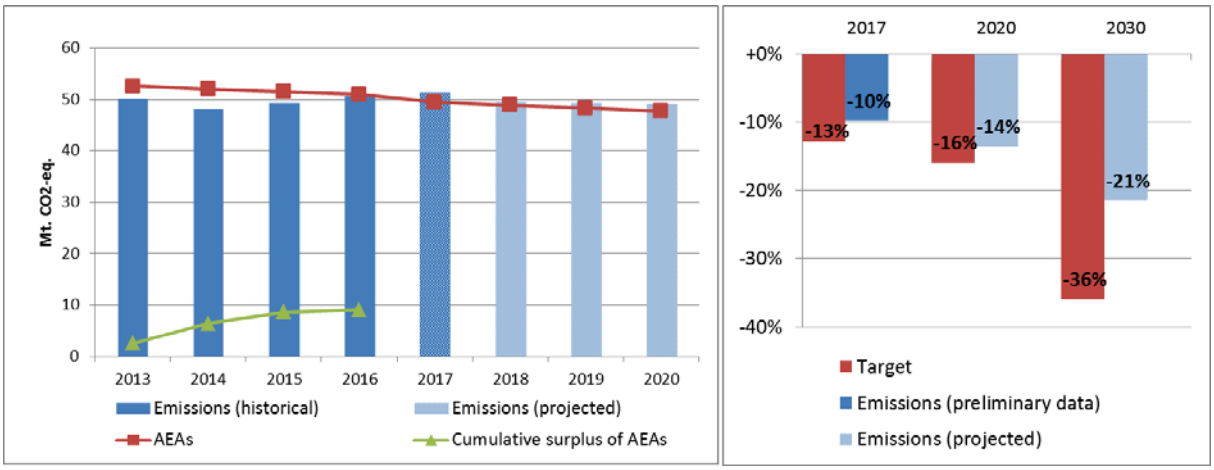

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[4] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

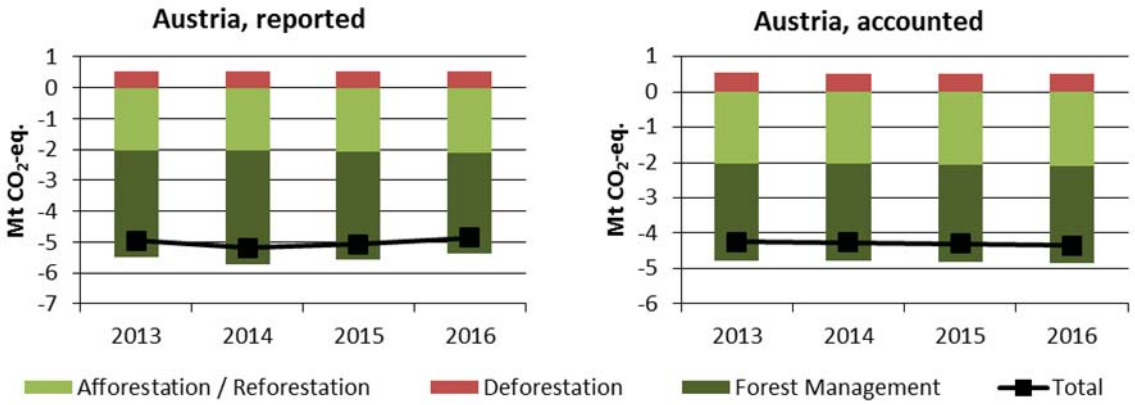

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[5]

Reported quantities under the Kyoto Protocol for Austria show net removals of, on average, -5.0 Mt CO_2-eq for the period 2013 to 2016. In this regard Austria contributes with 1.3% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -4.3 Mt CO_2-eq, which corresponds to 3.7% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals are highest for 2014 and decreased slightly over the following years, while accounted net credits show no notable trend. In this preliminary simulated accounting exercise potential credits by Forest Management of, on average, -2.8 Mt CO_2-eq per year are capped to -2.7 Mt CO_2-eq per year. Austria is one of eight EU Member States which exceed the cap of 3.5% from emissions of the base year (1990).

[5] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Belgium

1. Total greenhouse gas emissions

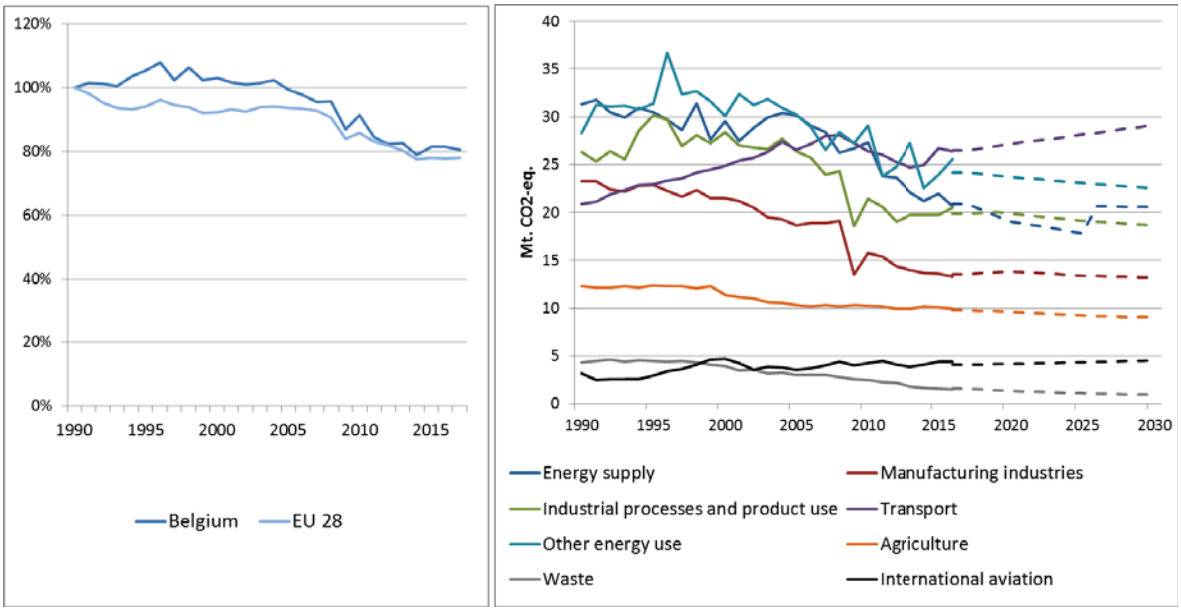

Figure 1: Left hand side: Total greenhouse gas emissions[6] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[7] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

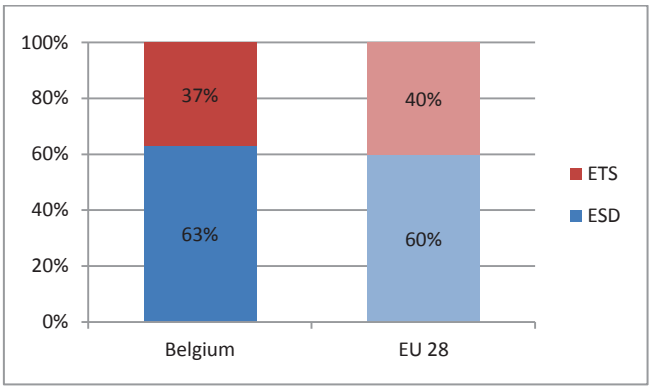

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[8]

[6] National total, including international aviation.

[7] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.

[8] Excluding international aviation, CO_2 from domestic aviation and NF_3.

4. ETS emissions

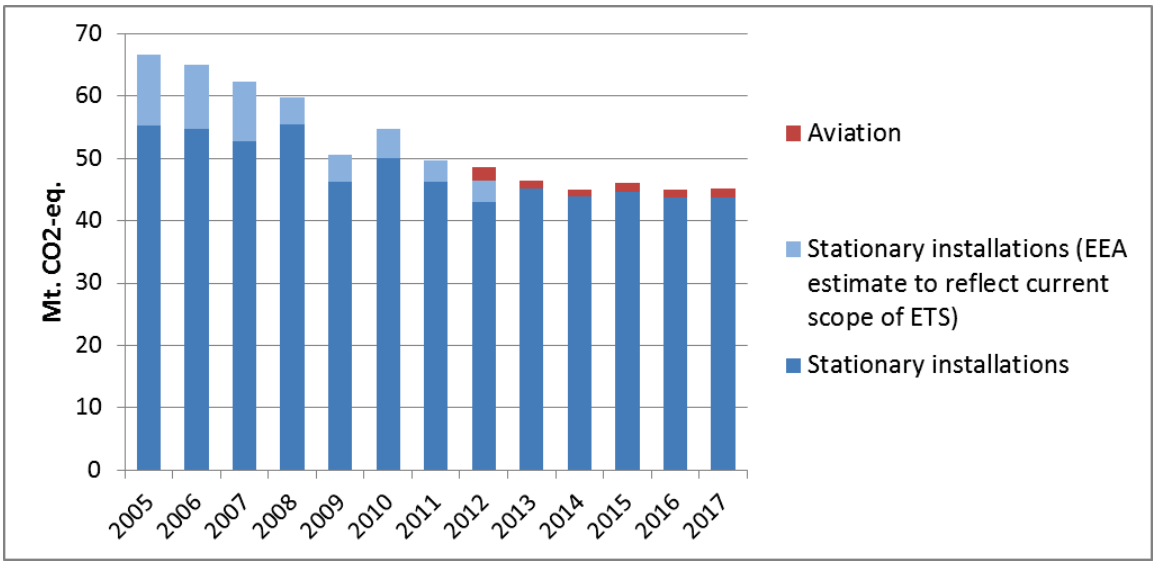

Figure 3: ETS emissions (Mt CO_2-eq.).[9]

3. Emissions in Effort Sharing sectors

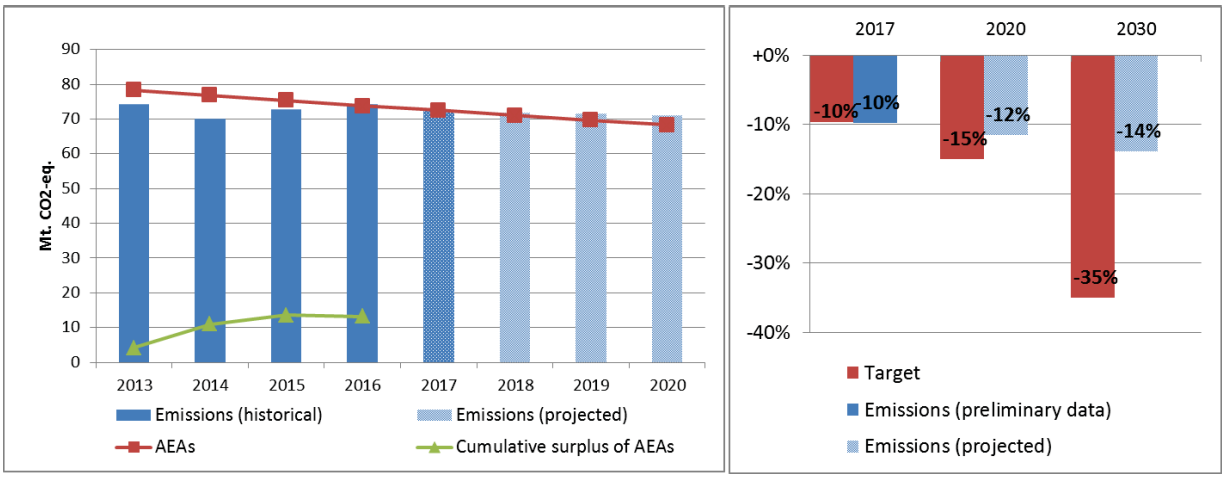

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[9] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

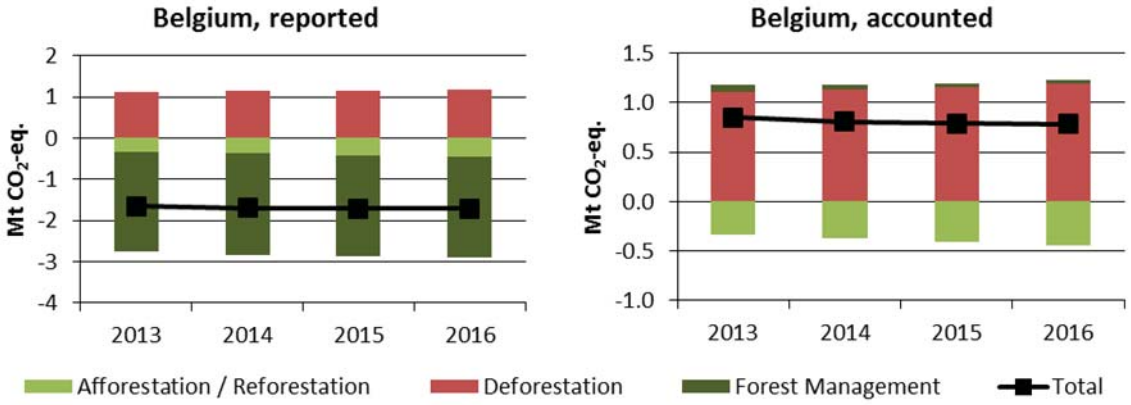

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[10]

Reported quantities under the Kyoto Protocol for Belgium show net removals of, on average, -1.7 Mt CO_2-eq for the period 2013 to 2016. In this regard Belgium contributes with 0.4% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net debits of, on average, 0.8 Mt CO_2-eq, which corresponds to a negative contribution of -0.7% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Belgium is one of six EU Member States which show net debits in this preliminary accounting exercise. Reported net removals show no notable trend, while accounted net debits depict slight decreases.

[10] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Bulgaria

1. Total greenhouse gas emissions

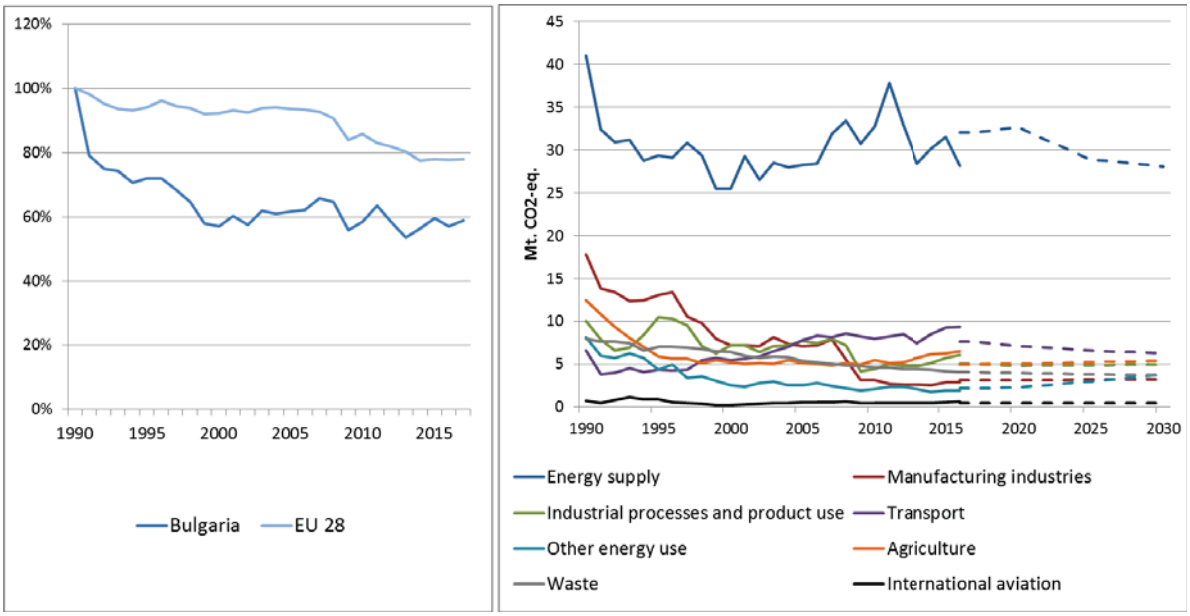

Figure 1: Left hand side: Total greenhouse gas emissions[11] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[12] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

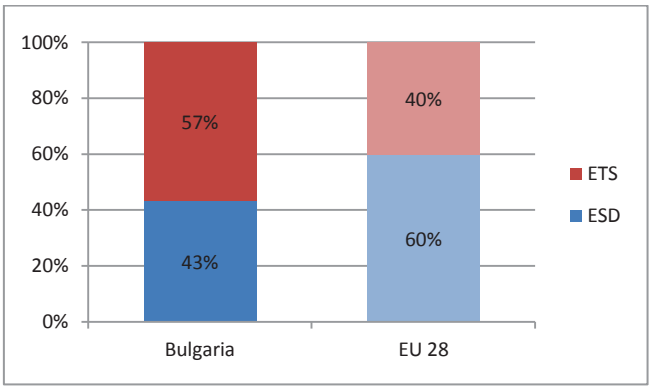

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[13]

[11] National total, including international aviation.
[12] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[13] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

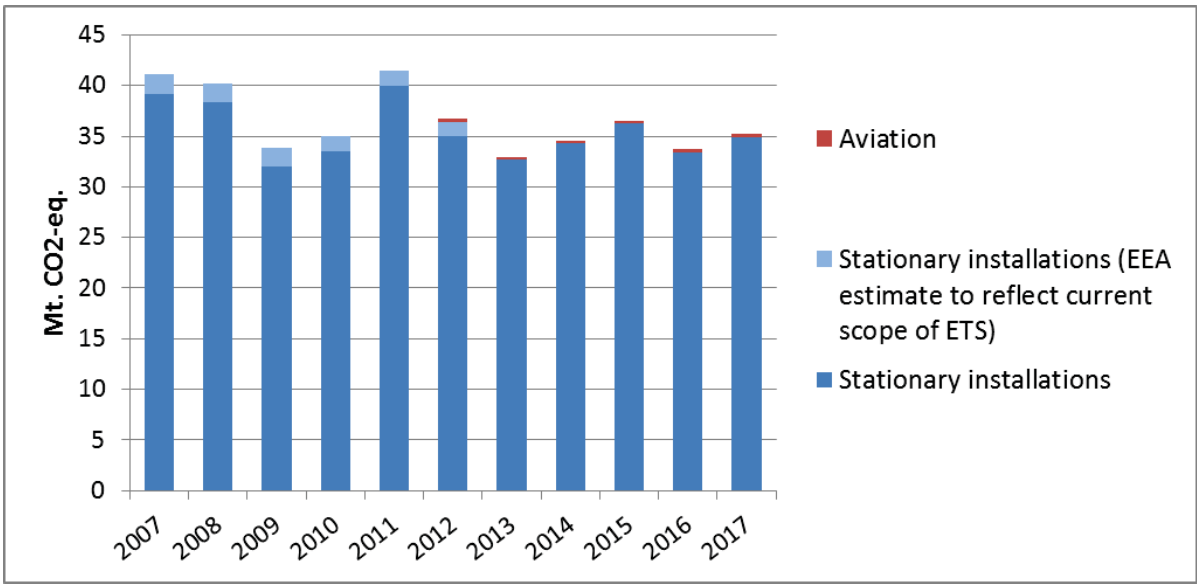

Figure 3: ETS emissions (Mt CO_2-eq.).[14]

3. Emissions in Effort Sharing sectors

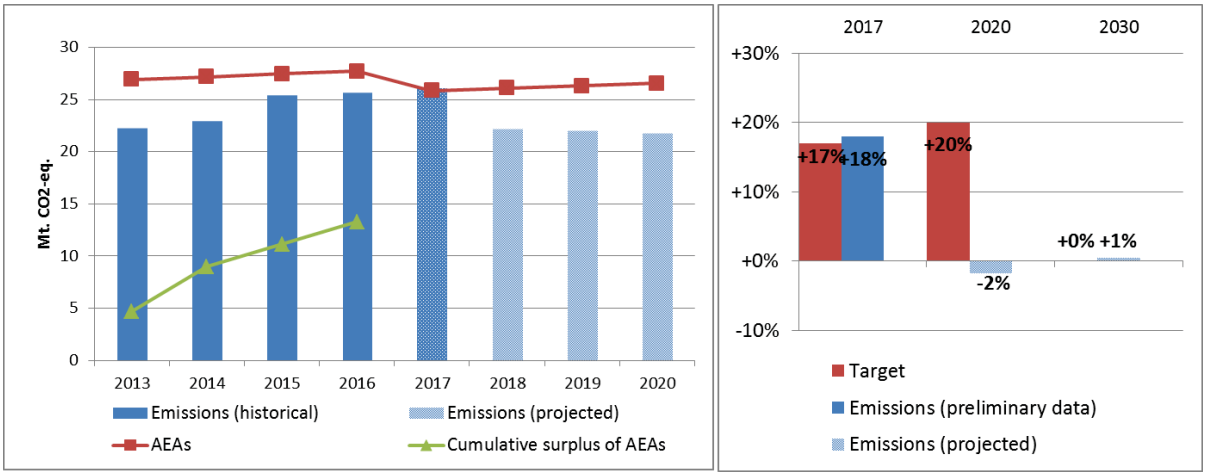

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[14] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2007 to 2012. The estimates cover only emissions from stationary installations. Bulgaria joined the EU ETS in 2007.

4. Land use, land use change and forestry

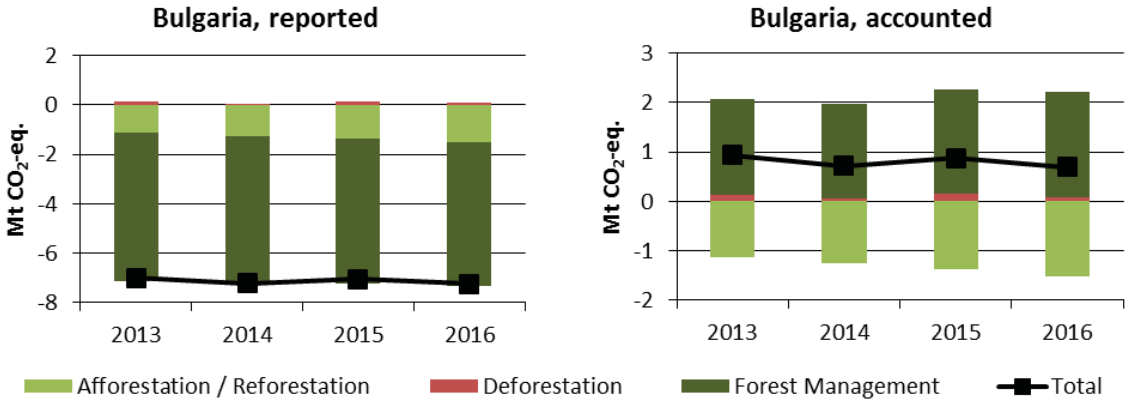

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[15]

Reported quantities under the Kyoto Protocol for Bulgaria show net removals of, on average, -7.1 Mt CO_2-eq for the period 2013 to 2016. In this regard Bulgaria contributes with 1.9% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net debits of, on average, 0.8 Mt CO_2-eq, which corresponds to a negative contribution of -0.7% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Bulgaria is one of six EU Member States which show net debits in this preliminary accounting exercise. Reported net removals show minor variations with no trend, while accounted net debits depict the same variation with slight decreasing tendencies.

[15] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Croatia

1. Total greenhouse gas emissions

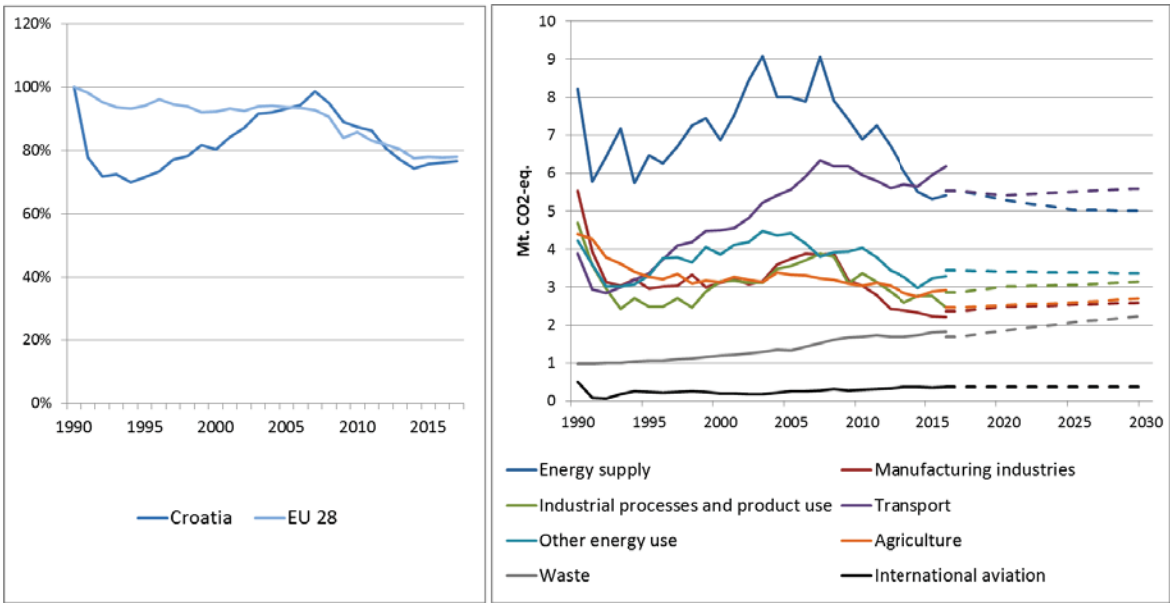

Figure 1: Left hand side: Total greenhouse gas emissions[16] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[17] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

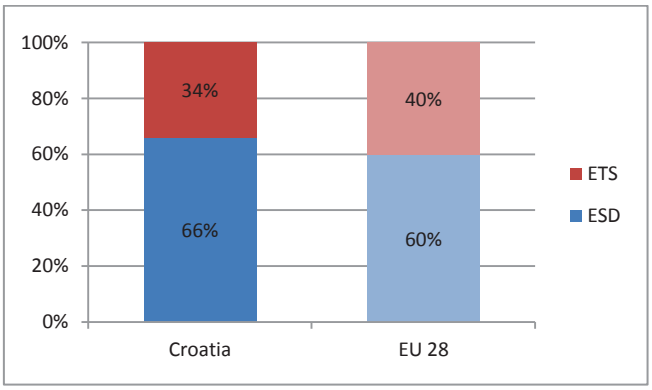

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[18]

[16] National total, including international aviation.
[17] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[18] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

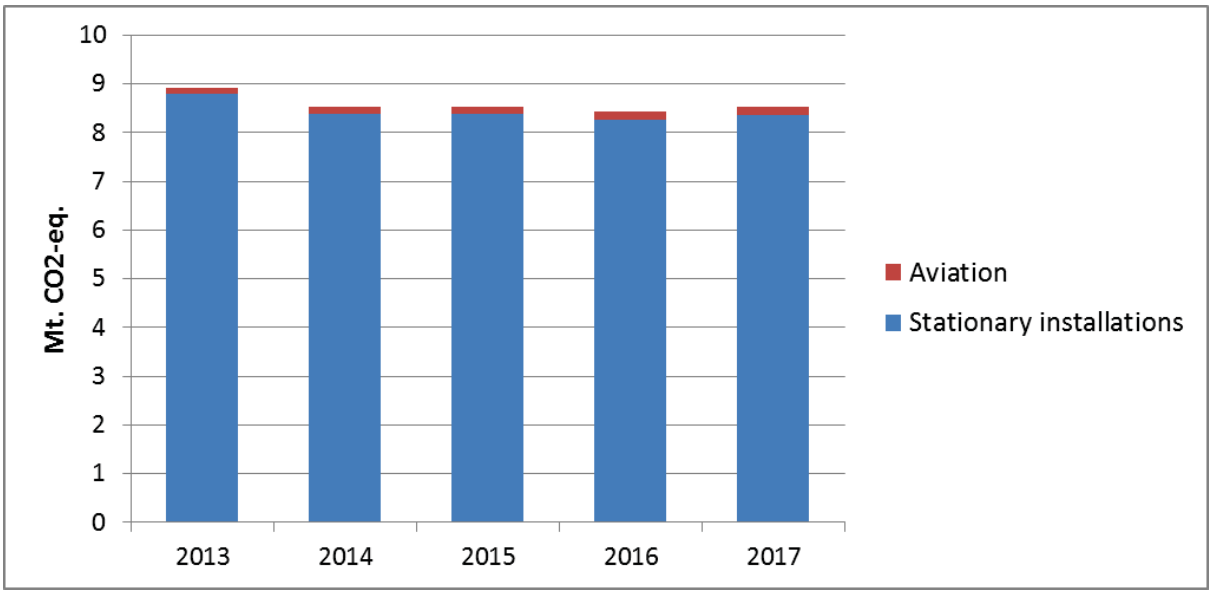

Figure 3: ETS emissions (Mt CO_2-eq.).[19]

3. Emissions in Effort Sharing sectors

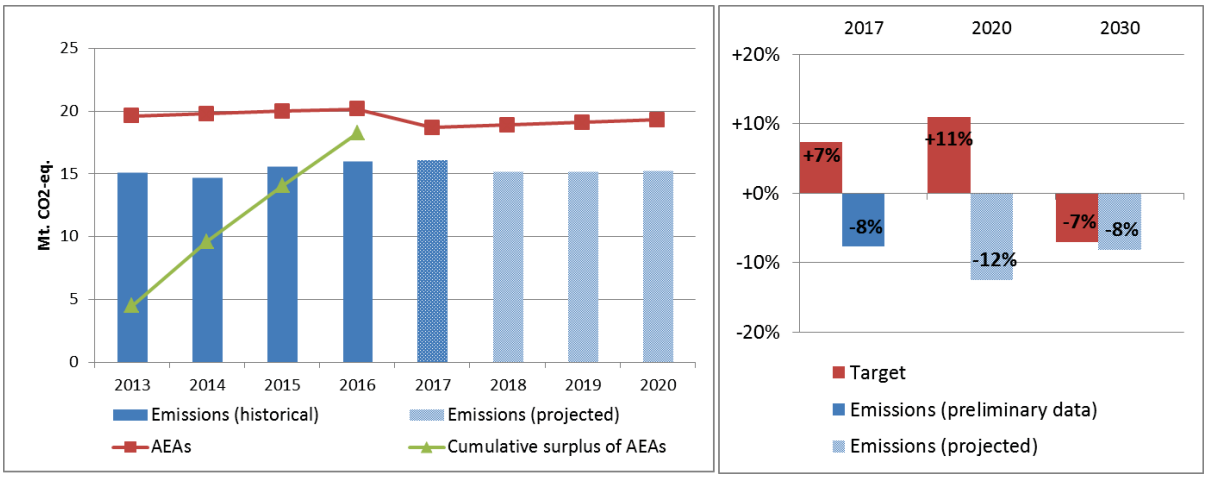

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[19] Croatia joined the ETS in 2013.

4. Land use, land use change and forestry

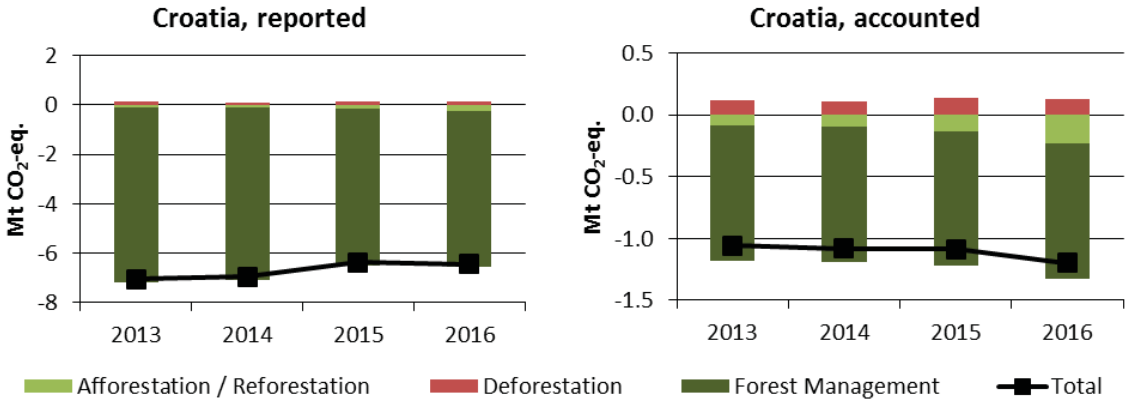

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[20]

Reported quantities under the Kyoto Protocol for Croatia show net removals of, on average, -6.7 Mt CO_2-eq for the period 2013 to 2016. In this regard Croatia contributes with 1.7% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -1.1 Mt CO_2-eq, which corresponds to 1.0% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals show a decrease between 2014 and 2015, while accounted net credits reveal an increase for 2016. In this preliminary simulated accounting exercise potential credits by Forest Management of, on average, -1.3 Mt CO_2-eq per year are capped to -1.1 Mt CO_2-eq per year. Croatia is one of eight EU Member States which exceed the cap of 3.5% from emissions of the base year (1990).

[20] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Cyprus

1. Total greenhouse gas emissions

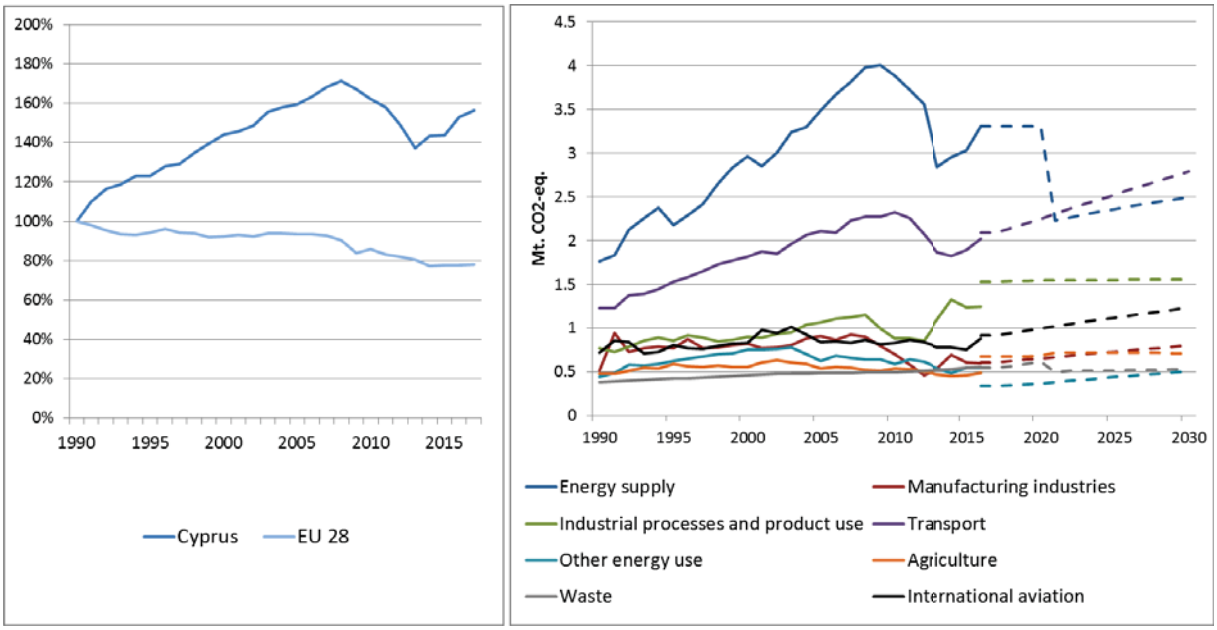

Figure 1: Left hand side: Total greenhouse gas emissions[21] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[22] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

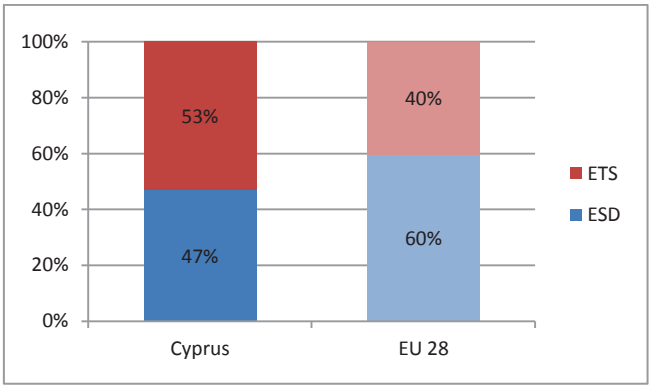

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[23]

[21] National total, including international aviation.

[22] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.

[23] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

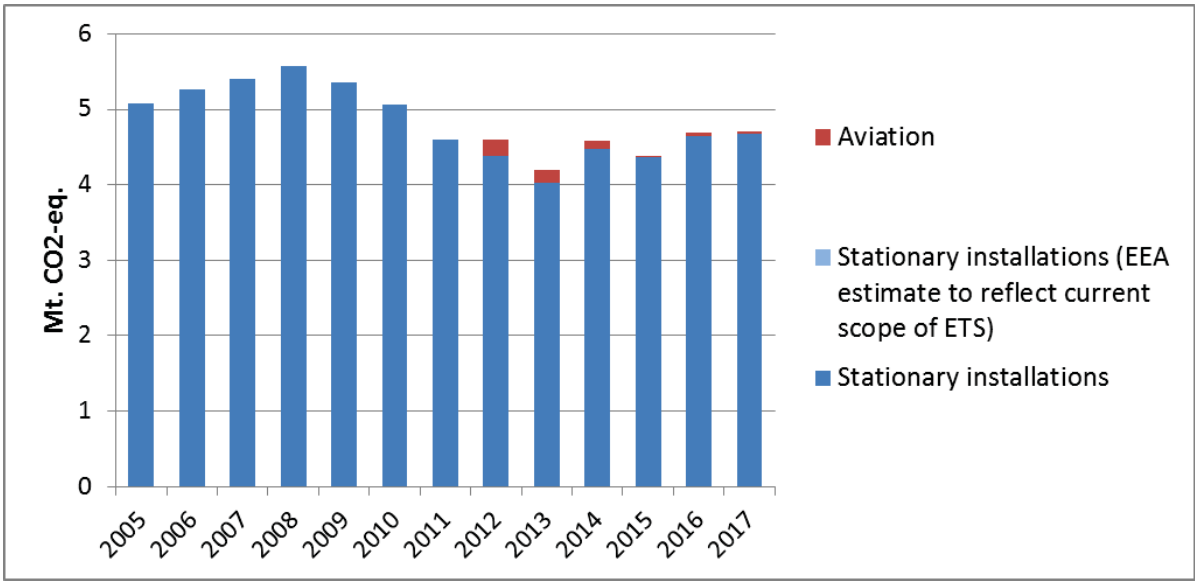

Figure 3: ETS emissions (Mt CO_2-eq.).[24]

3. Emissions in Effort Sharing sectors

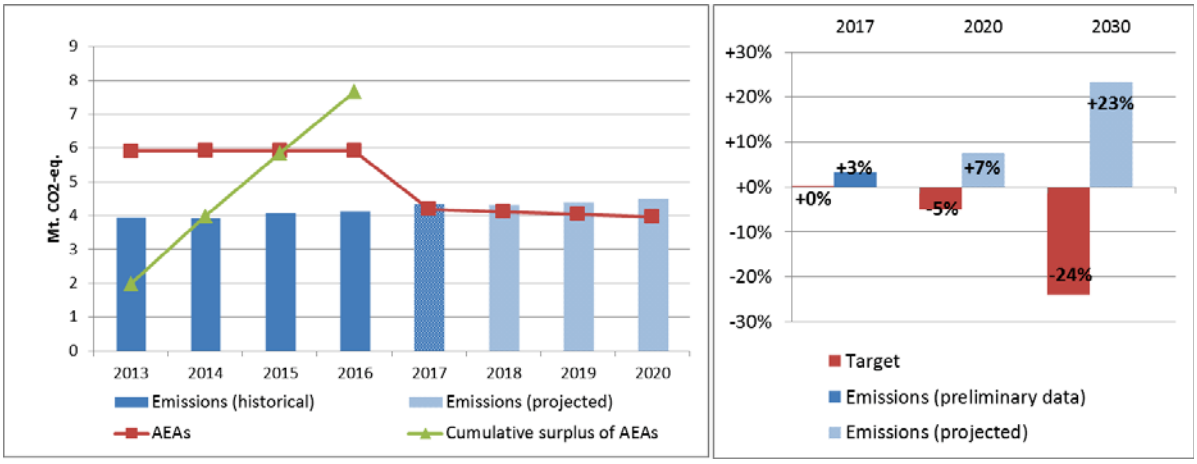

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[24] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

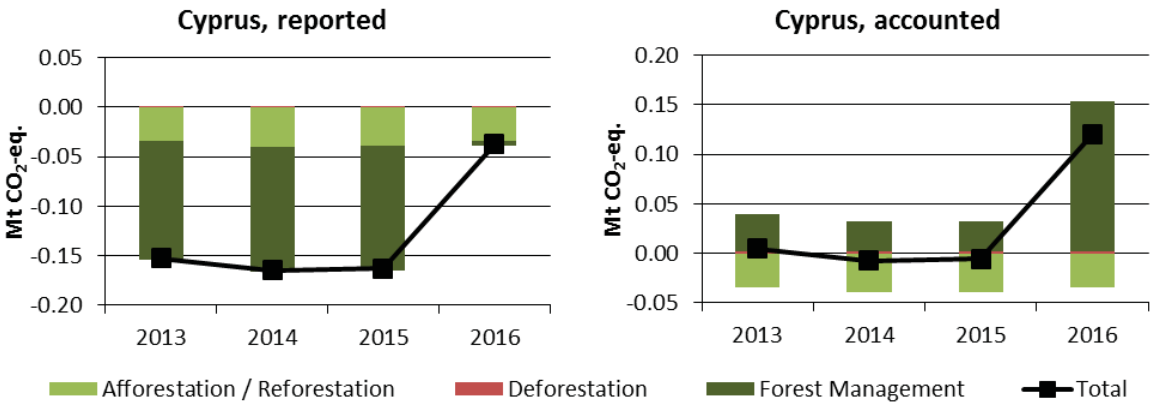

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[25]

Reported quantities under the Kyoto Protocol for Cyprus show net removals of, on average, -0.13 Mt CO_2-eq for the period 2013 to 2016. In this regard Cyprus contributes with 0.03% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net debits of, on average, 0.03 Mt CO_2-eq, which corresponds to a negative contribution of -0.02% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Cyprus is one of six EU Member States which show net debits in this preliminary accounting exercise. Reported net removals were highly similar for 2013 to 2015 but decrease markedly for 2016. This pattern is replicated for accounted quantities with a net zero or very small net credits from 2013 to 2015 and net debits for 2016.

[25] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

EUROPEAN
COMMISSION

Brussels, 26.10.2018
SWD(2018) 453 final

PART 2/6

COMMISSION STAFF WORKING DOCUMENT

Technical information

Accompanying the document

Report from the European Commission to the European Parliament and the Council

EU and the Paris Climate Agreement: Taking stock of progress at Katowice COP

{COM(2018) 716 final}

Country fact sheet: Czech Republic

1. Total greenhouse gas emissions

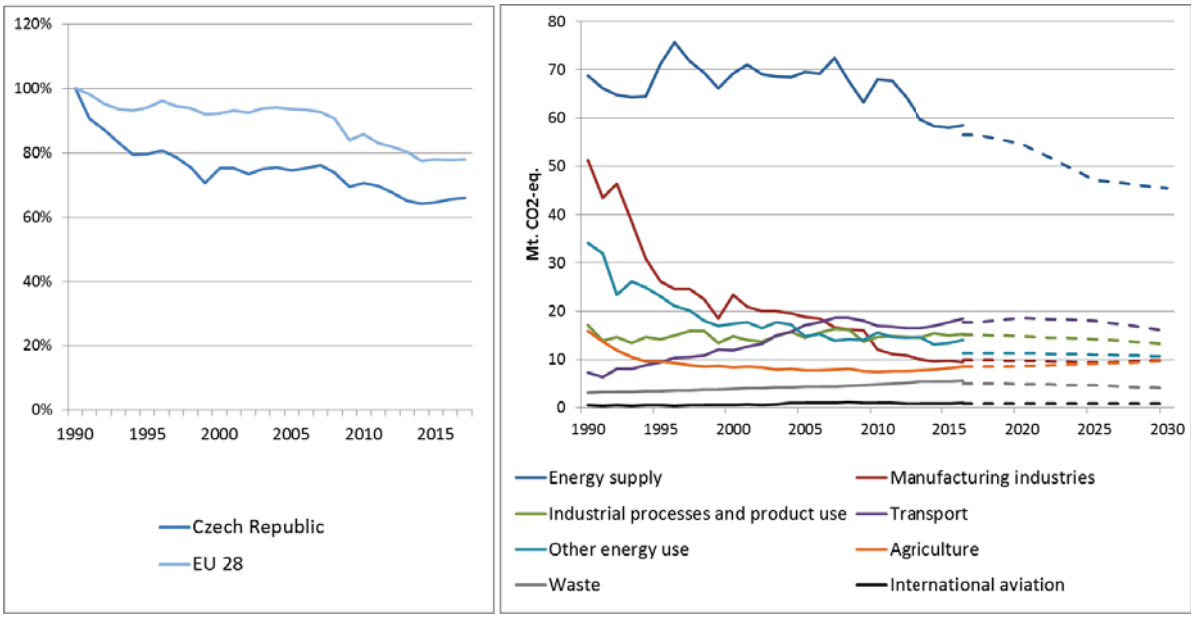

Figure 1: Left hand side: Total greenhouse gas emissions[1] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[2] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

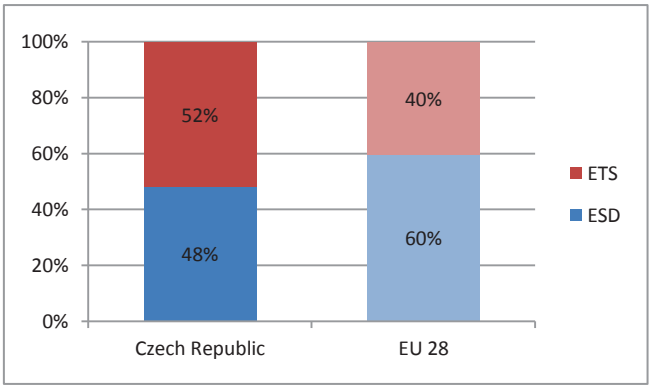

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[3]

[1] National total, including international aviation.
[2] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[3] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

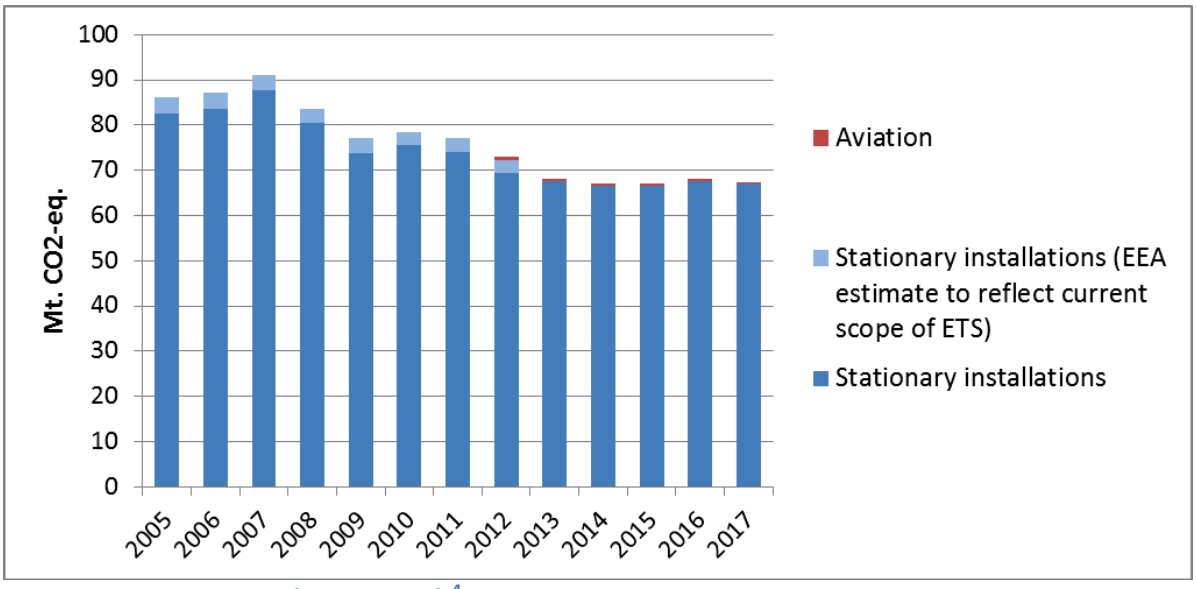

Figure 3: ETS emissions (Mt CO_2-eq.).[4]

3. Emissions in Effort Sharing sectors

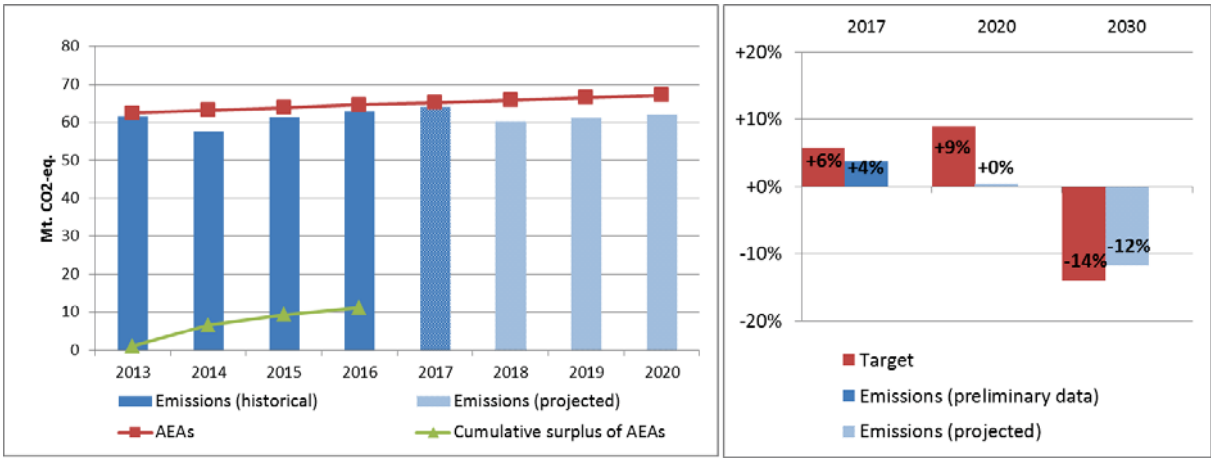

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[4] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

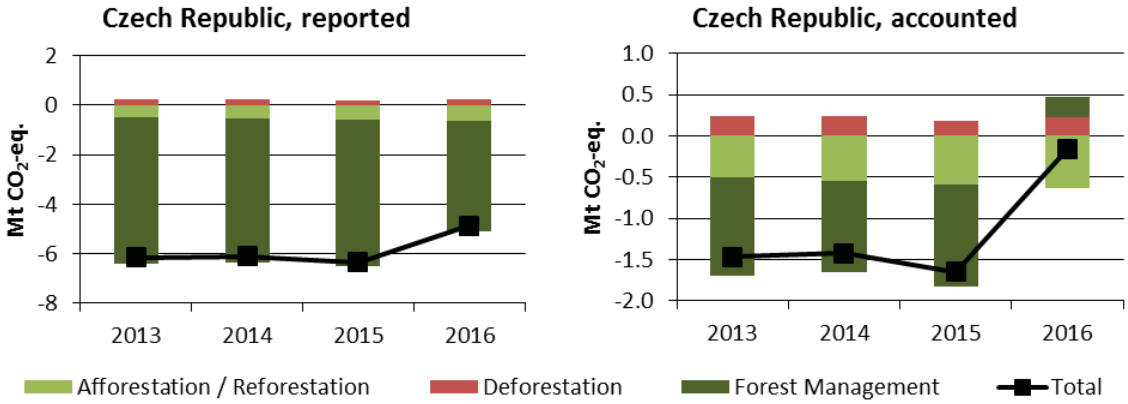

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[5]

Reported quantities under the Kyoto Protocol for the Czech Republic show net removals of, on average, -5.9 Mt CO_2-eq for the period 2013 to 2016. In this regard the Czech Republic contributes with 1.5% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -1.2 Mt CO_2-eq, which corresponds to 1.0% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals are rather similar between 2013 and 2015 and decrease markedly for 2016. This pattern is accentuated with accounted net credits being highest for 2015 and a sharp decrease to nearly zero for 2016.

[5] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Denmark

1. Total greenhouse gas emissions

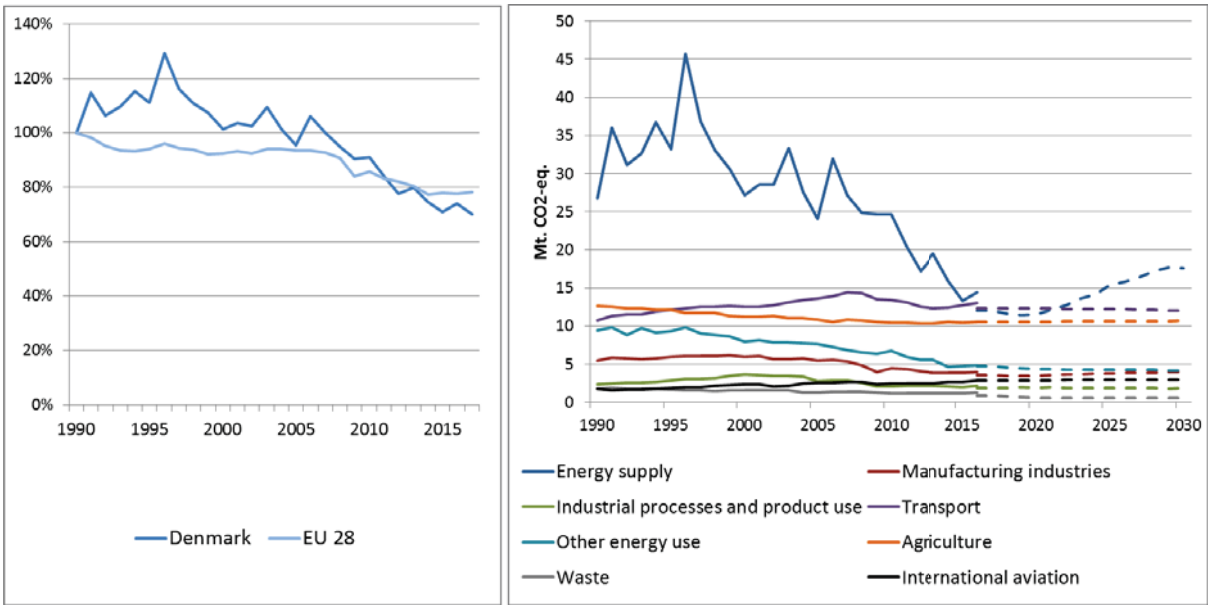

Figure 1: Left hand side: Total greenhouse gas emissions[6] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[7] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

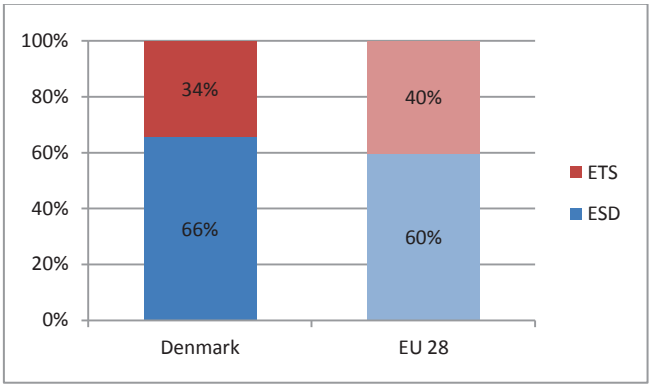

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[8]

[6] National total, including international aviation.
[7] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[8] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

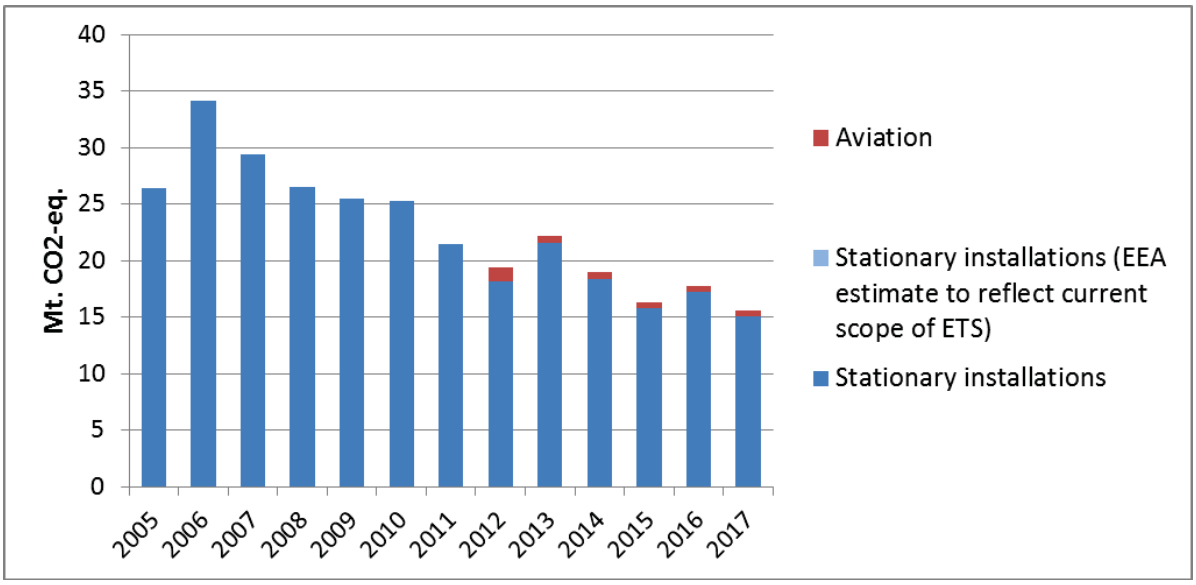

Figure 3: ETS emissions (Mt CO_2-eq.).[9]

3. Emissions in Effort Sharing sectors

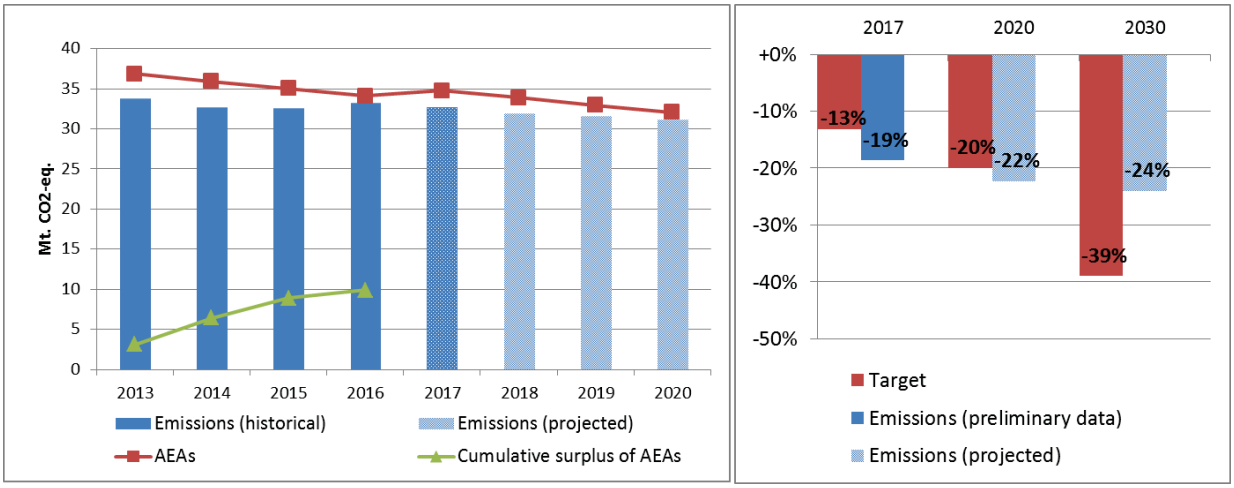

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[9] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

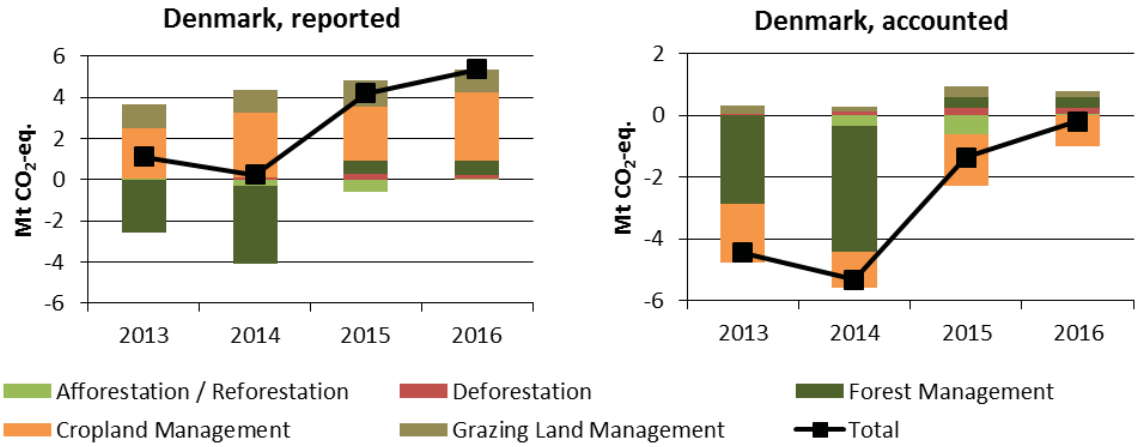

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[10]

Reported quantities under the Kyoto Protocol for Denmark show net emissions of, on average, 2.7 Mt CO_2-eq for the period 2013 to 2016. In this regard Denmark contributes negatively with -0.7% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Denmark is one of two EU Member States which show net emissions in this preliminary exercise. Accounting for the same period depicts net credits of, on average, -2.8 Mt CO_2-eq, which corresponds to 2.4% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net emissions are lowest for 2014 and increase markedly in the following years, which is similar to accounted net credits being highest for 2014 and decreasing thereafter. Denmark elected to report and account for Cropland Management as one of seven EU Member States and for Grazing Land Management as one of six EU Member States.

[10] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Estonia

1. Total greenhouse gas emissions

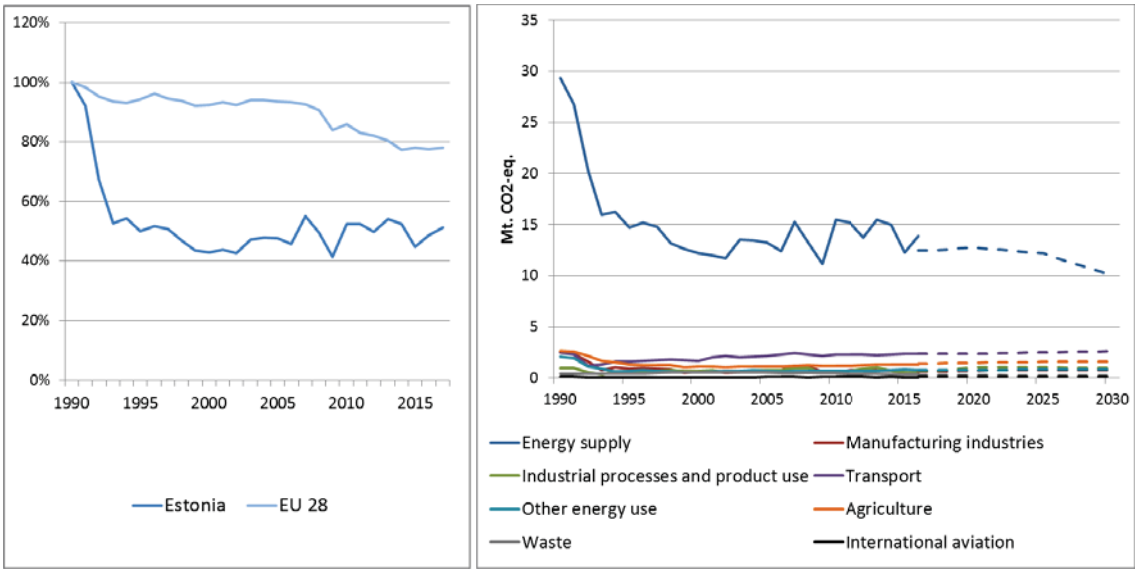

Figure 1: Left hand side: Total greenhouse gas emissions[11] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[12] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

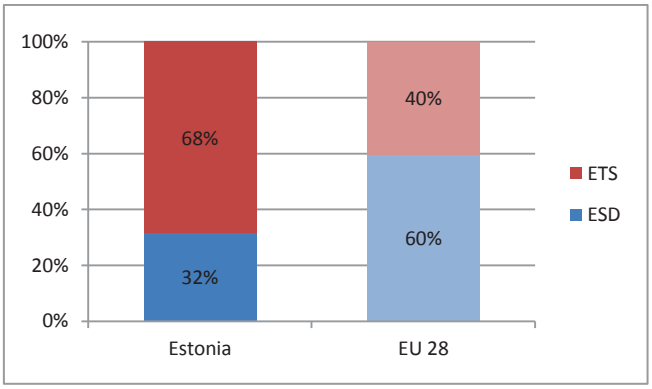

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[13]

[11] National total, including international aviation.
[12] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[13] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

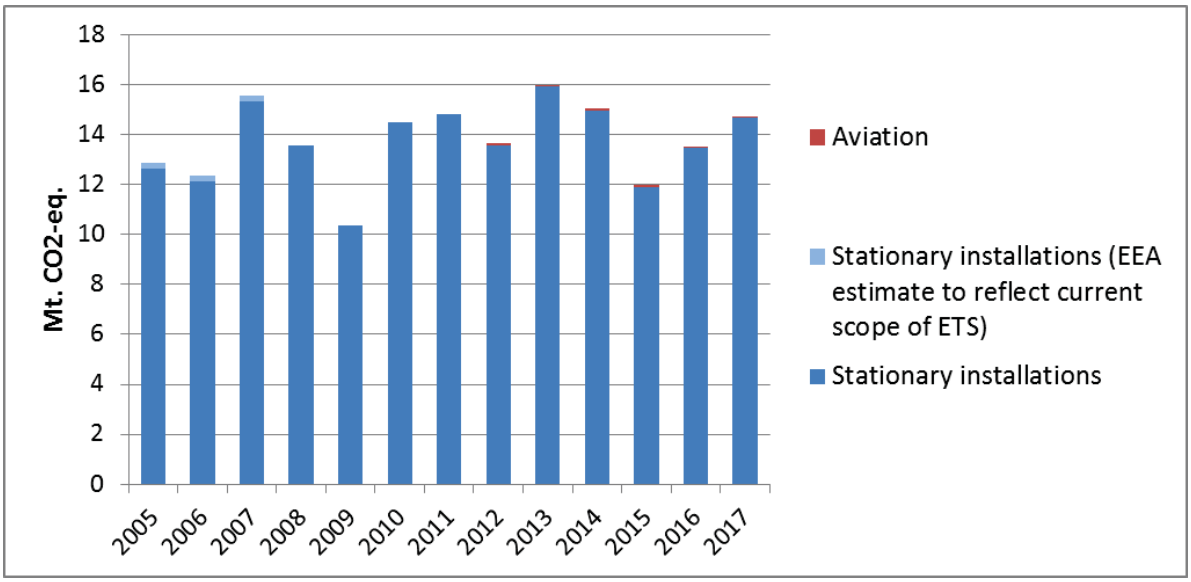

Figure 3: ETS emissions (Mt CO_2-eq.).[14]

3. Emissions in Effort Sharing sectors

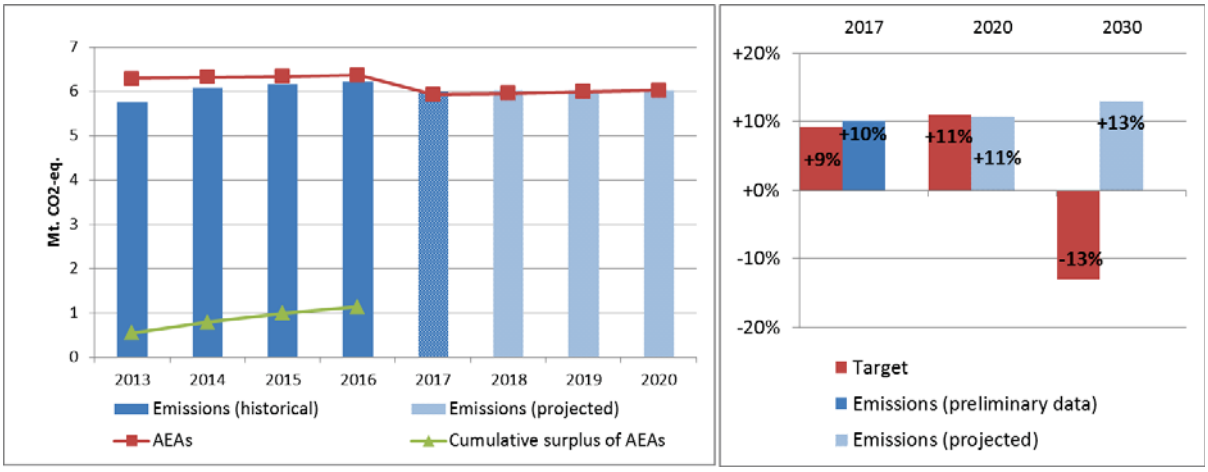

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[14] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

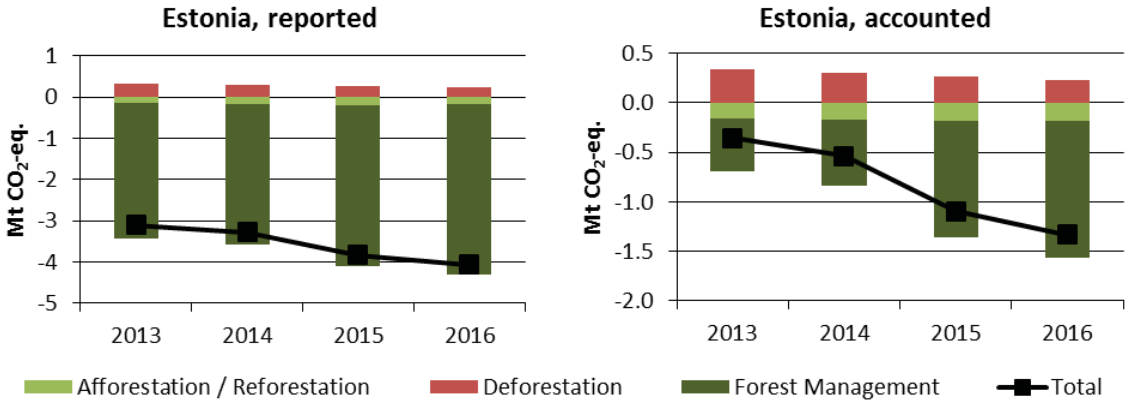

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[15]

Reported quantities under the Kyoto Protocol for Estonia show net removals of, on average, -3.6 Mt CO_2-eq for the period 2013 to 2016. In this regard Estonia contributes with 0.9% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -0.8 Mt CO_2-eq, which corresponds to 0.7% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals and accounted net credits show a continuous increase.

[15] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Finland

1. Total greenhouse gas emissions

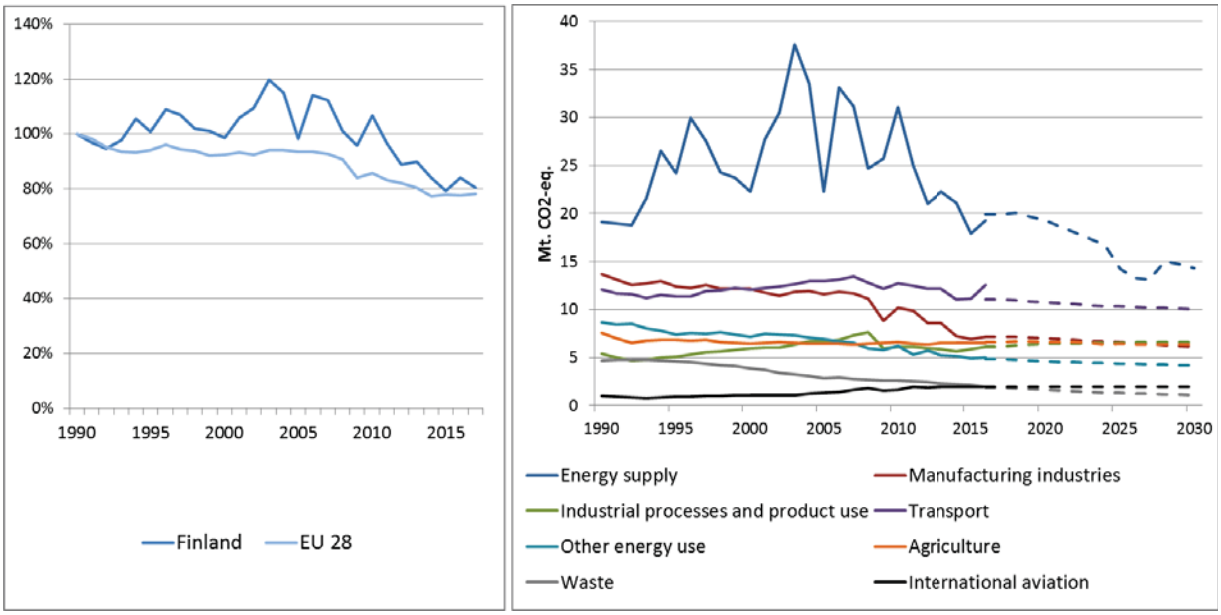

Figure 1: Left hand side: Total greenhouse gas emissions[16] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[17] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

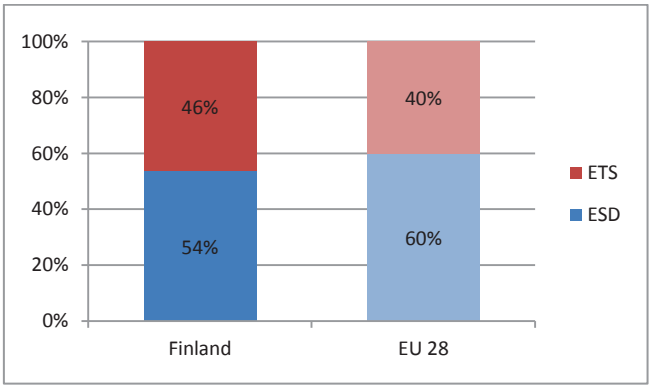

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[18]

[16] National total, including international aviation.
[17] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[18] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

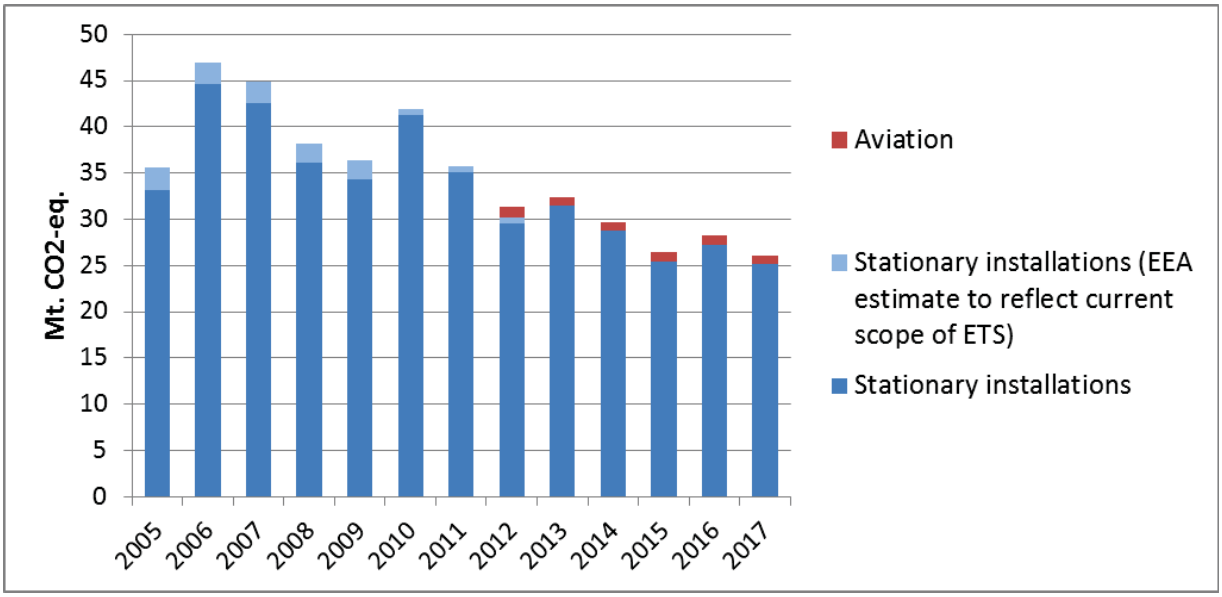

Figure 3: ETS emissions (Mt CO_2-eq.).[19]

3. Emissions in Effort Sharing sectors

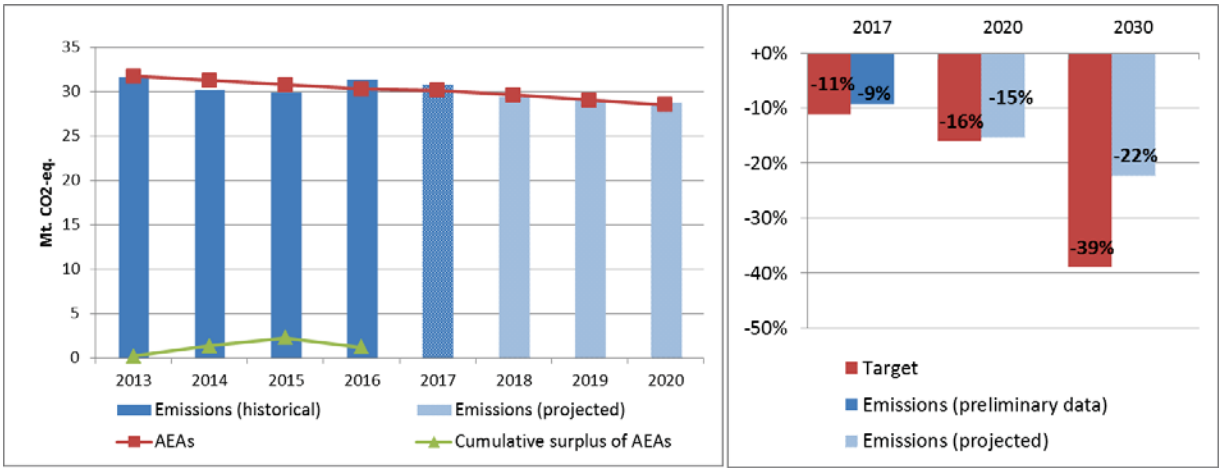

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[19] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

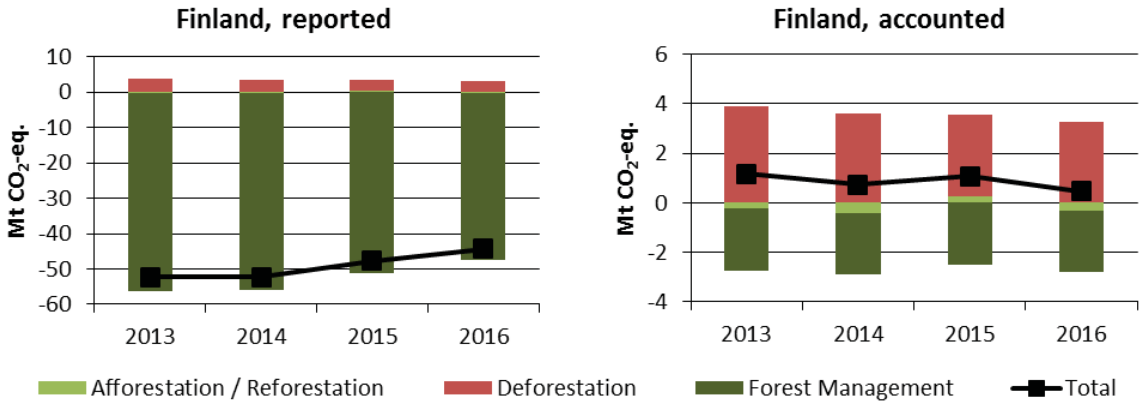

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[20]

Reported quantities under the Kyoto Protocol for Finland show net removals of, on average, -49.2 Mt CO_2-eq for the period 2013 to 2016. In this regard Finland contributes with 12.8% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net debits of, on average, 0.8 Mt CO_2-eq, which corresponds to a negative contribution of -0.7% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Finland is one of six EU Member States which show net debits in this preliminary accounting exercise. Reported net removals decrease since 2014, while accounted net debits show a decreasing trend over the four-year period. In this preliminary simulated accounting exercise potential credits by Forest Management of, on average, -17.5 Mt CO_2-eq per year are capped to -2.5 Mt CO_2-eq per year. Finland is one of eight EU Member States which exceed the cap of 3.5% from emissions of the base year (1990).

[20] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: France

1. Total greenhouse gas emissions

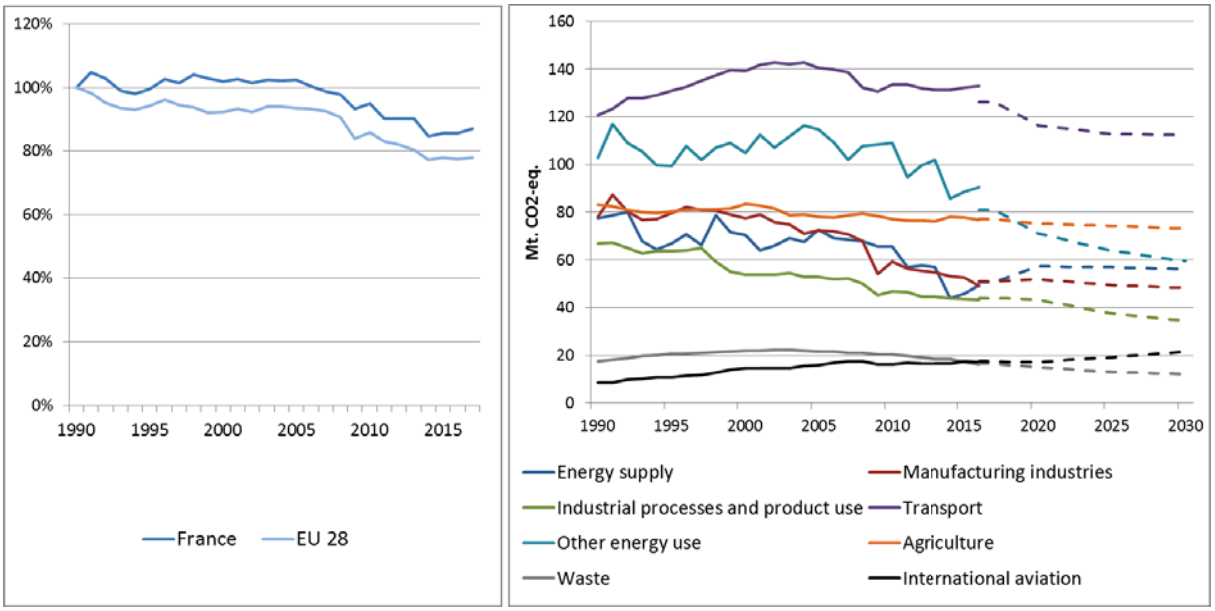

Figure 1: Left hand side: Total greenhouse gas emissions[21] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[22] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

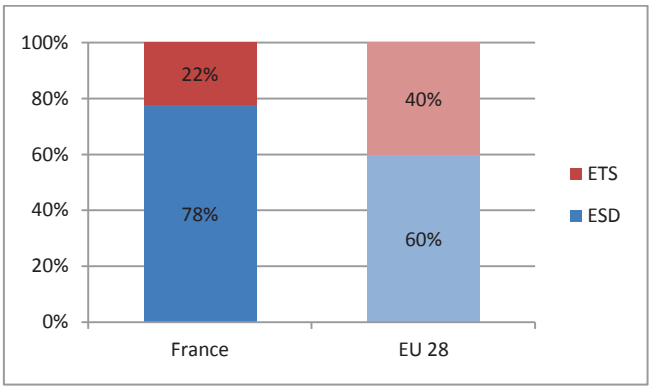

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[23]

[21] National total, including international aviation.
[22] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[23] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

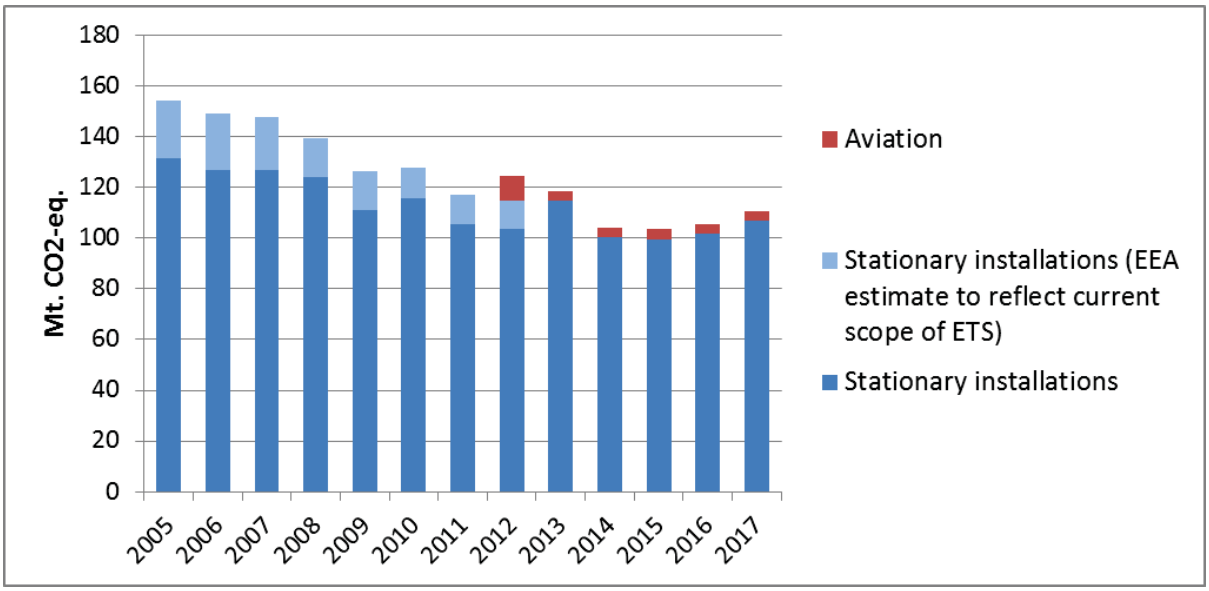

Figure 3: ETS emissions (Mt CO_2-eq.).[24]

3. Emissions in Effort Sharing sectors

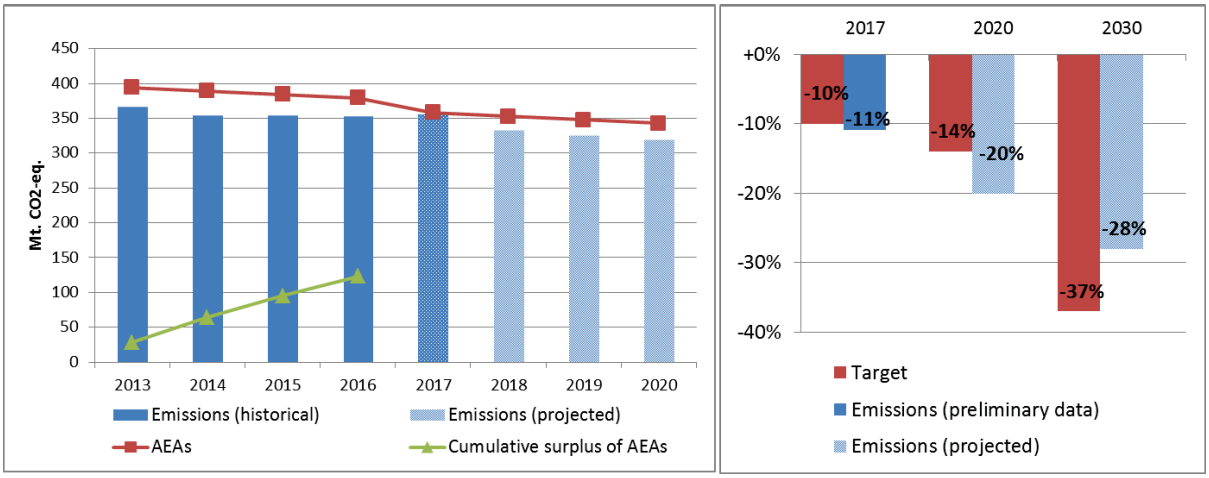

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[24] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

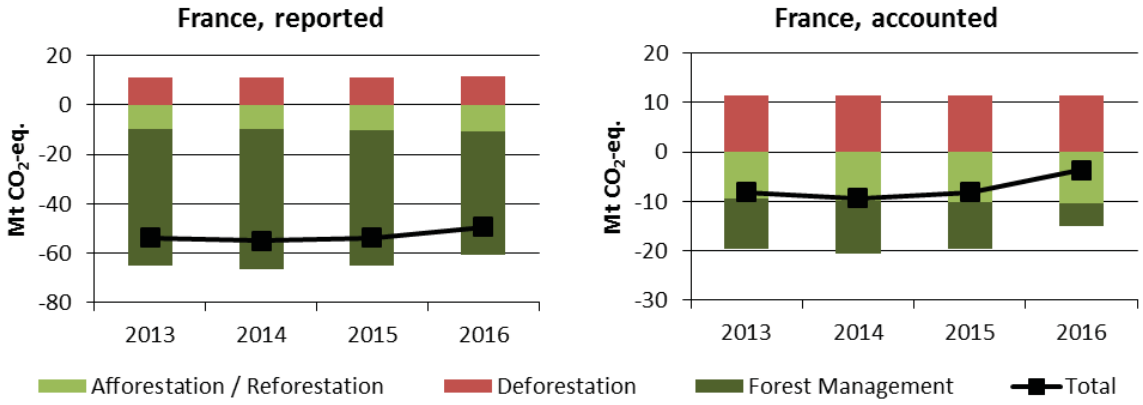

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[25]

Reported quantities under the Kyoto Protocol for France show net removals of, on average, -53.0 Mt CO_2-eq for the period 2013 to 2016. In this regard France contributes with 13.8% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -7.3 Mt CO_2-eq, which corresponds to 6.4% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals and accounted net credits show a decreasing trend since 2014.

[25] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

EUROPEAN
COMMISSION

Brussels, 26.10.2018
SWD(2018) 453 final

PART 3/6

COMMISSION STAFF WORKING DOCUMENT

Technical information

Accompanying the document

Report from the European Commission to the European Parliament and the Council

EU and the Paris Climate Agreement: Taking stock of progress at Katowice COP

{COM(2018) 716 final}

Country fact sheet: Germany

1. Total greenhouse gas emissions

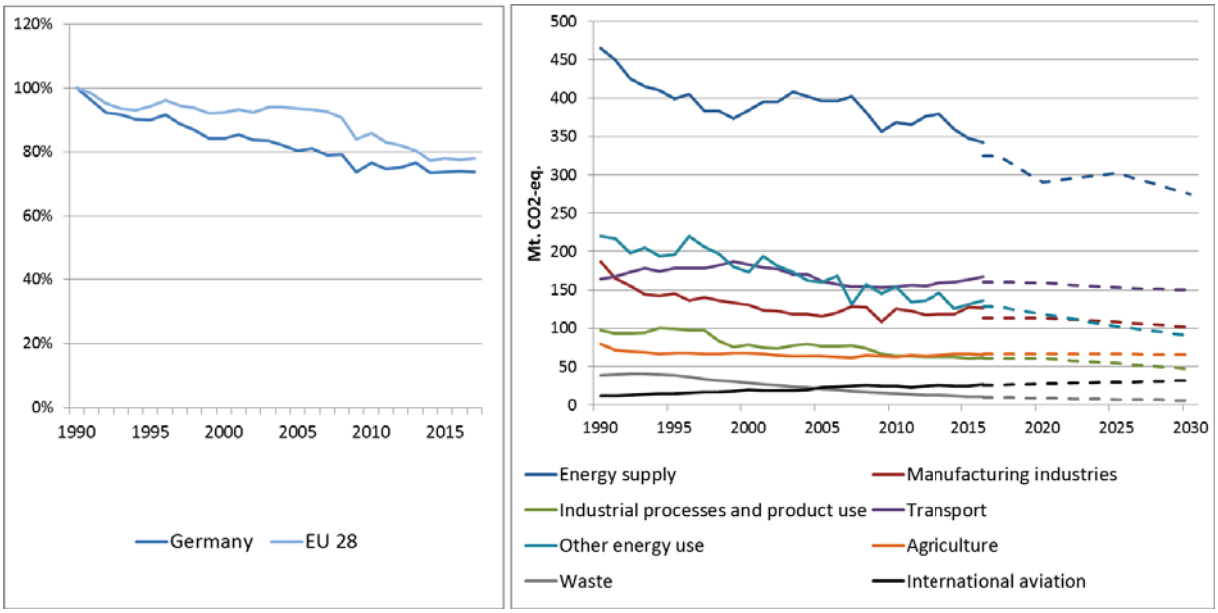

Figure 1: Left hand side: Total greenhouse gas emissions[1] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[2] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

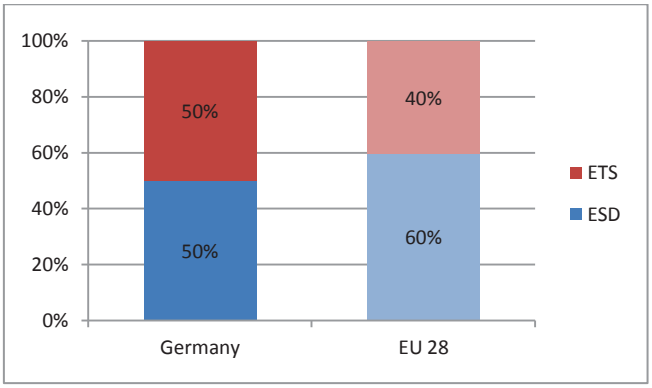

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[3]

[1] National total, including international aviation.
[2] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[3] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

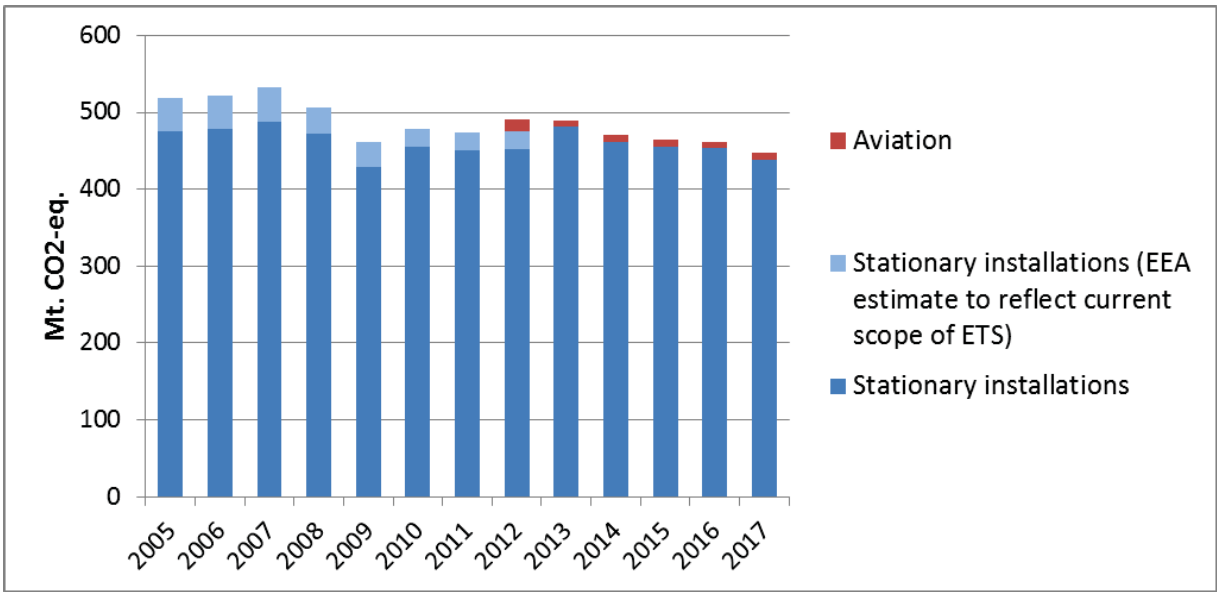

Figure 3: ETS emissions (Mt CO_2-eq.).[4]

3. Emissions in Effort Sharing sectors

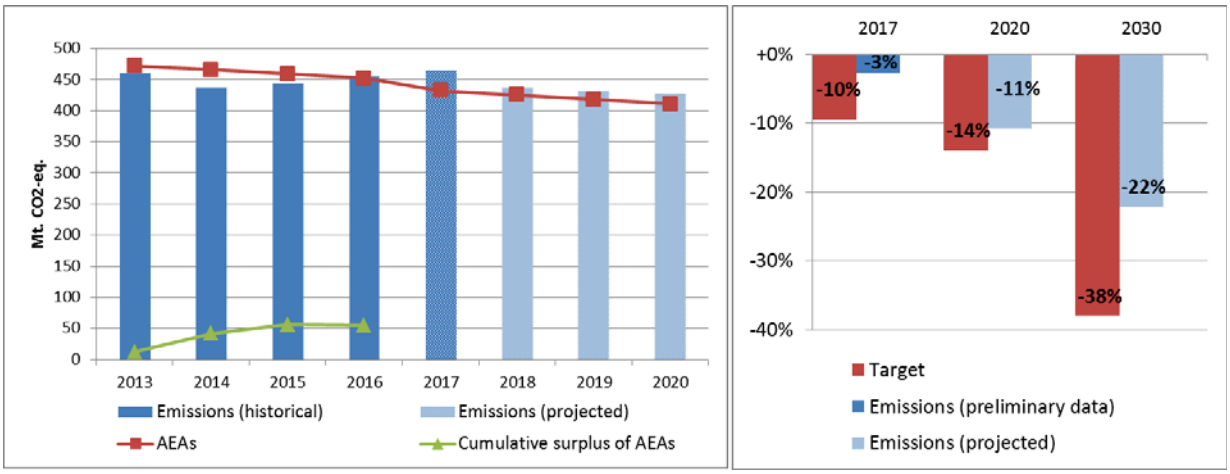

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[4] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

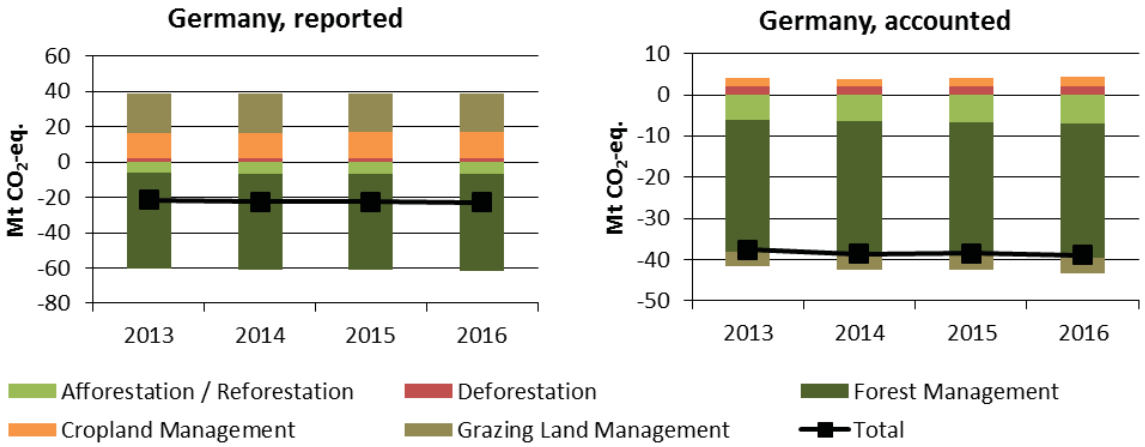

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[5]

Reported quantities under the Kyoto Protocol for Germany show net removals of, on average, -22.4 Mt CO_2-eq for the period 2013 to 2016. In this regard Germany contributes with 5.8% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -38.7 Mt CO_2-eq, which corresponds to 33.2% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals and accounted net credits show slight increases. Germany elected to report and account for Cropland Management as one of seven EU Member States and for Grazing Land Management as one of six EU Member States.

[5] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Greece

1. Total greenhouse gas emissions

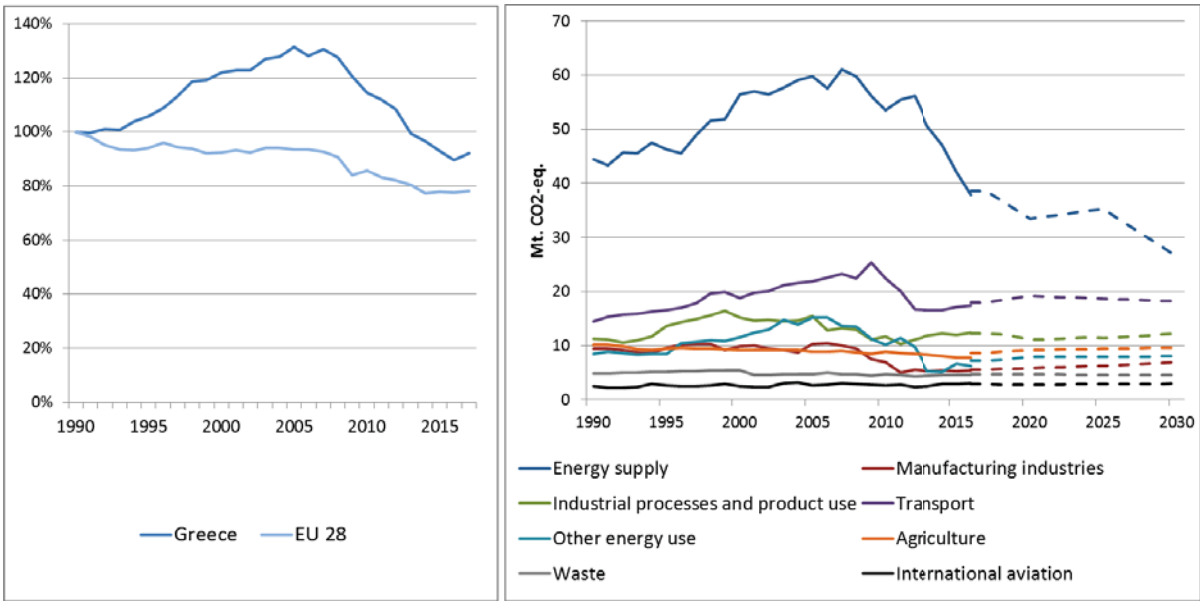

Figure 1: Left hand side: Total greenhouse gas emissions[6] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[7] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

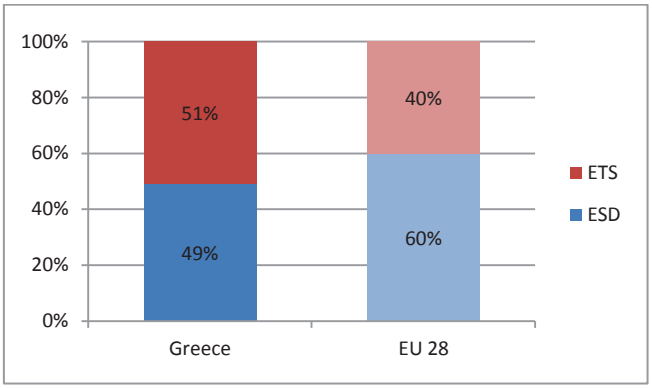

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[8]

[6] National total, including international aviation.
[7] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[8] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

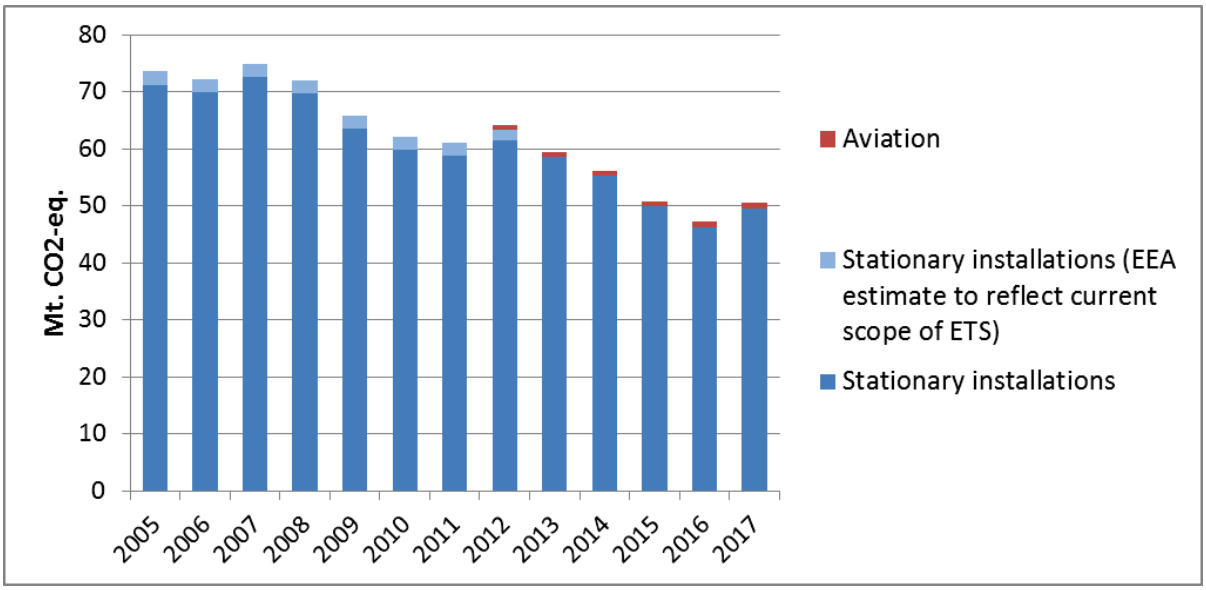

Figure 3: ETS emissions (Mt CO_2-eq.).[9]

3. Emissions in Effort Sharing sectors

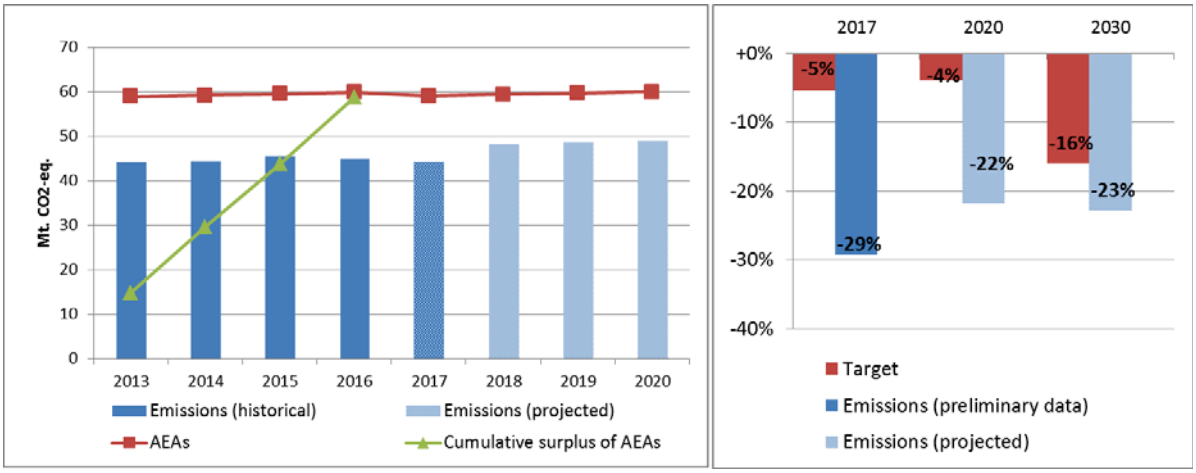

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[9] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

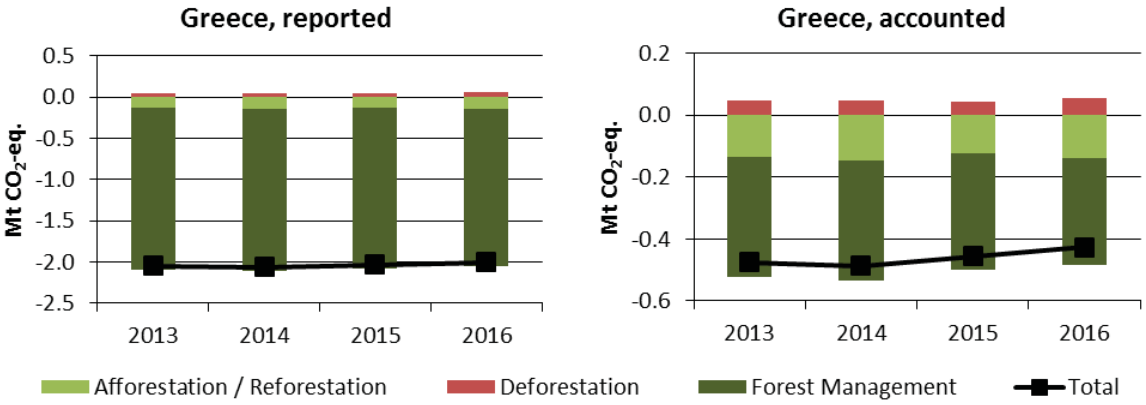

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[10]

Reported quantities under the Kyoto Protocol for Greece show net removals of, on average, -2.0 Mt CO_2-eq for the period 2013 to 2016. In this regard Greece contributes with 0.5% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -0.5 Mt CO_2-eq, which corresponds to 0.4% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals are nearly unchanged over the four-year period, while accounted net credits show a decrease since 2014.

[10] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Hungary

1. Total greenhouse gas emissions

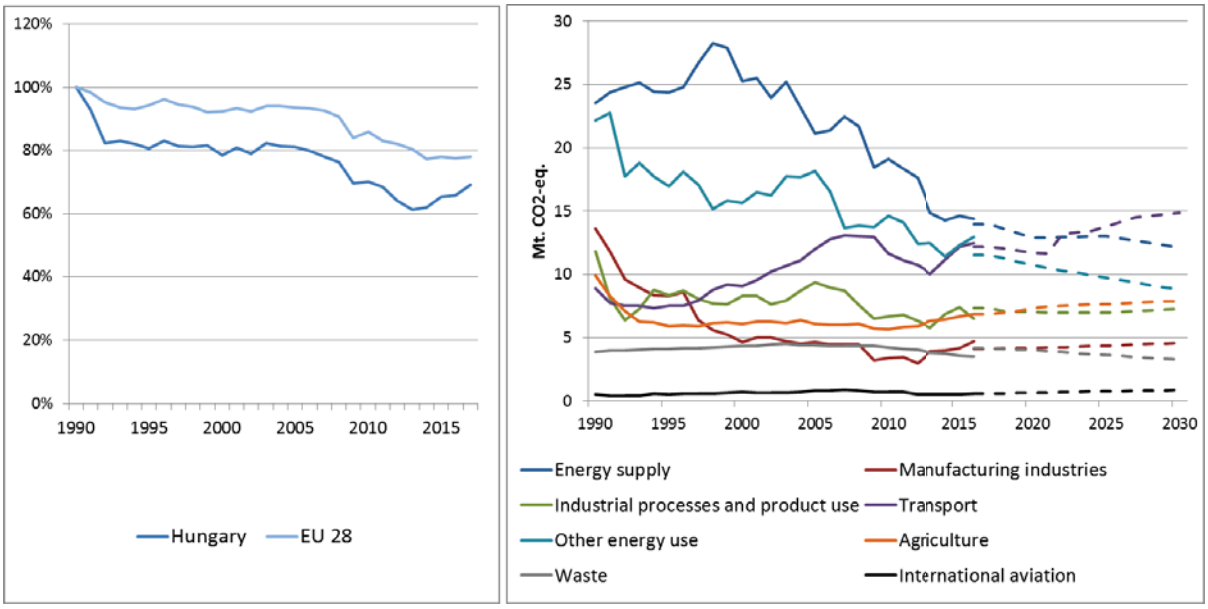

Figure 1: Left hand side: Total greenhouse gas emissions[11] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[12] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

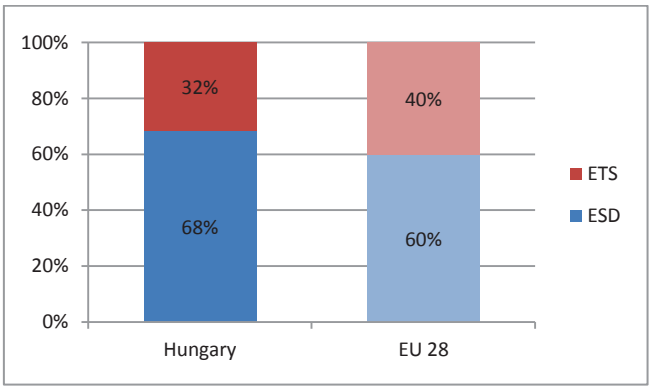

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[13]

[11] National total, including international aviation.
[12] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[13] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

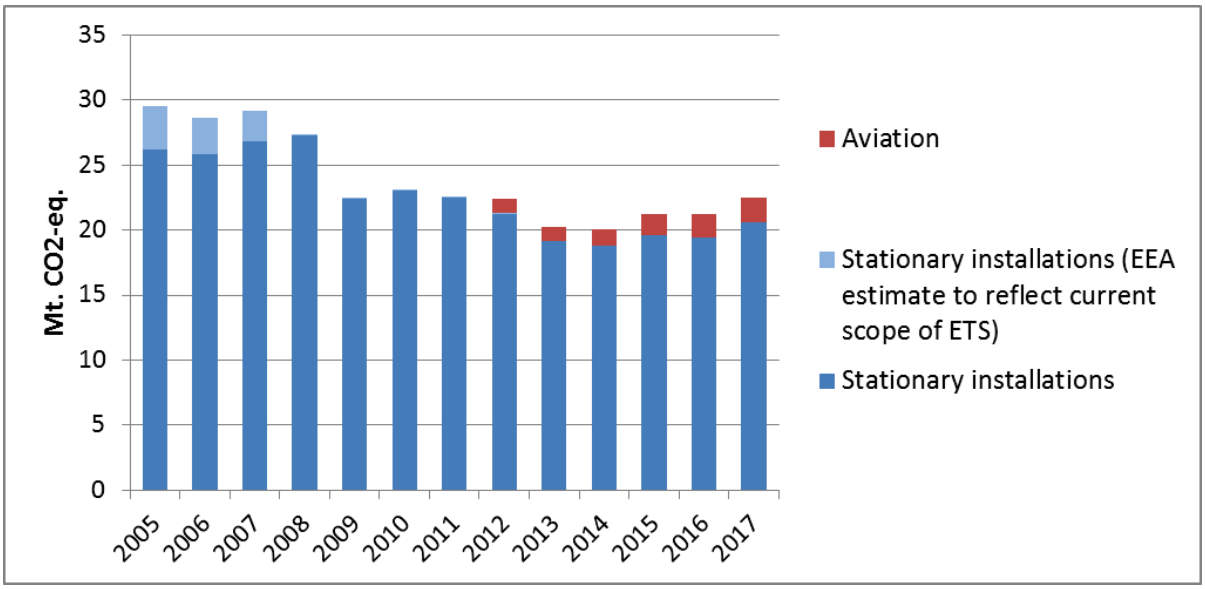

Figure 3: ETS emissions (Mt CO_2-eq.).[14]

3. Emissions in Effort Sharing sectors

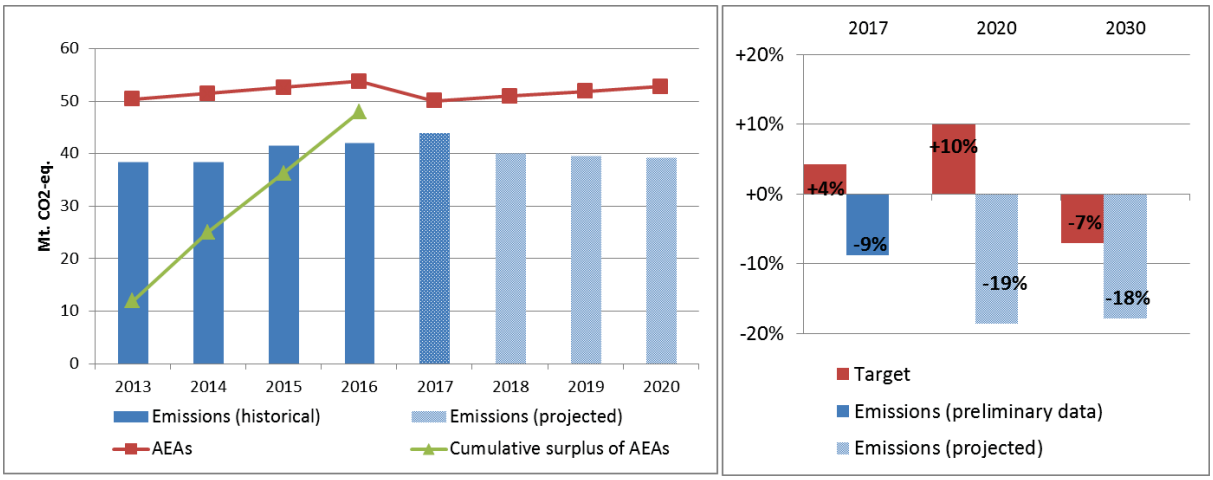

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[14] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

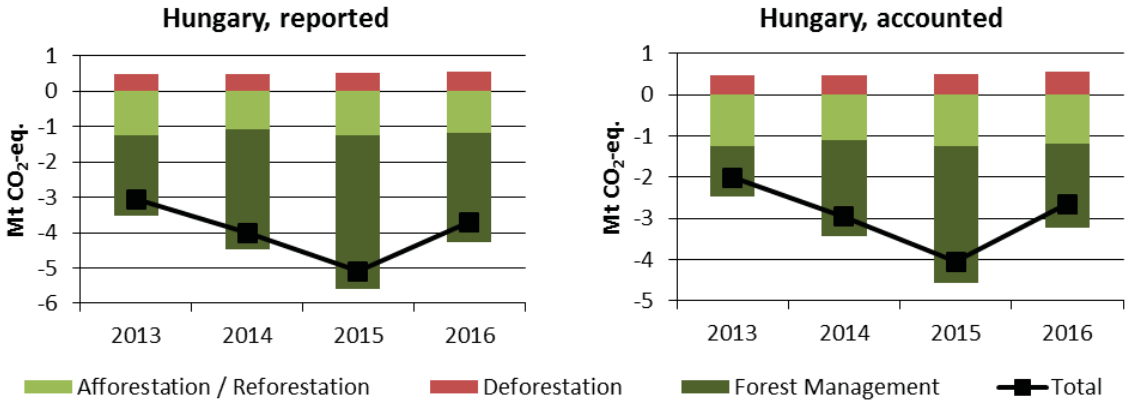

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[15]

Reported quantities under the Kyoto Protocol for Hungary show net removals of, on average, -4.0 Mt CO_2-eq for the period 2013 to 2016. In this regard Hungary contributes with 1.0% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -2.9 Mt CO_2-eq, which corresponds to 2.5% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals and accounted net credits show an increase between 2013 and 2015 and a sharp decrease for 2016.

[15] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Ireland

1. Total greenhouse gas emissions

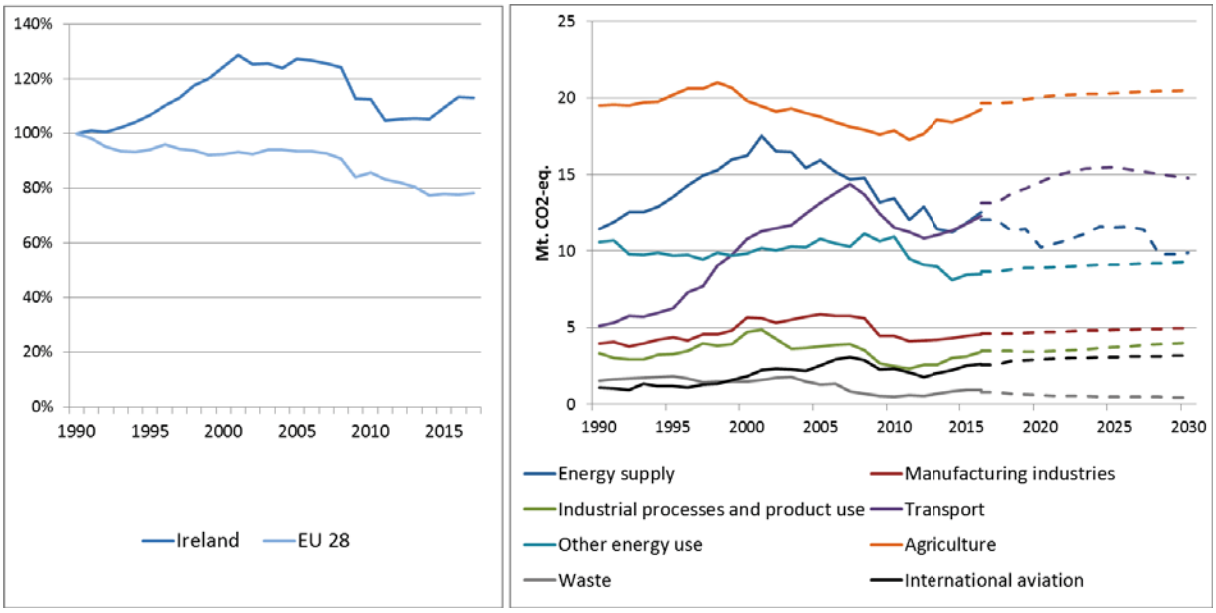

Figure 1: Left hand side: Total greenhouse gas emissions[16] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[17] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

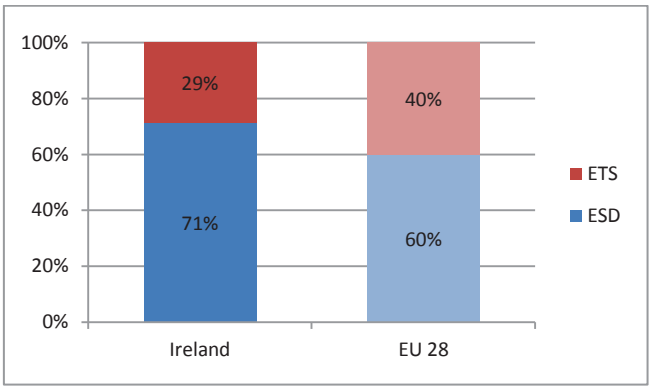

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[18]

[16] National total, including international aviation.
[17] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[18] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

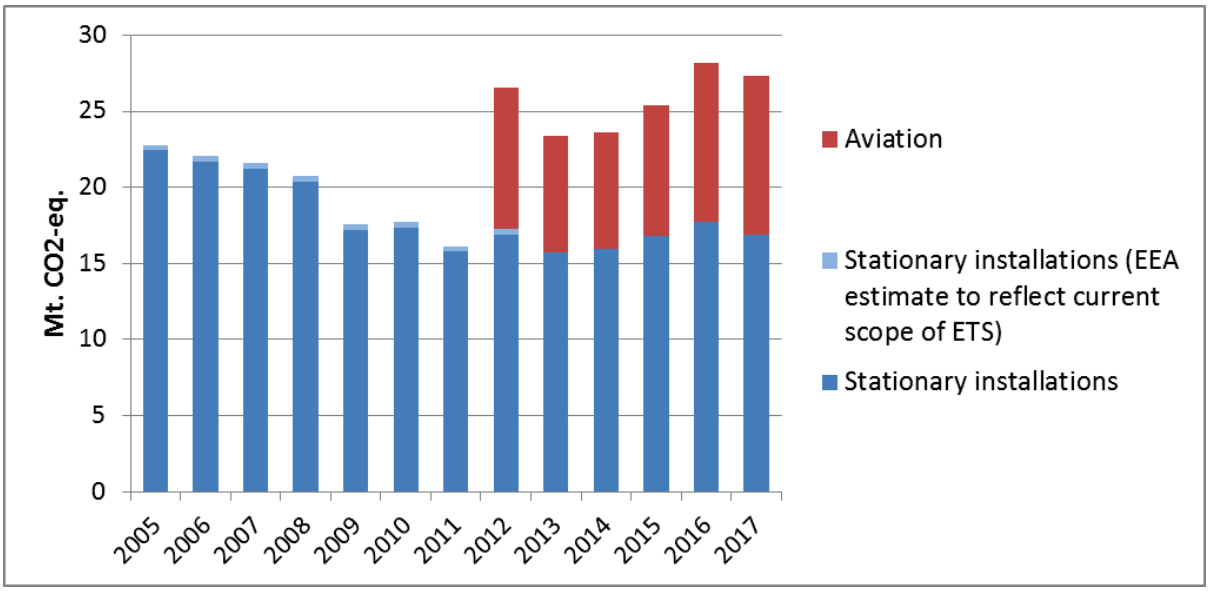

Figure 3: ETS emissions (Mt CO_2-eq.).[19]

3. Emissions in Effort Sharing sectors

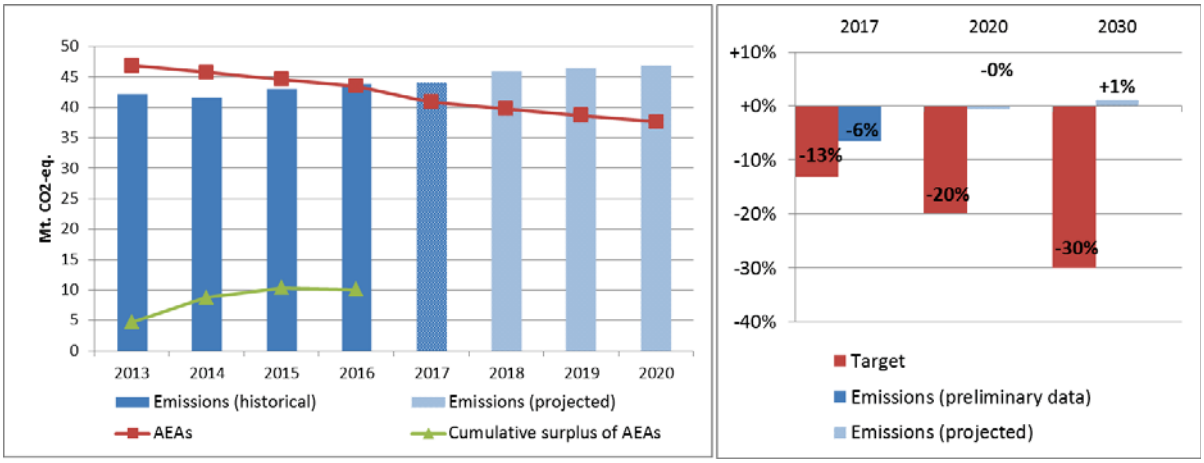

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[19] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

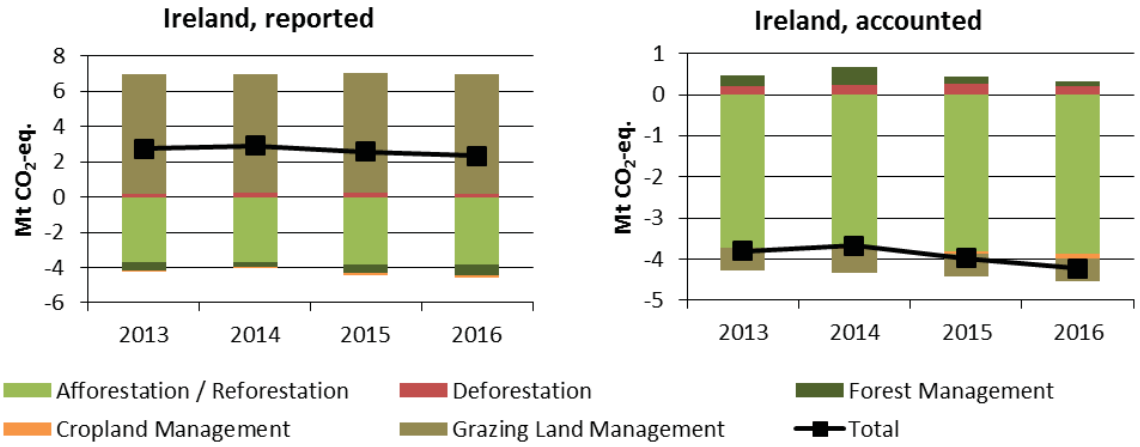

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[20]

Reported quantities under the Kyoto Protocol for Ireland show net emissions of, on average, 2.6 Mt CO_2-eq for the period 2013 to 2016. In this regard Ireland contributes negatively with -0.7% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Ireland is one of two EU Member States which show net emissions in this preliminary exercise. Accounting for the same period depicts net credits of, on average, -3.9 Mt CO_2-eq, which corresponds to 3.4% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net emissions are highest for 2014 and decreased thereafter. This pattern is more accentuated with lowest accounted net credits for 2014 and increasing thereafter. Ireland elected to report and account for Cropland Management as one of seven EU Member States and for Grazing Land Management as one of six EU Member States.

[20] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Italy

1. Total greenhouse gas emissions

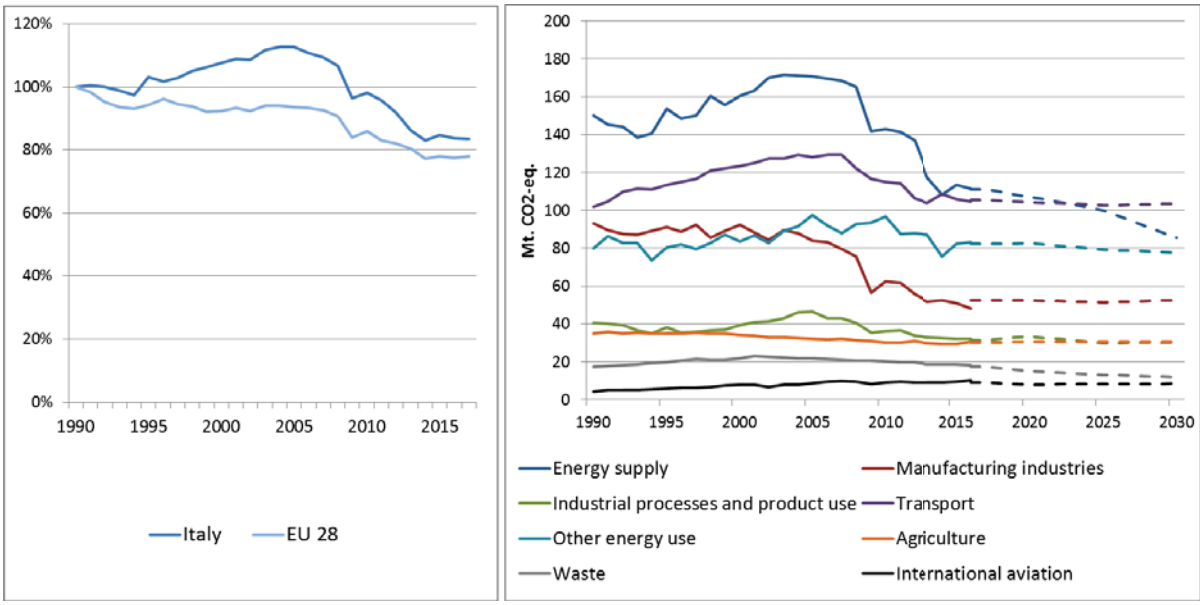

Figure 1: Left hand side: Total greenhouse gas emissions[21] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[22] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

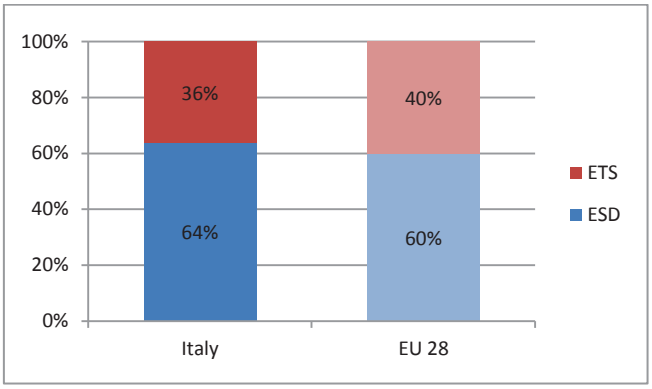

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[23]

[21] National total, including international aviation.
[22] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[23] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

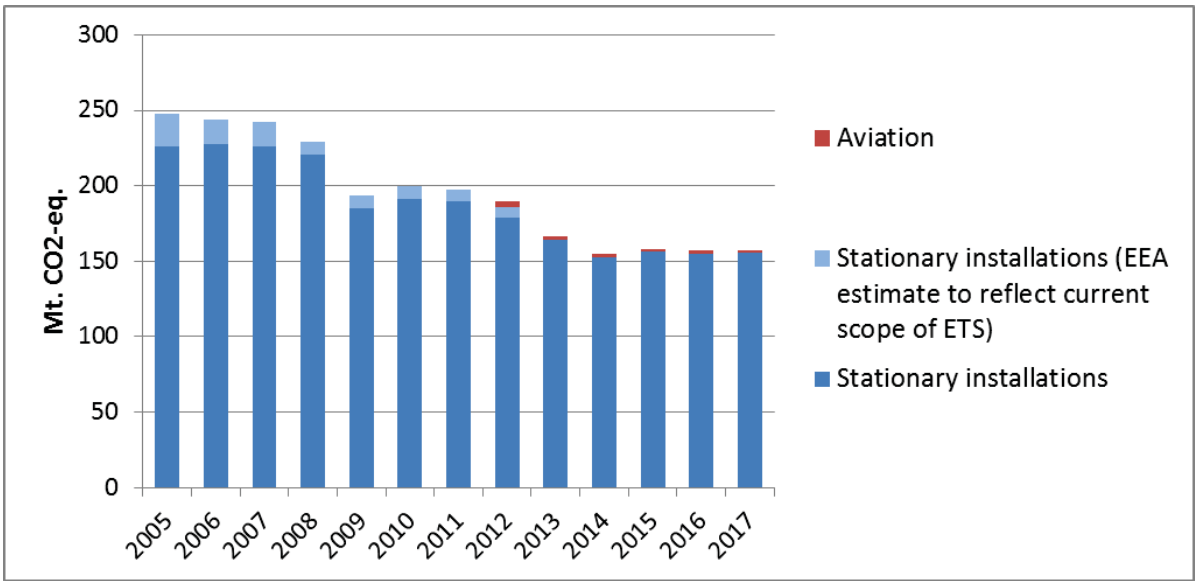

Figure 3: ETS emissions (Mt CO_2-eq.).[24]

3. Emissions in Effort Sharing sectors

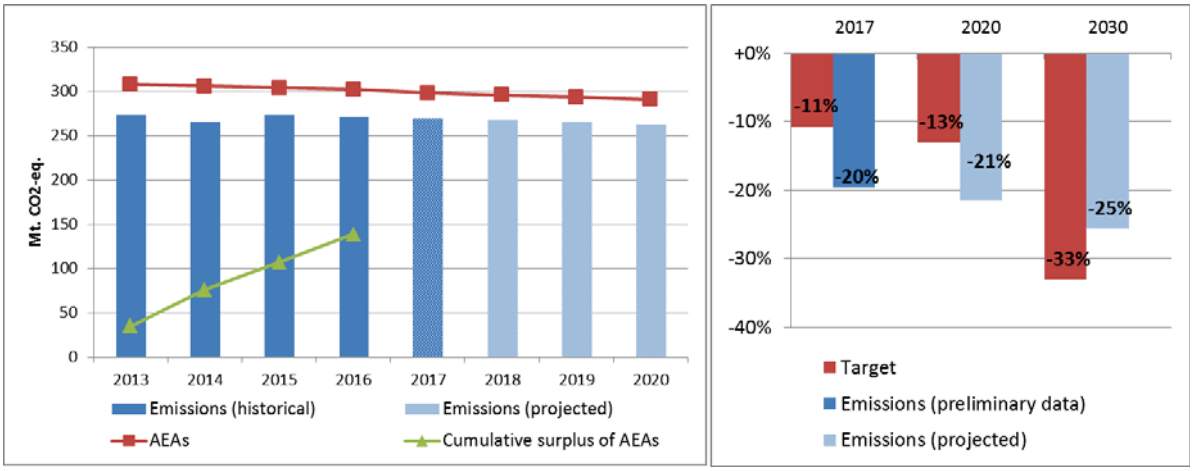

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[24] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

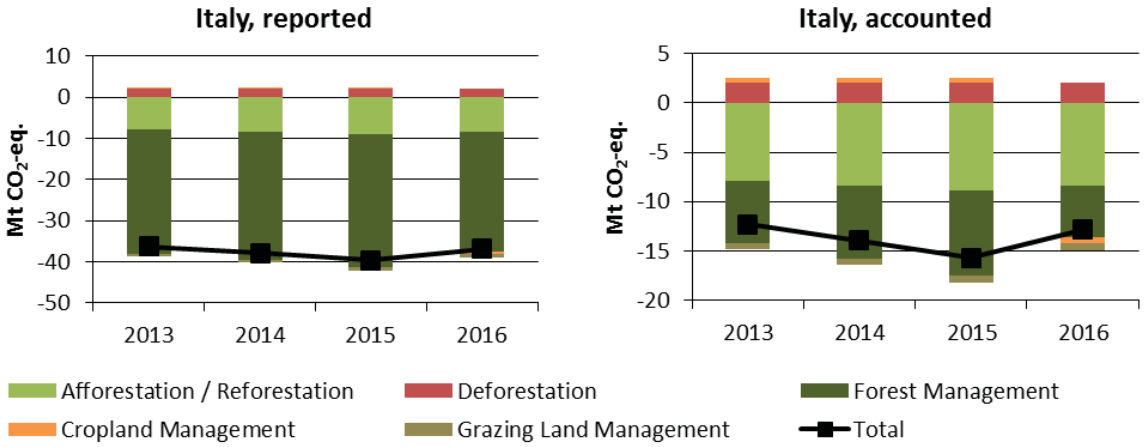

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[25]

Reported quantities under the Kyoto Protocol for Italy show net removals of, on average, -37.7 Mt CO_2-eq for the period 2013 to 2016. In this regard Italy contributes with 9.8% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -13.7 Mt CO_2-eq, which corresponds to 11.8% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals and accounted net credits show increases between 2013 and 2015 followed by a decrease for 2016. Italy elected to report and account for Cropland Management as one of seven EU Member States and Grazing Land Management as one of six EU Member States.

[25] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Latvia

1. Total greenhouse gas emissions

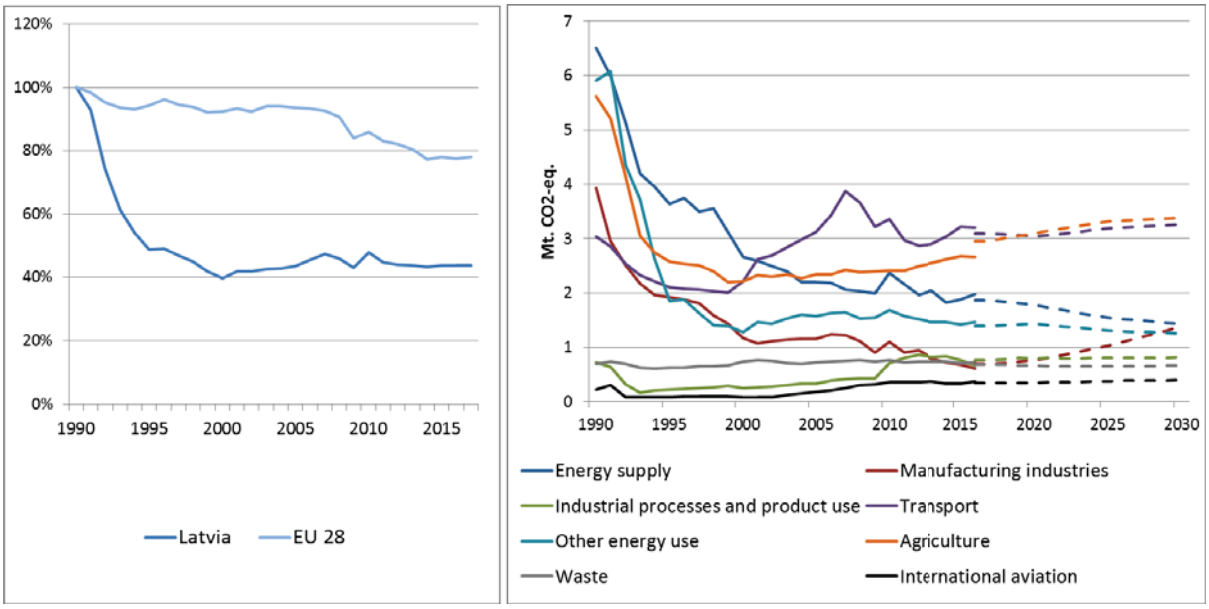

Figure 1: Left hand side: Total greenhouse gas emissions[26] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[27] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

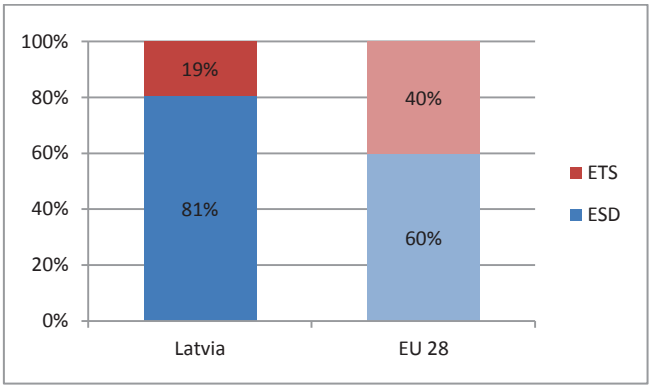

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[28]

[26] National total, including international aviation.
[27] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[28] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

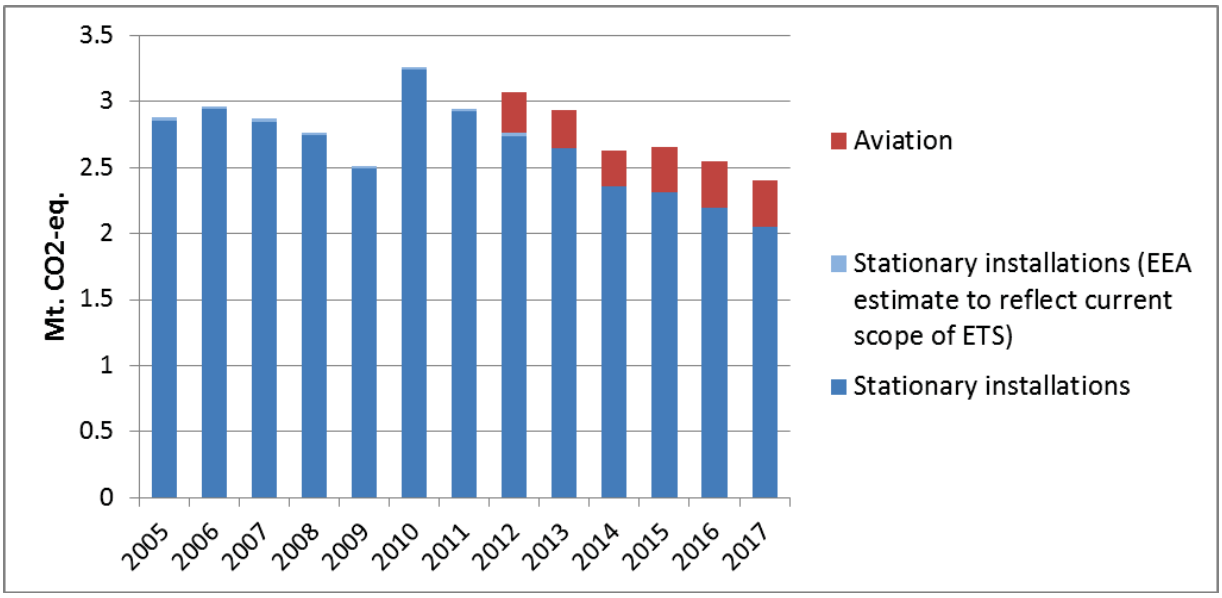

Figure 3: ETS emissions (Mt CO_2-eq.).[29]

3. Emissions in Effort Sharing sectors

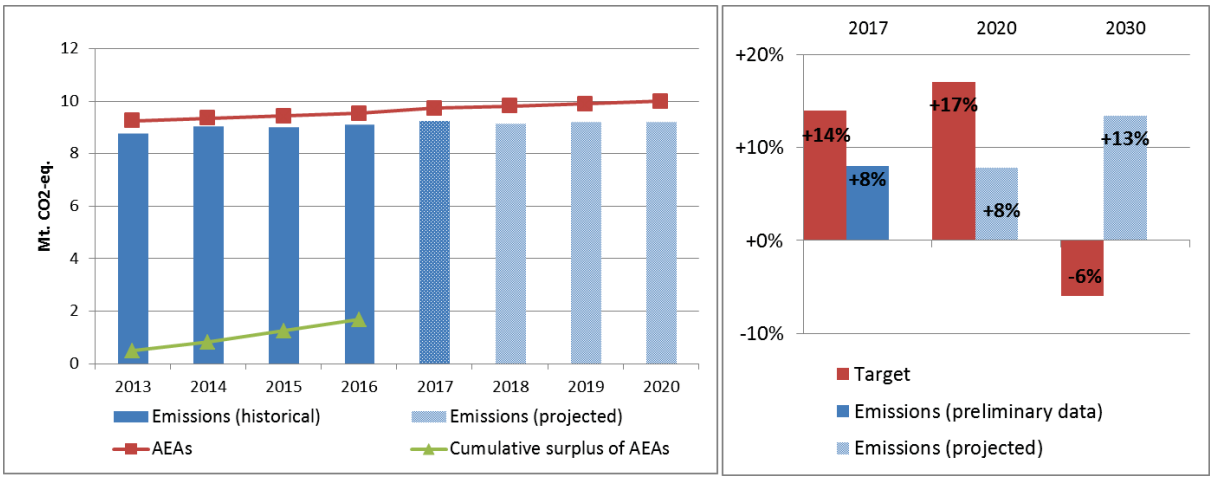

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[29] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

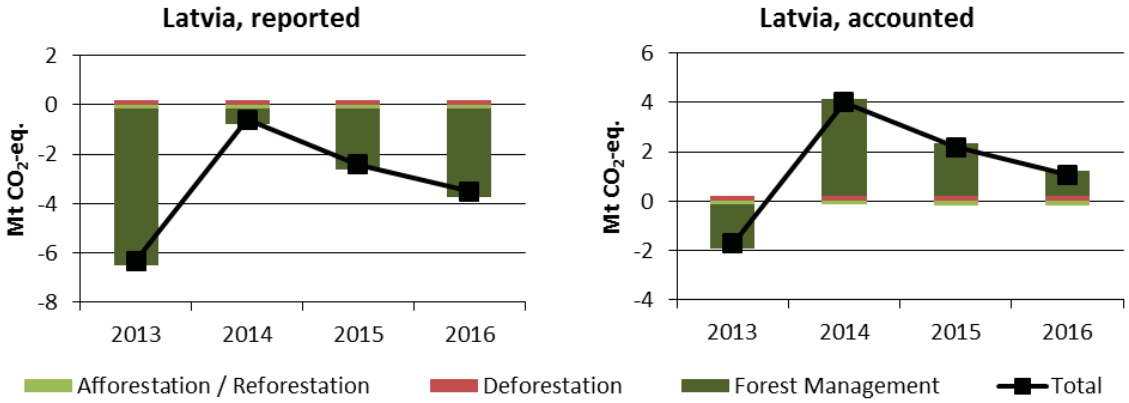

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[30]

Reported quantities under the Kyoto Protocol for Latvia show net removals of, on average, -3.2 Mt CO_2-eq for the period 2013 to 2016. In this regard Latvia contributes with 0.8% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net debits of, on average, 1.4 Mt CO_2-eq, which corresponds to a negative contribution of -1.2% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Latvia is one of six EU Member States which show net debits in this preliminary accounting exercise. Reported net removals decrease sharply from 2013 to 2014 and increase thereafter. Accounting quantities show a similar pattern for which net credits for 2013 convert into substantial net debits for 2014 which decrease over the following years.

[30] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

EUROPEAN
COMMISSION

Brussels, 26.10.2018
SWD(2018) 453 final

PART 4/6

COMMISSION STAFF WORKING DOCUMENT

Technical information

Accompanying the document

Report from the European Commission to the European Parliament and the Council

EU and the Paris Climate Agreement: Taking stock of progress at Katowice COP

{COM(2018) 716 final}

Country fact sheet: Lithuania

1. Total greenhouse gas emissions

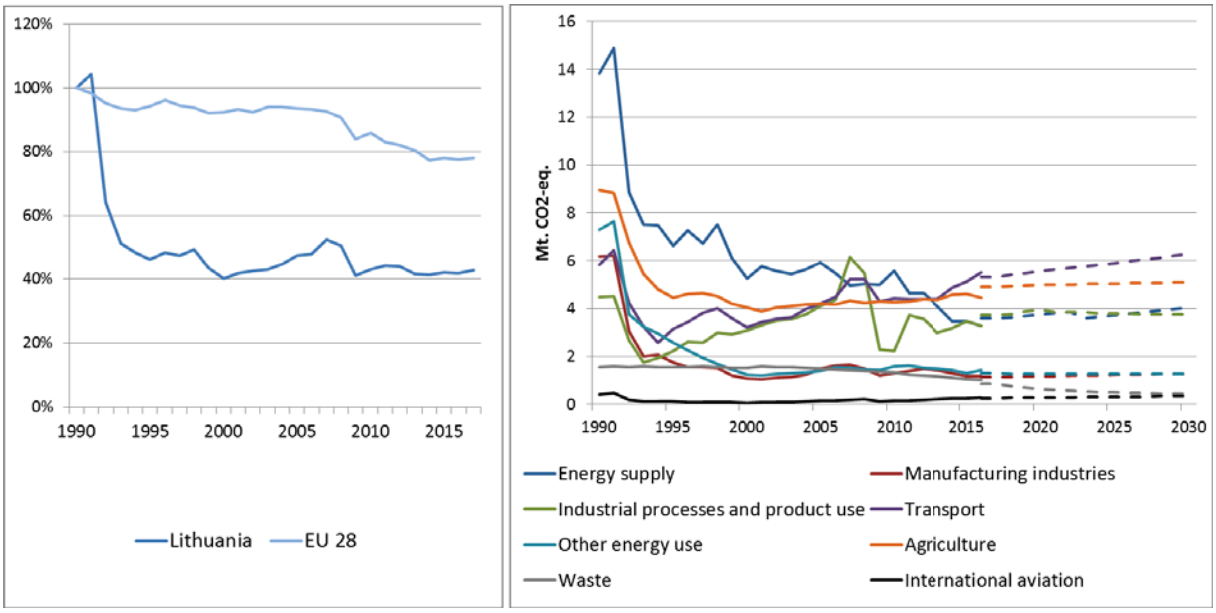

Figure 1: Left hand side: Total greenhouse gas emissions[1] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[2] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

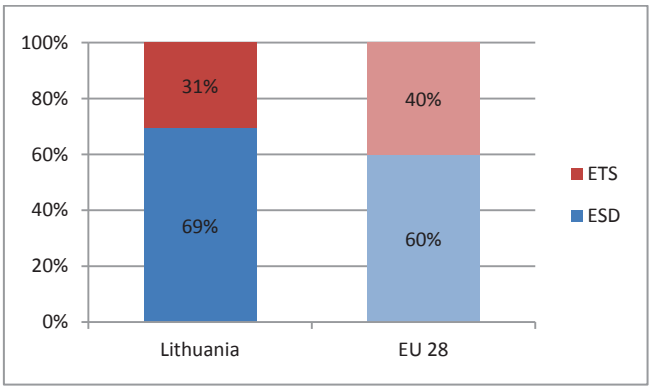

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[3]

[1] National total, including international aviation.
[2] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[3] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

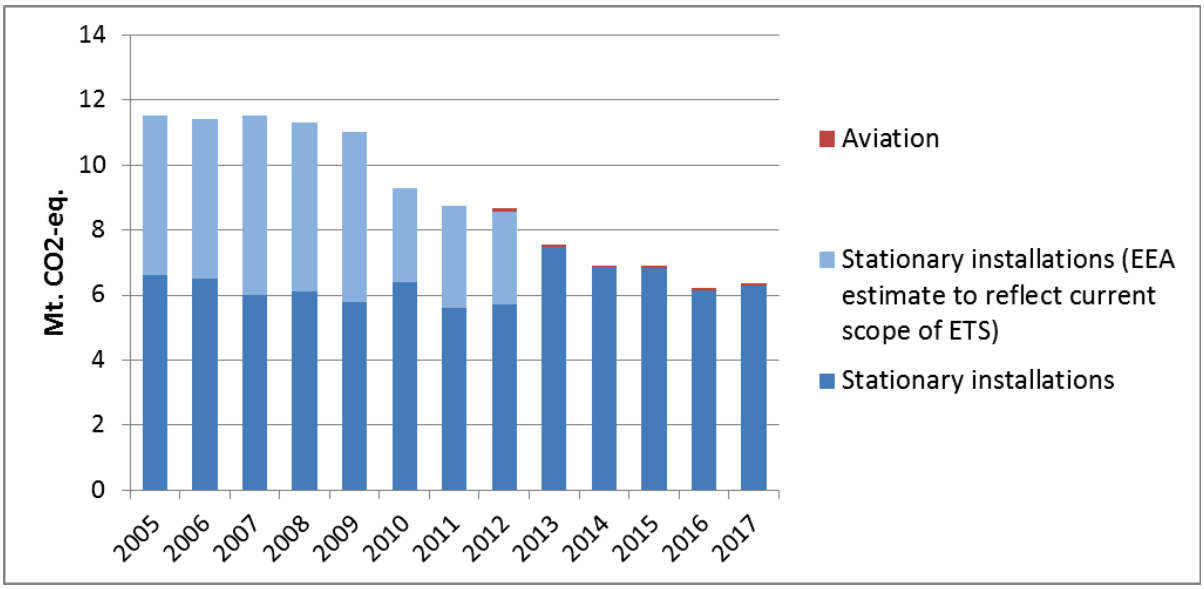

Figure 3: ETS emissions (Mt CO_2-eq.).[4]

3. Emissions in Effort Sharing sectors

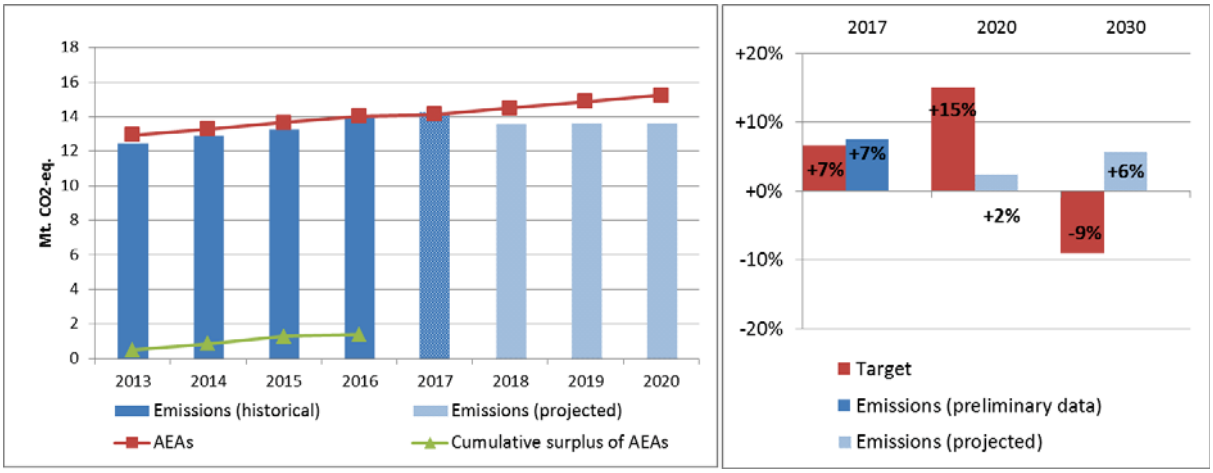

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[4] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

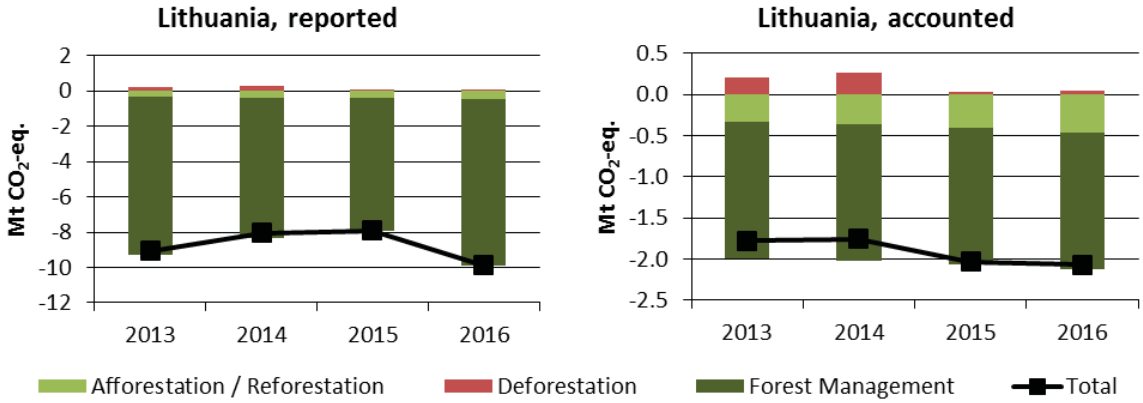

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[5]

Reported quantities under the Kyoto Protocol for Lithuania show net removals of, on average, -8.7 Mt CO_2-eq for the period 2013 to 2016. In this regard Lithuania contributes with 2.3% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -1.9 Mt CO_2-eq, which corresponds to 1.7% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals decrease between 2013 and 2015 and markedly increase for 2016 while accounted net credits show an increasing trend. In this preliminary simulated accounting exercise potential credits by Forest Management of, on average, -3.0 Mt CO_2-eq per year are capped to -1.7 Mt CO_2-eq per year. Lithuania is one of eight EU Member States which exceed the cap of 3.5% from emissions of the base year (1990).

[5] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Luxembourg

1. Total greenhouse gas emissions

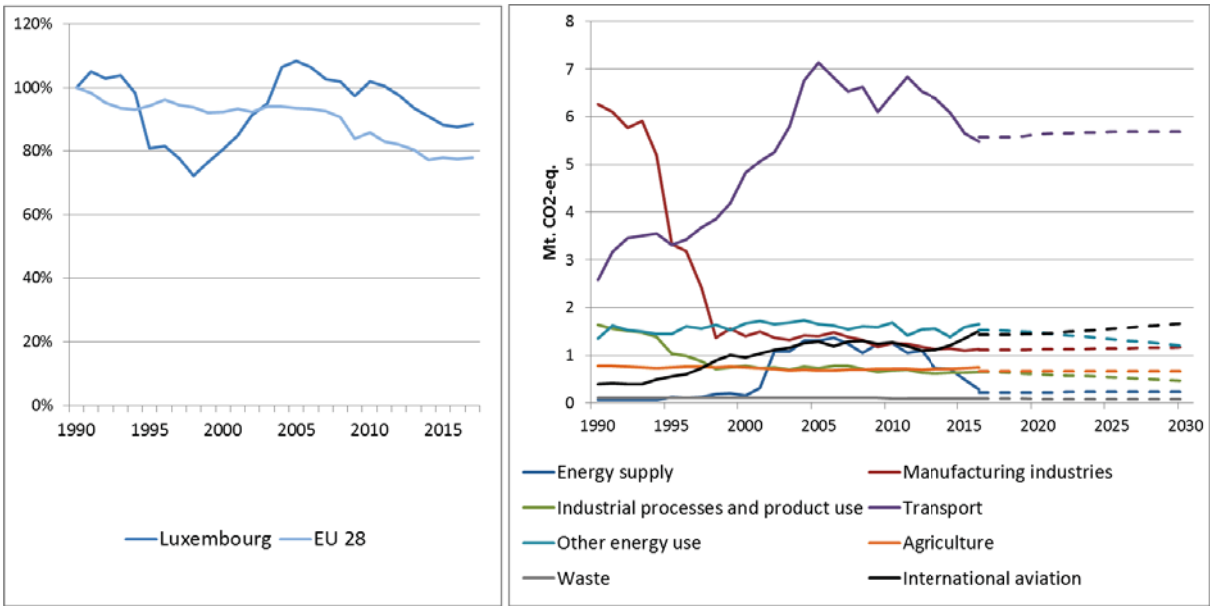

Figure 1: Left hand side: Total greenhouse gas emissions[6] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[7] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

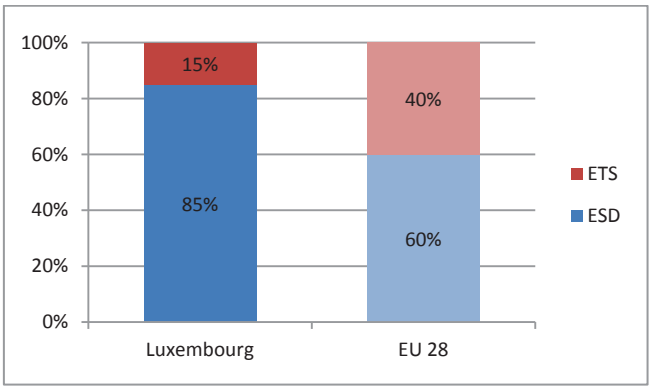

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[8]

[6] National total, including international aviation.
[7] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[8] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

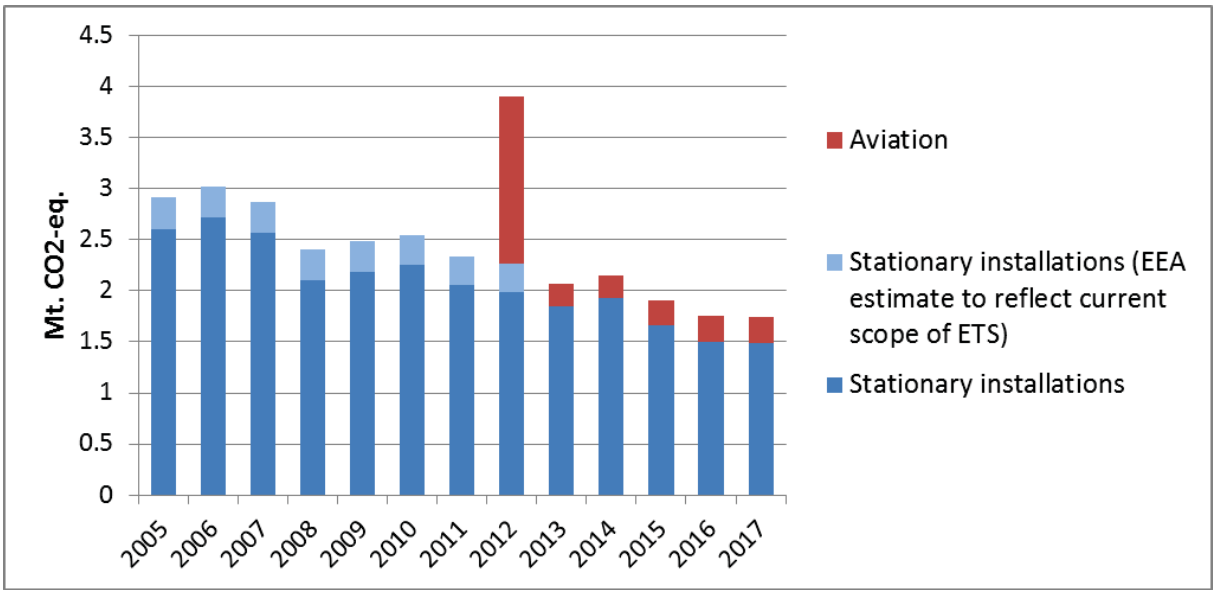

Figure 3: ETS emissions (Mt CO_2-eq.).[9]

3. Emissions in Effort Sharing sectors

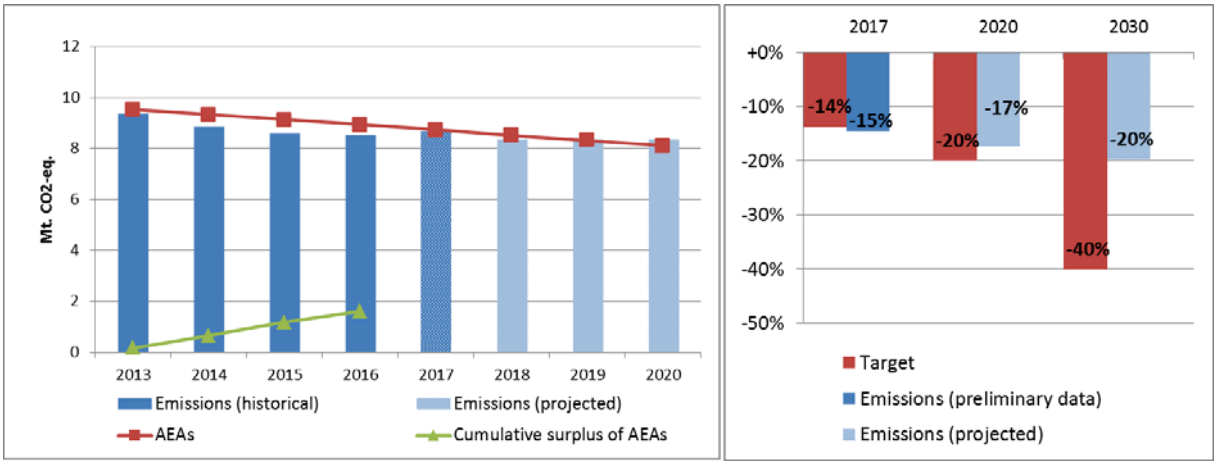

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[9] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

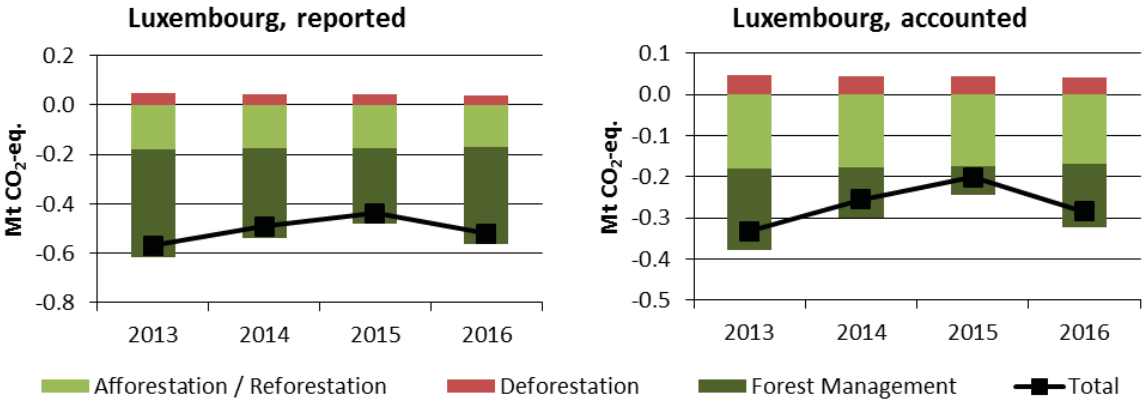

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[10]

Reported quantities under the Kyoto Protocol for Luxembourg show net removals of, on average, -0.5 Mt CO_2-eq for the period 2013 to 2016. In this regard Luxembourg contributes with 0.13% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -0.3 Mt CO_2-eq, which corresponds to 0.2% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals and accounted net credits decrease between 2013 and 2015 and markedly increase for 2016.

[10] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Malta

1. Total greenhouse gas emissions

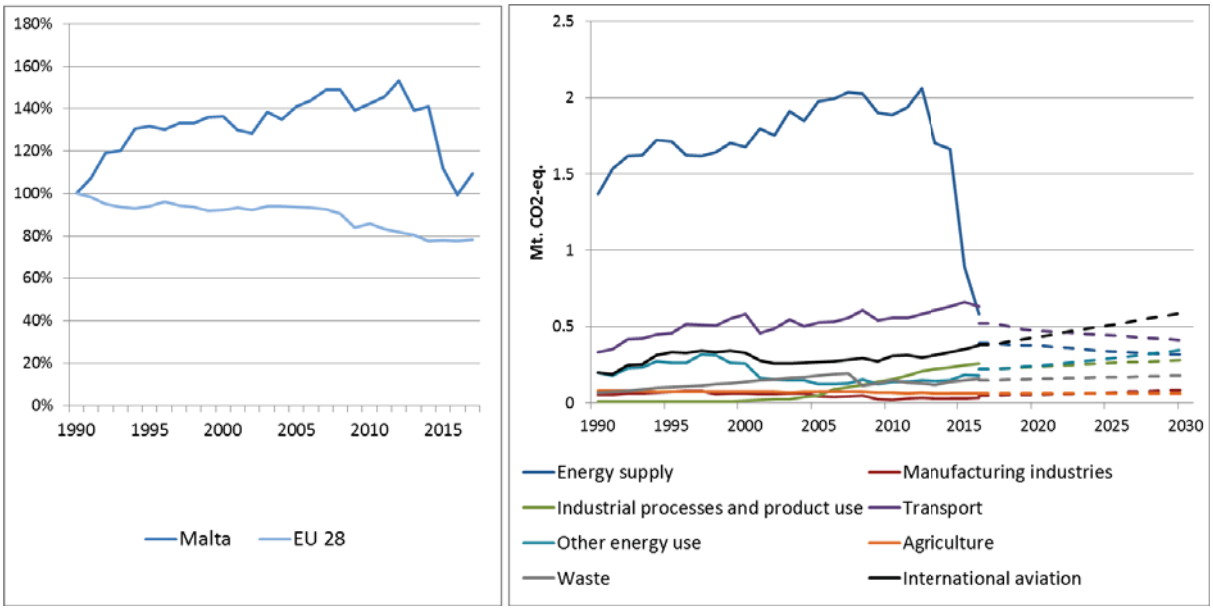

Figure 1: Left hand side: Total greenhouse gas emissions[11] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[12] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

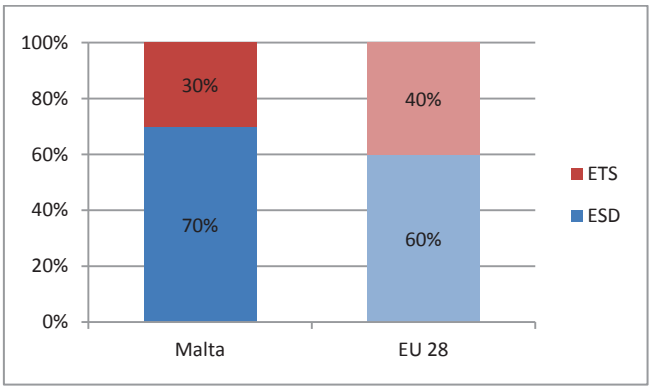

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[13]

[11] National total, including international aviation.
[12] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[13] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

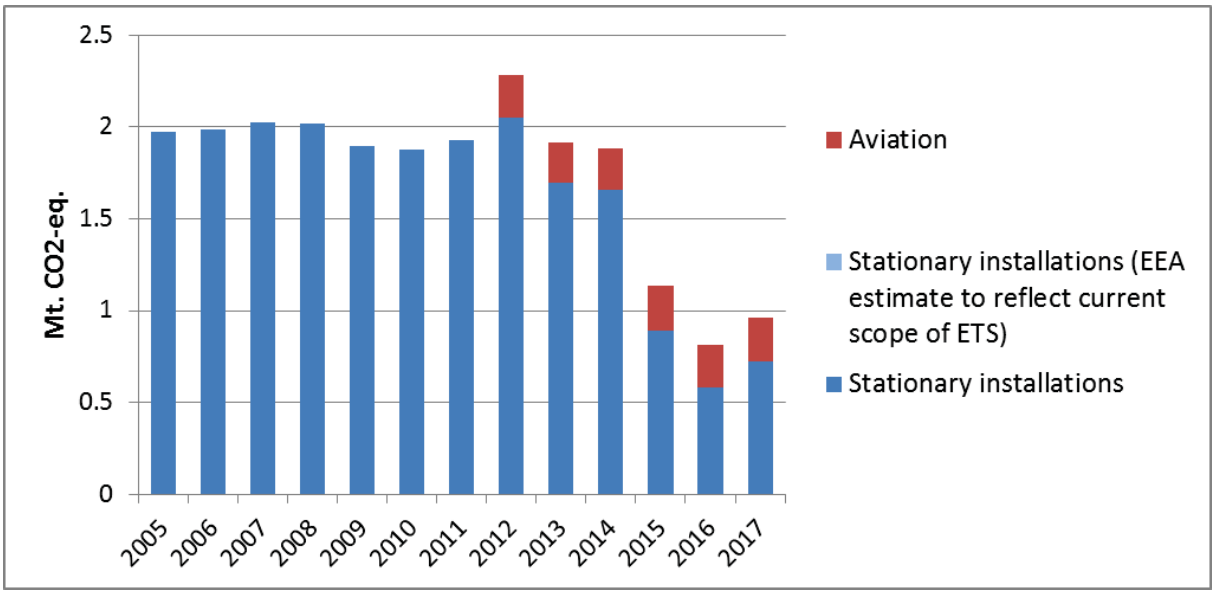

Figure 3: ETS emissions (Mt CO_2-eq.).[14]

3. Emissions in Effort Sharing sectors

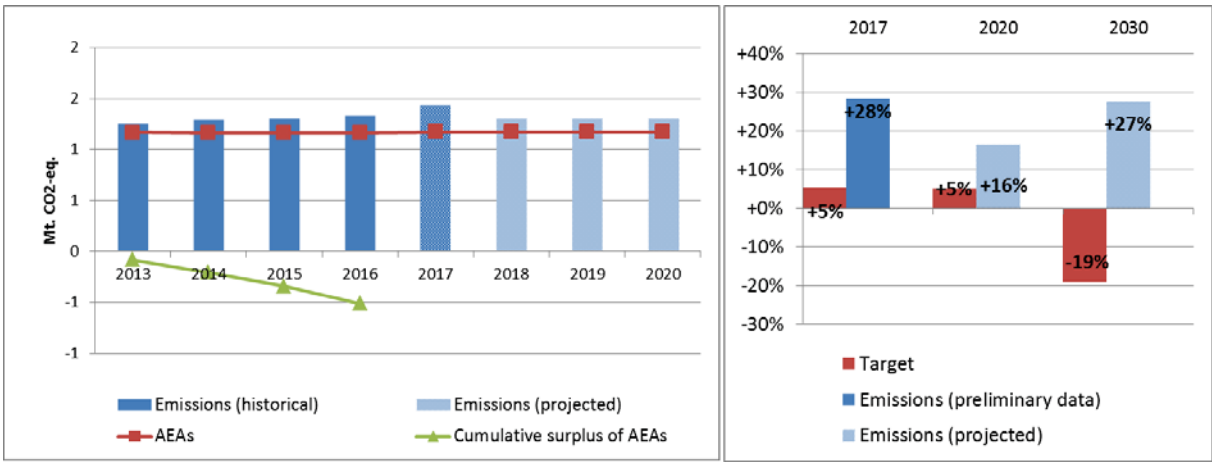

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.[15]

[14] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.
[15] Malta has covered its deficit of AEAs by purchasing AEAs from Bulgaria.

4. Land use, land use change and forestry

Malta is the only EU Member State with no reported and accounted quantities under the Kyoto Protocol second commitment period.

Country fact sheet: Netherlands

1. Total greenhouse gas emissions

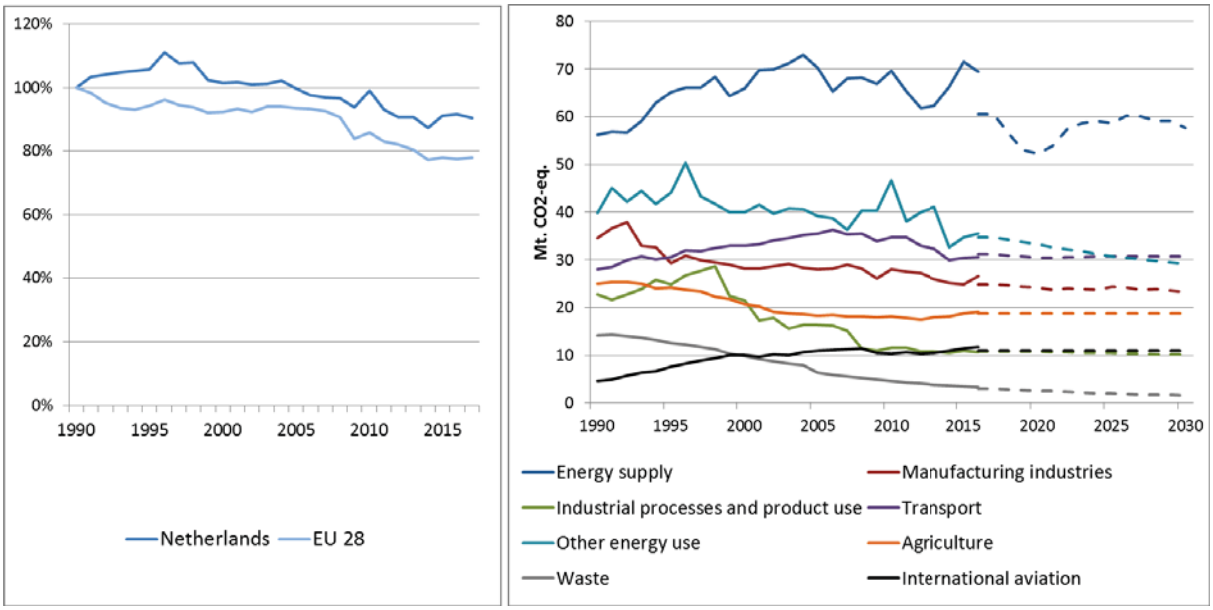

Figure 1: Left hand side: Total greenhouse gas emissions[16] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[17] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

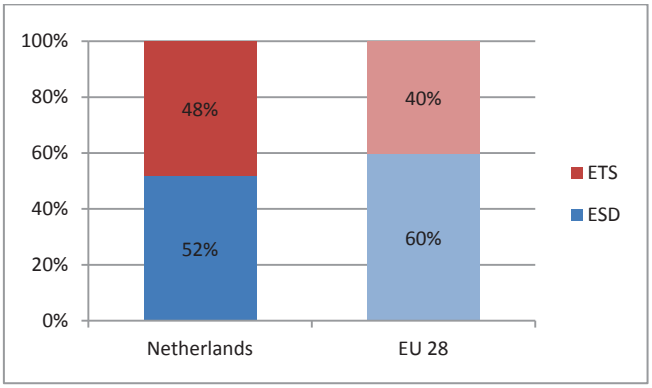

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[18]

[16] National total, including international aviation.
[17] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[18] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

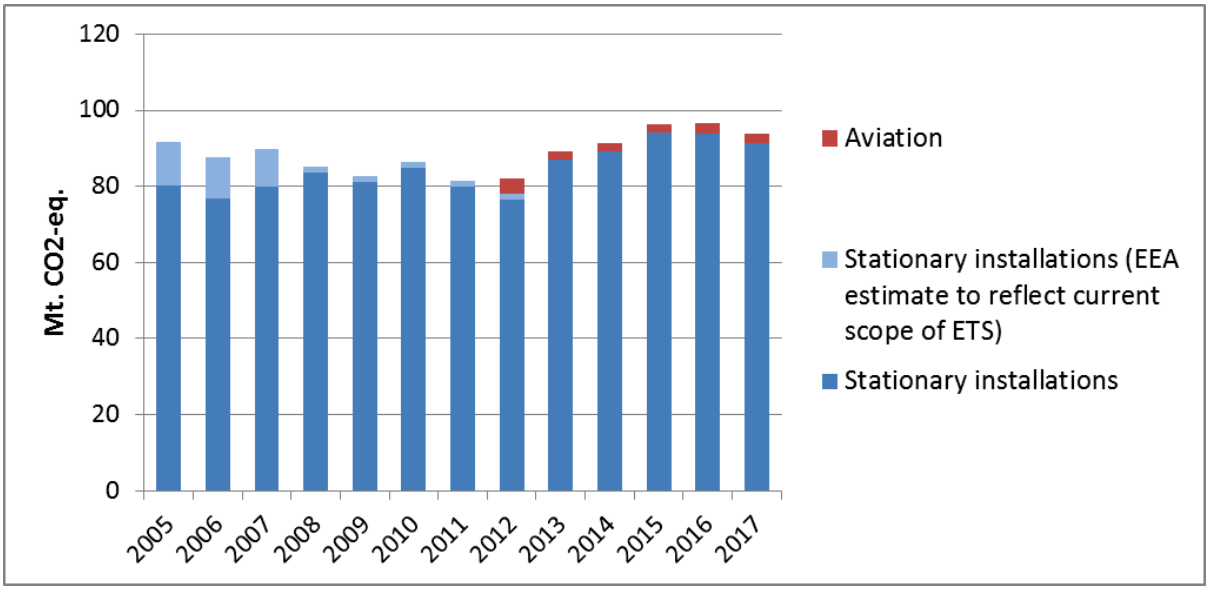

Figure 3: ETS emissions (Mt CO_2-eq.).[19]

3. Emissions in Effort Sharing sectors

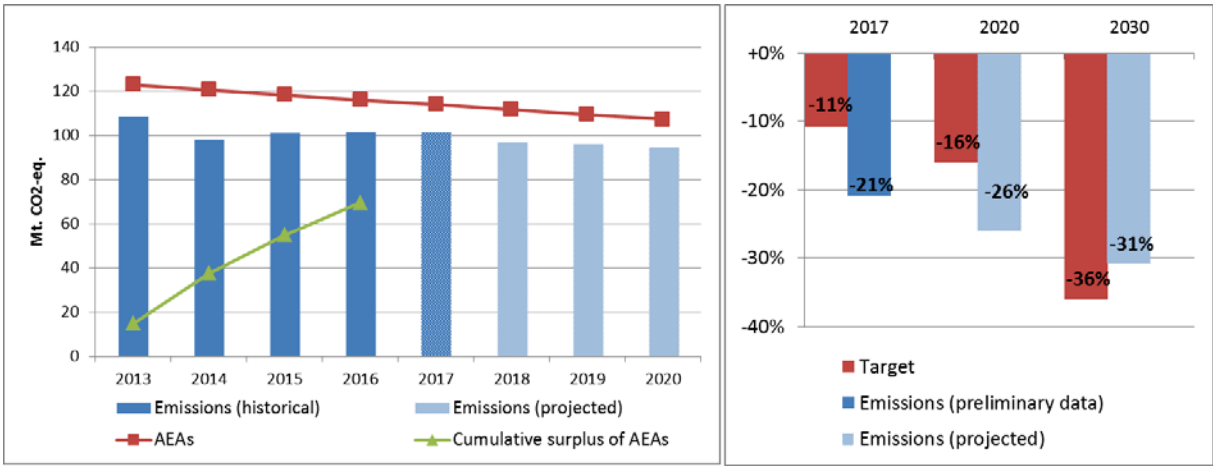

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[19] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

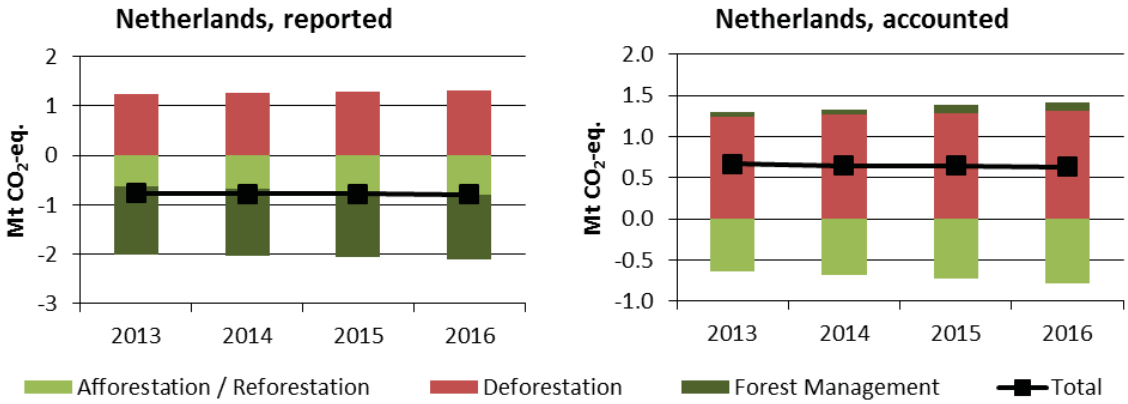

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[20]

Reported quantities under the Kyoto Protocol for the Netherlands show net removals of, on average, -0.8 Mt CO_2-eq for the period 2013 to 2016. In this regard the Netherlands contribute with 0.2% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net debits of, on average, 0.7 Mt CO_2-eq, which corresponds to a negative contribution of -0.6% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. The Netherlands is one of six EU Member States which show net debits in this preliminary accounting exercise. Reported net removals increase and accounted net debits show nearly no change over the four-year period.

[20] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Poland

1. Total greenhouse gas emissions

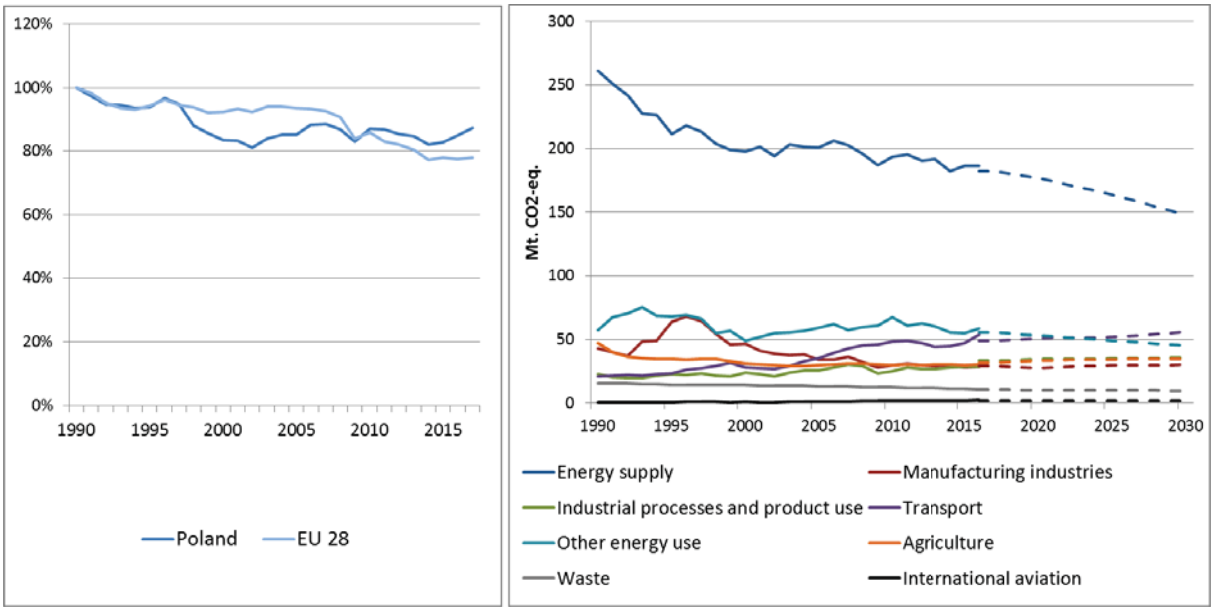

Figure 1: Left hand side: Total greenhouse gas emissions[21] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[22] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

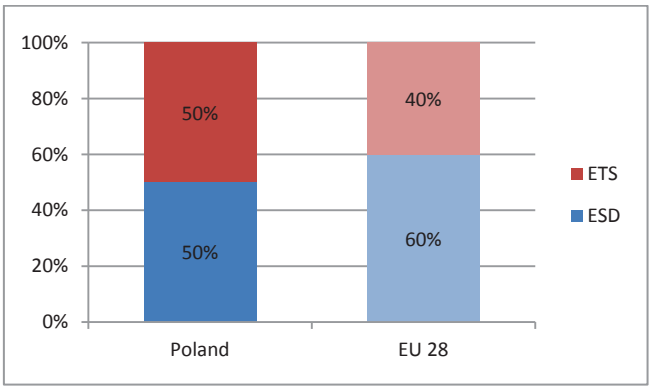

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[23]

[21] National total, including international aviation.
[22] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[23] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

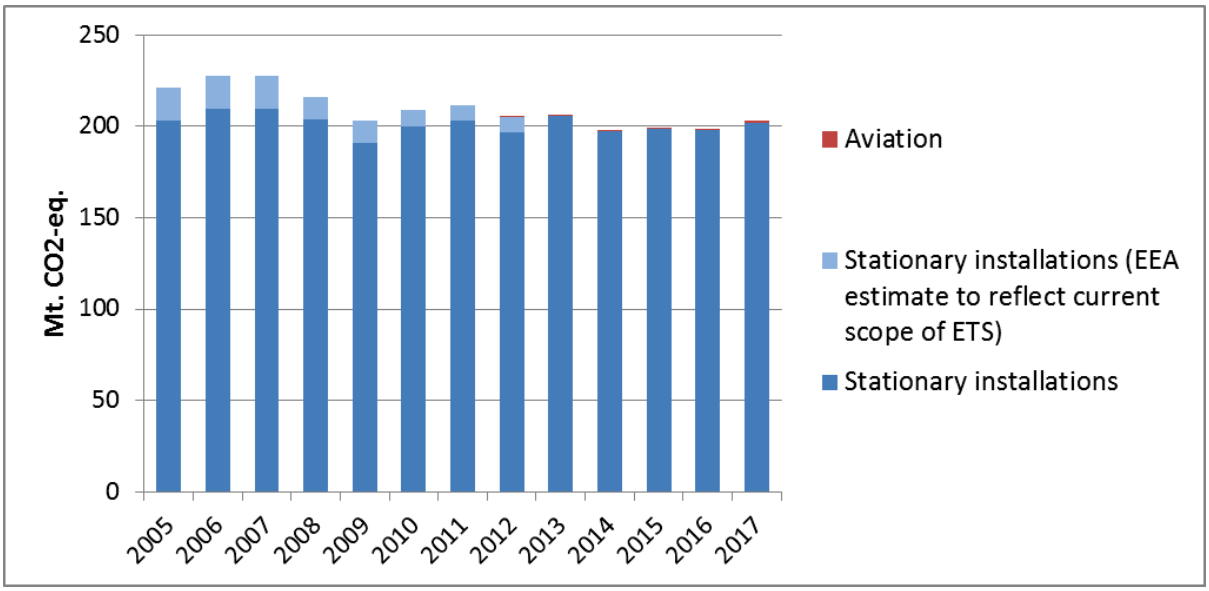

Figure 3: ETS emissions (Mt CO_2-eq.).[24]

3. Emissions in Effort Sharing sectors

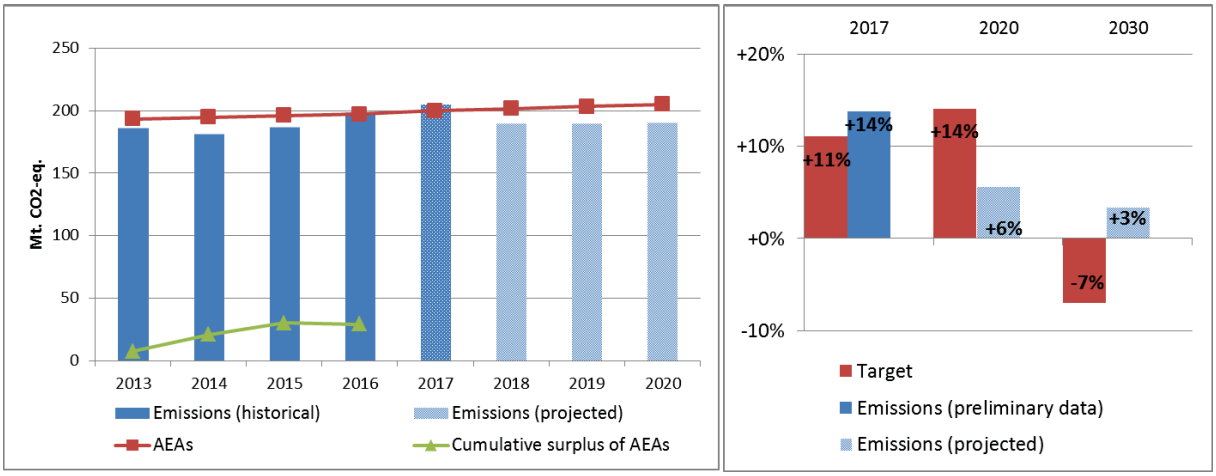

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[24] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

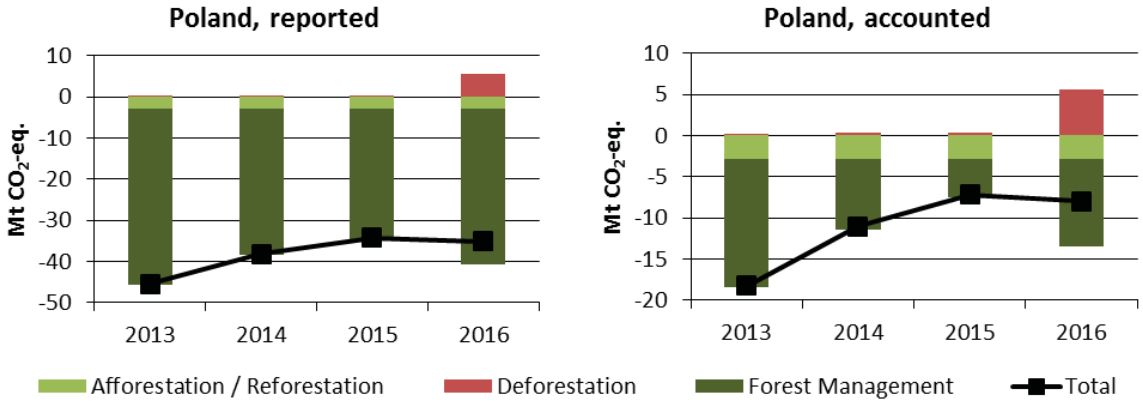

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[25]

Reported quantities under the Kyoto Protocol for Poland show net removals of, on average, -38.3 Mt CO_2-eq for the period 2013 to 2016. In this regard Poland contributes with 10.0% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -11.1 Mt CO_2-eq, which corresponds to 9.6% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals and accounted net credits decrease between 2013 and 2015 and slightly increase for 2016.

[25] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Portugal

1. Total greenhouse gas emissions

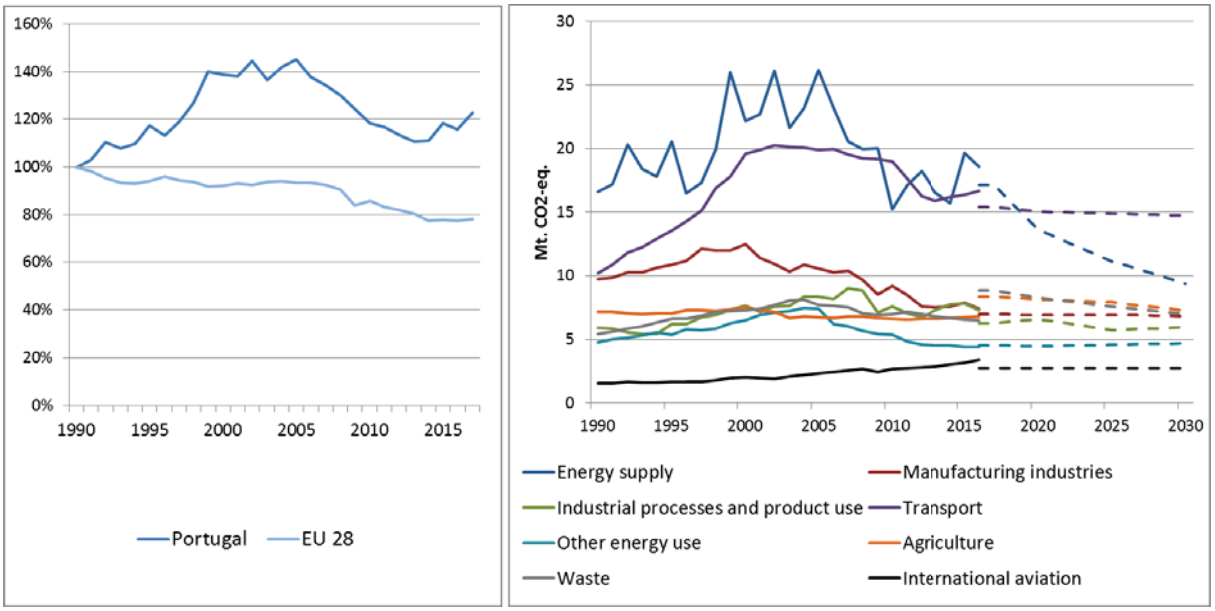

Figure 1: Left hand side: Total greenhouse gas emissions[26] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[27] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

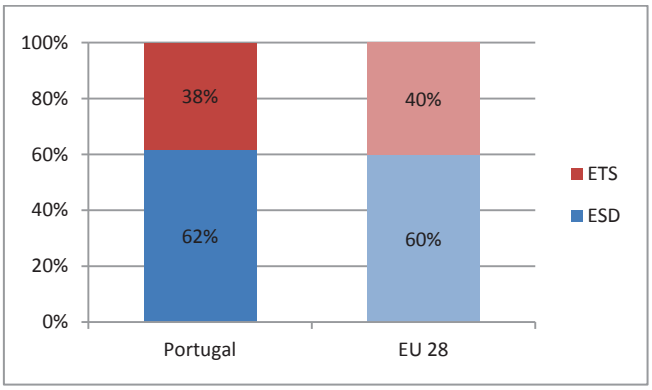

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[28]

[26] National total, including international aviation.
[27] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[28] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

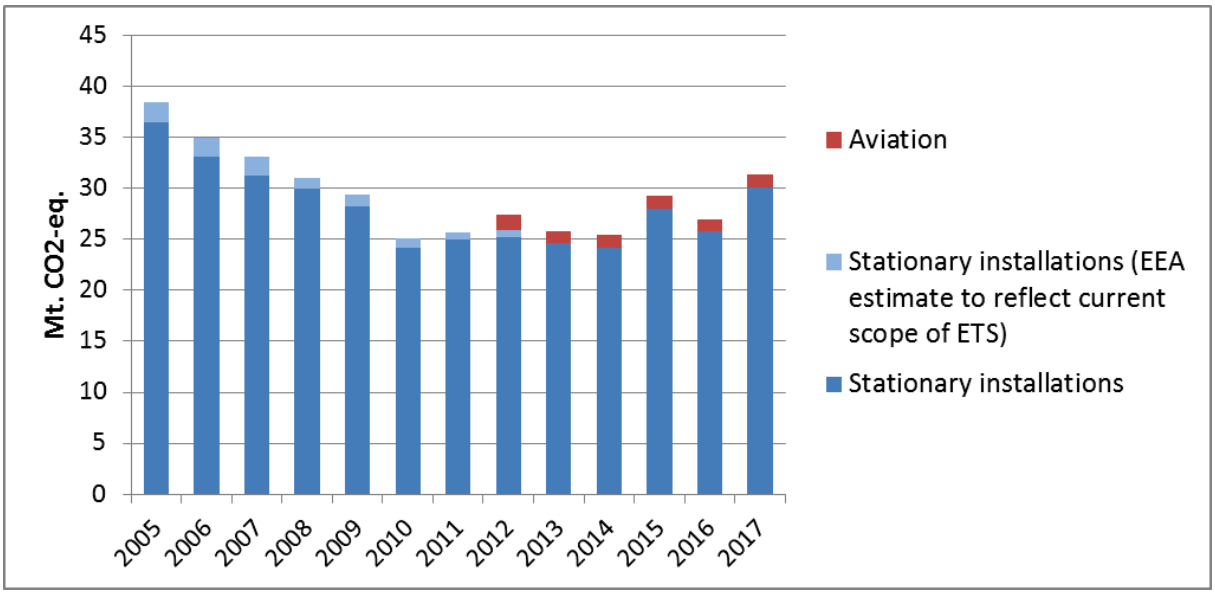

Figure 3: ETS emissions (Mt CO_2-eq.).[29]

3. Emissions in Effort Sharing sectors

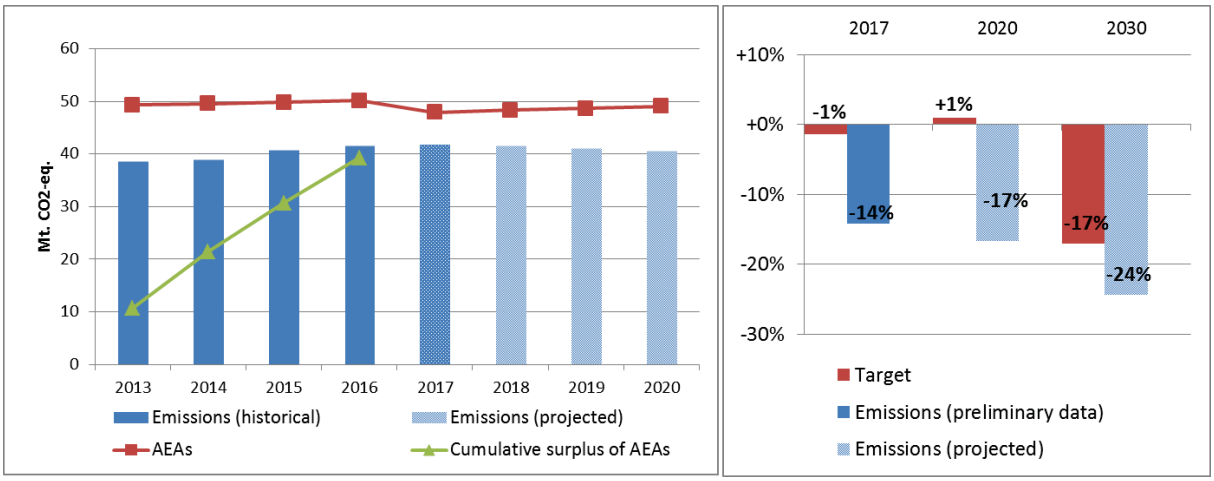

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[29] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

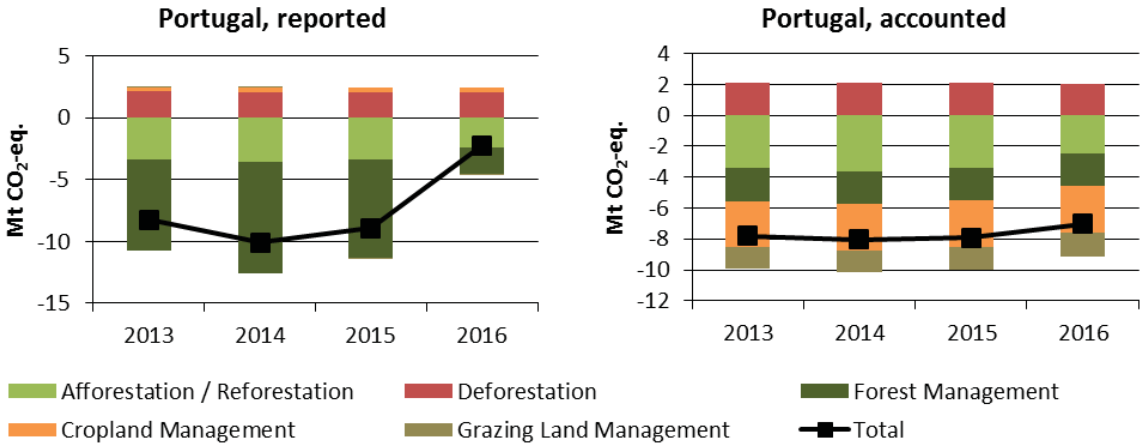

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[30]

Reported quantities under the Kyoto Protocol for Portugal show net removals of, on average, -7.4 Mt CO_2-eq for the period 2013 to 2016. In this regard Portugal contributes with 1.9% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -7.7 Mt CO_2-eq, which corresponds to 6.7% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals are highest for 2014 and decrease substantially thereafter, while accounted net credits only show a minor decrease for 2016. Portugal elected to report and account for Cropland Management as one of seven EU Member States and for Grazing Land Management as one of six EU Member States. In this preliminary simulated accounting exercise potential credits by Forest Management of, on average, -3.0 Mt CO_2-eq per year are capped to -2.1 Mt CO_2-eq per year. Portugal is one of eight EU Member States which exceed the cap of 3.5% from emissions of the base year (1990).

[30] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

EUROPEAN
COMMISSION

Brussels, 26.10.2018
SWD(2018) 453 final

PART 5/6

COMMISSION STAFF WORKING DOCUMENT

Technical information

Accompanying the document

Report from the European Commission to the European Parliament and the Council

EU and the Paris Climate Agreement: Taking stock of progress at Katowice COP

{COM(2018) 716 final}

Country fact sheet: Romania

1. Total greenhouse gas emissions

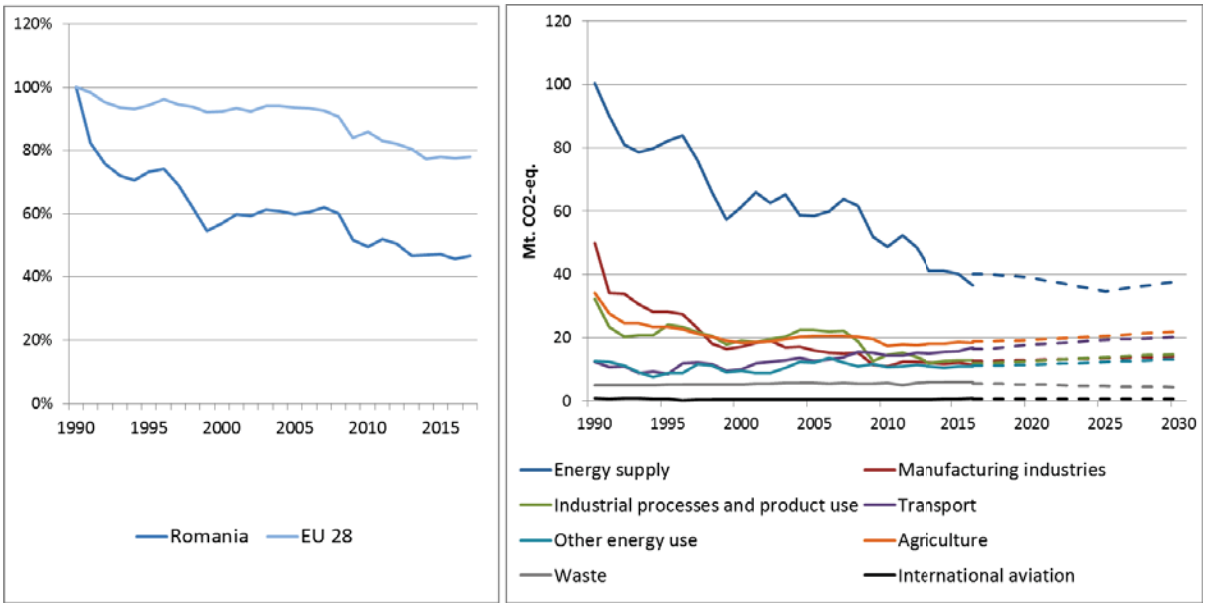

Figure 1: Left hand side: Total greenhouse gas emissions[1] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[2] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

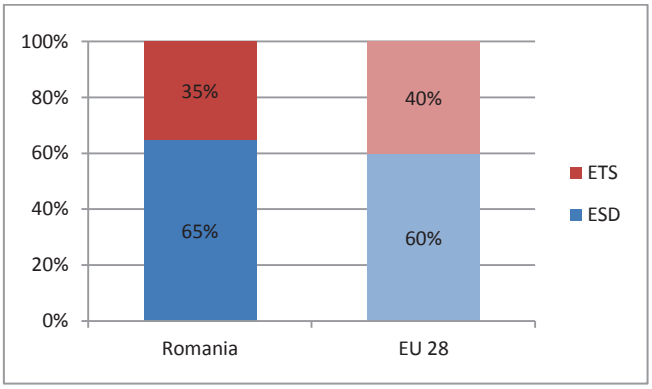

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[3]

[1] National total, including international aviation.
[2] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[3] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

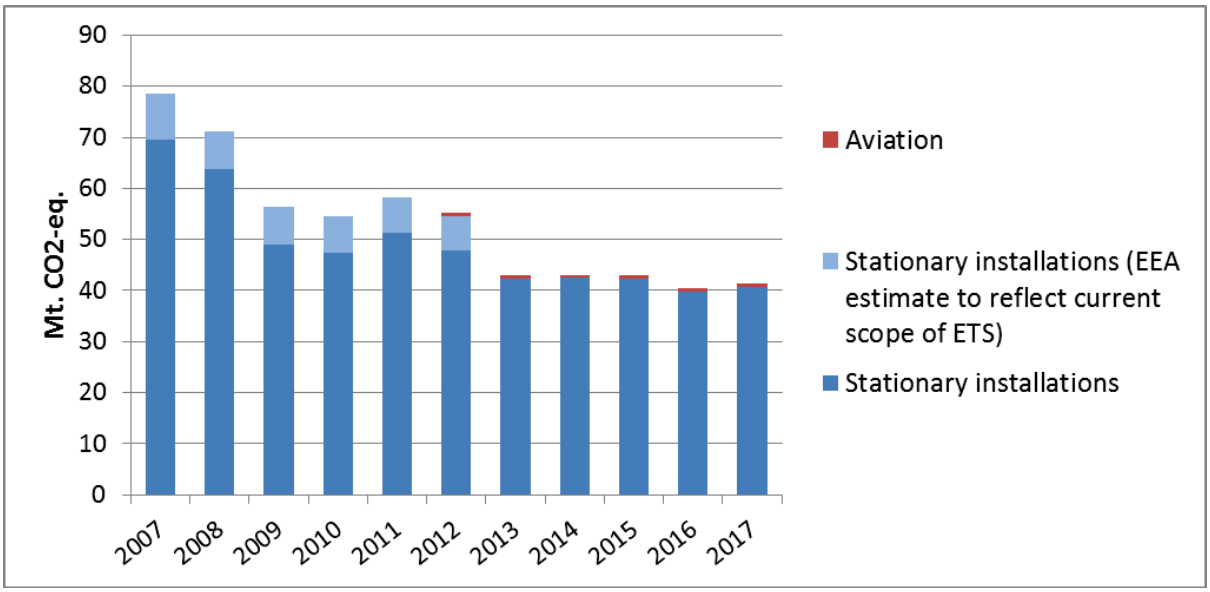

Figure 3: ETS emissions (Mt CO_2-eq.).[4]

3. Emissions in Effort Sharing sectors

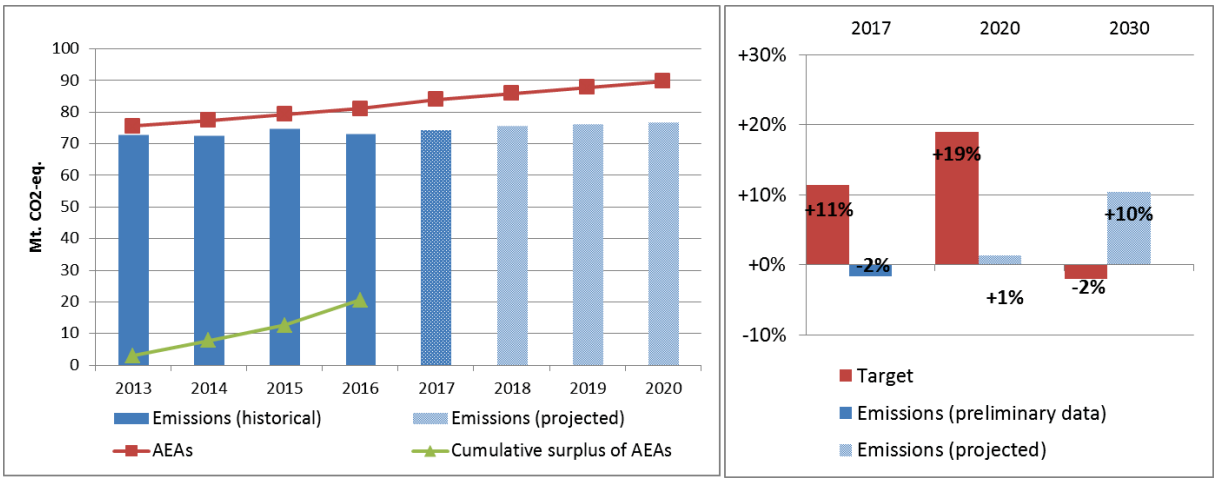

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[4] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2007 to 2012. The estimates cover only emissions from stationary installations. Romania joined the ETS in 2007.

4. Land use, land use change and forestry

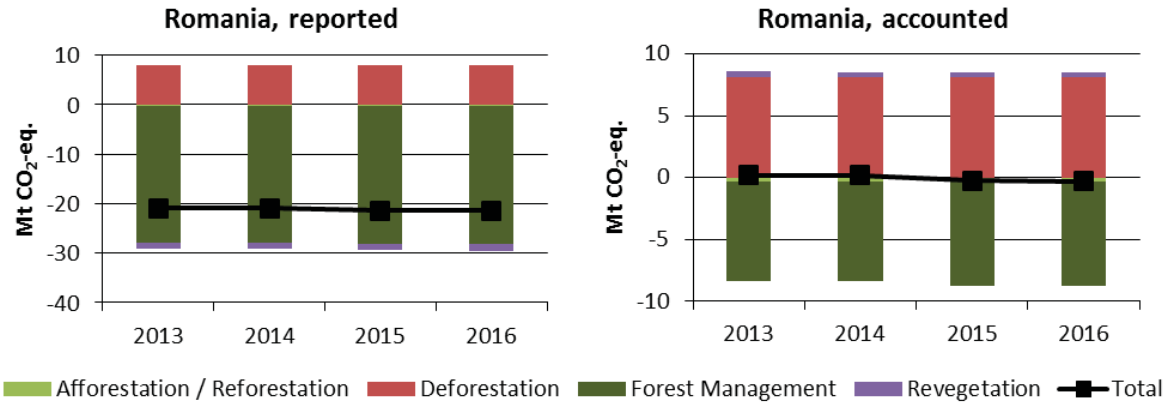

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[5]

Reported quantities under the Kyoto Protocol for Romania show net removals of, on average, -21.2 Mt CO_2-eq for the period 2013 to 2016. In this regard Romania contributes with 5.5% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -0.03 Mt CO_2-eq, which corresponds to 0.03% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals show a small increasing trend. The same pattern is indicated for accounting quantities transitioning from small net debits to small net credits. Romania is the only EU Member State which elected to report and account for Revegetation.

[5] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Slovakia

1. Total greenhouse gas emissions

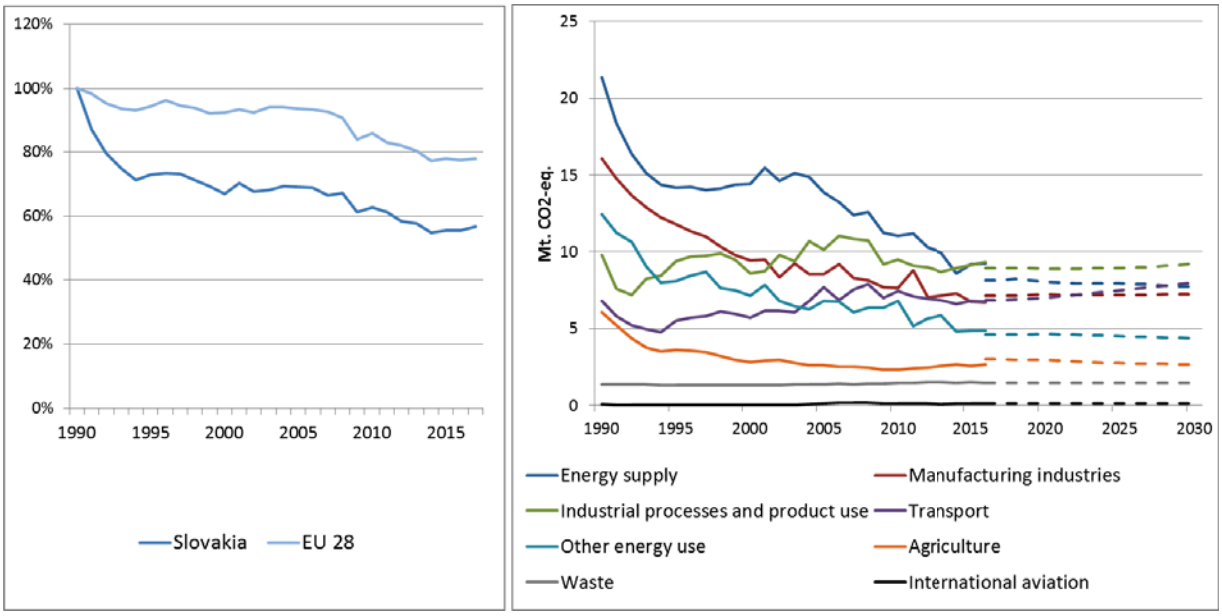

Figure 1: Left hand side: Total greenhouse gas emissions[6] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[7] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

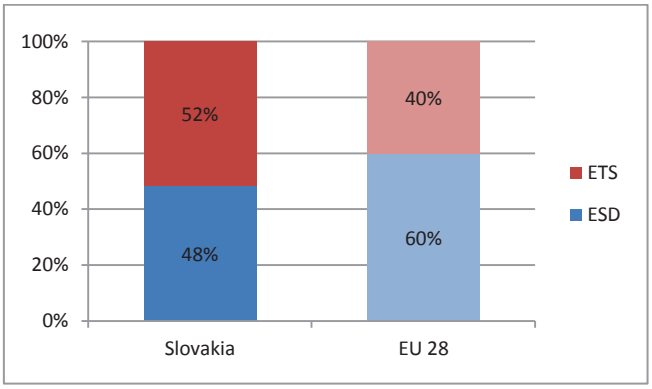

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[8]

[6] National total, including international aviation.
[7] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[8] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

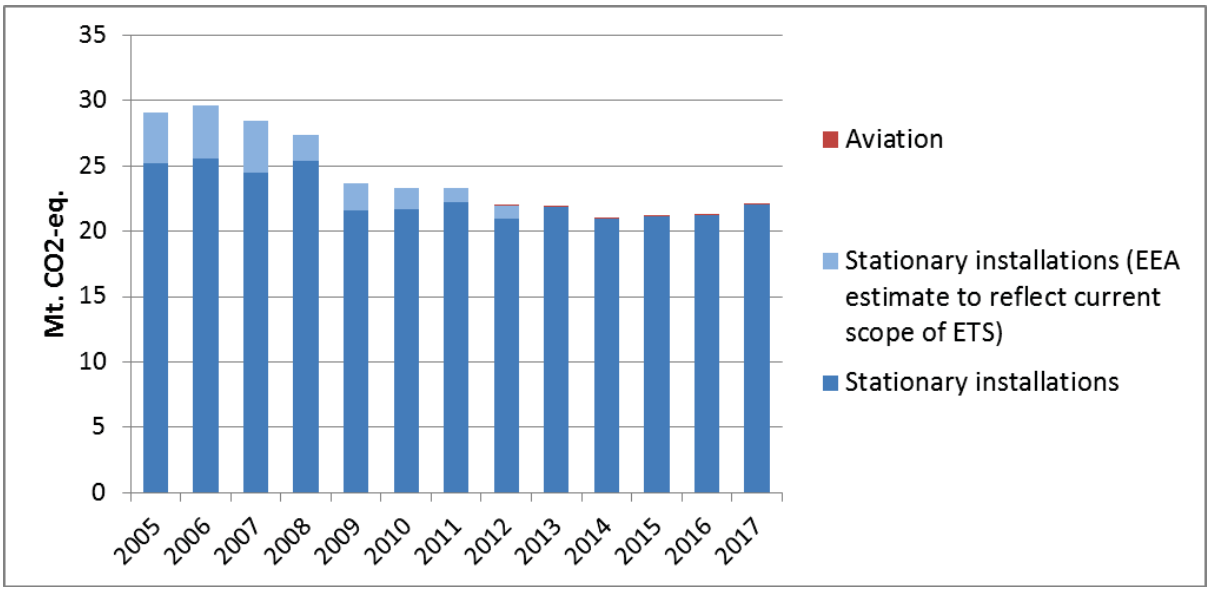

Figure 3: ETS emissions (Mt CO_2-eq.).[9]

3. Emissions in Effort Sharing sectors

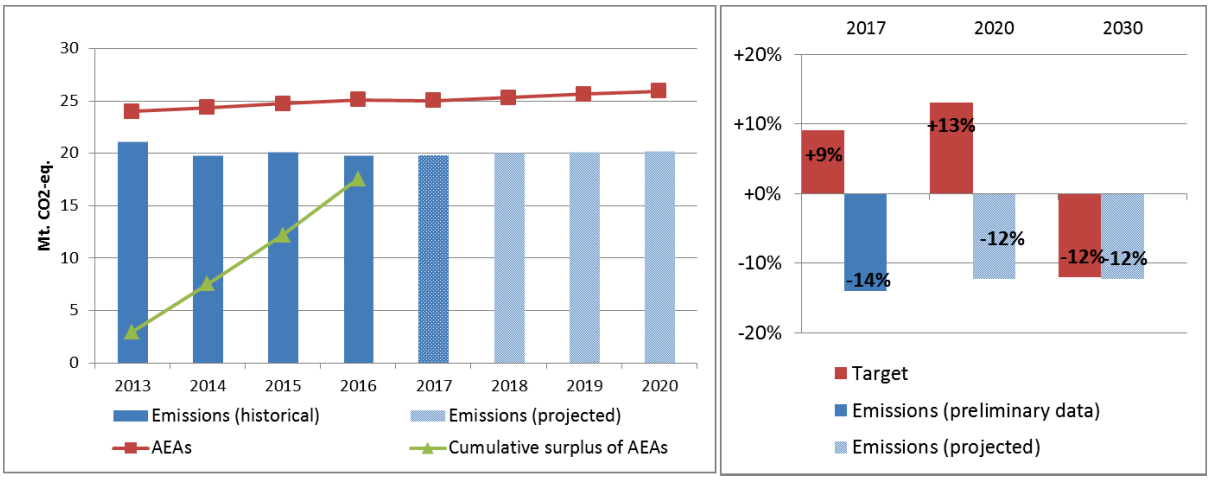

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[9] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

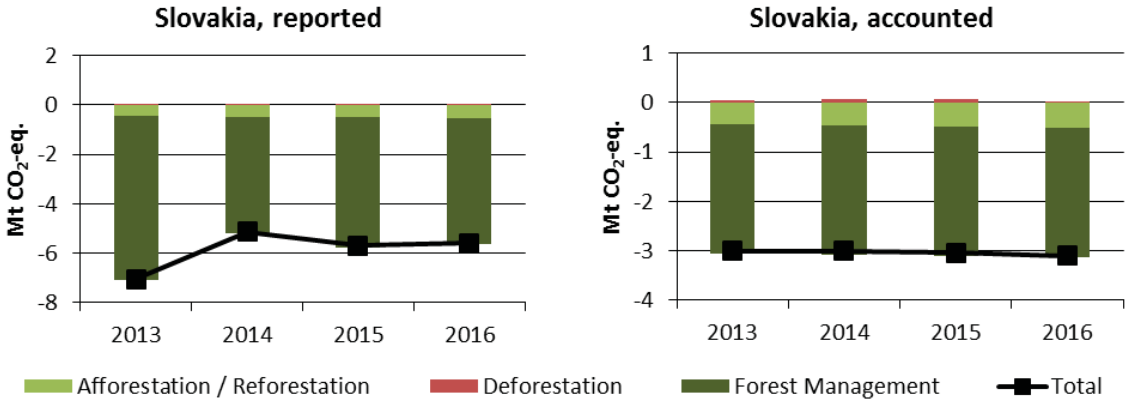

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[10]

Reported quantities under the Kyoto Protocol for Slovakia show net removals of, on average, -5.9 Mt CO_2-eq for the period 2013 to 2016. In this regard Slovakia contributes with 1.5% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -3.0 Mt CO_2-eq, which corresponds to 2.6% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals depict a decrease between 2013 and 2014 followed by a minor increase, while accounted net credits show a very small increase over the four-year period. In this preliminary simulated accounting exercise potential credits by Forest Management of, on average, -3.1 Mt CO_2-eq per year are capped to -2.6 Mt CO_2-eq per year. Slovakia is one of eight EU Member States which exceed the cap of 3.5% from emissions of the base year (1990).

[10] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Slovenia

1. Total greenhouse gas emissions

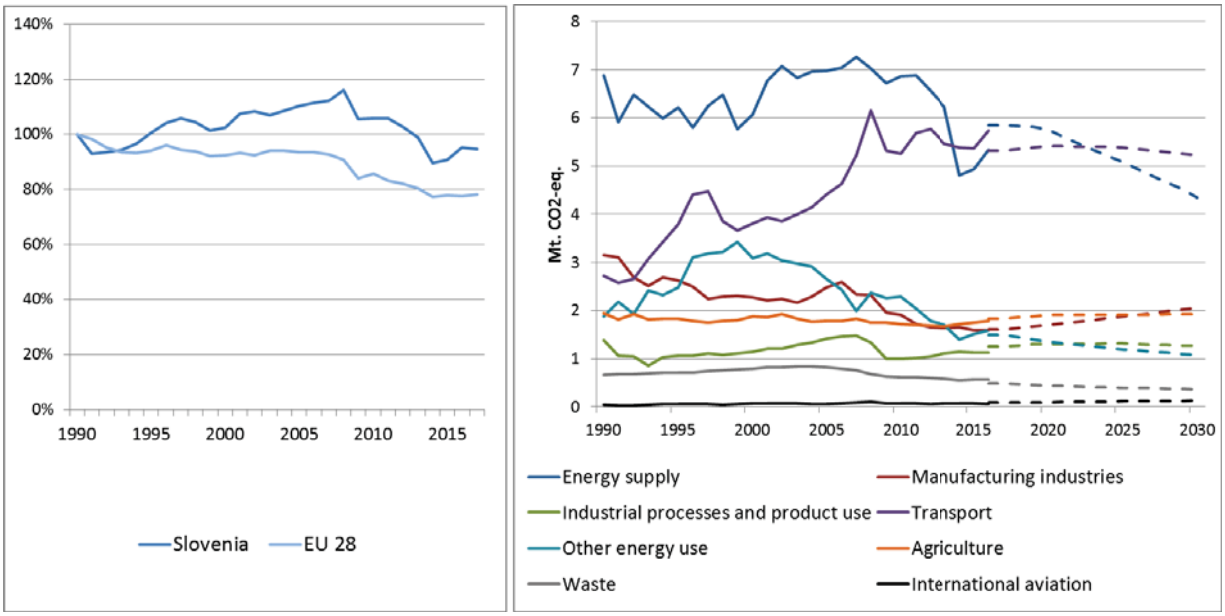

Figure 1: Left hand side: Total greenhouse gas emissions[11] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[12] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

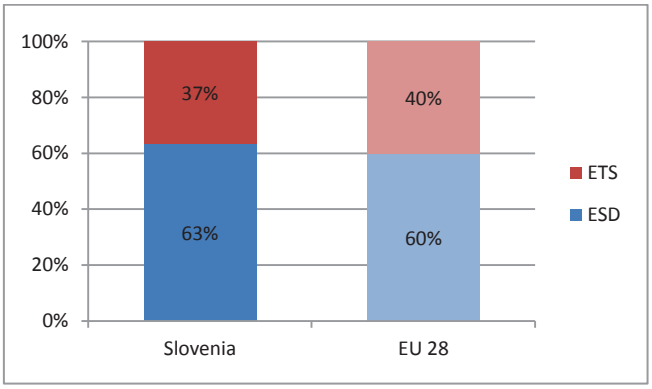

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[13]

[11] National total, including international aviation.
[12] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[13] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

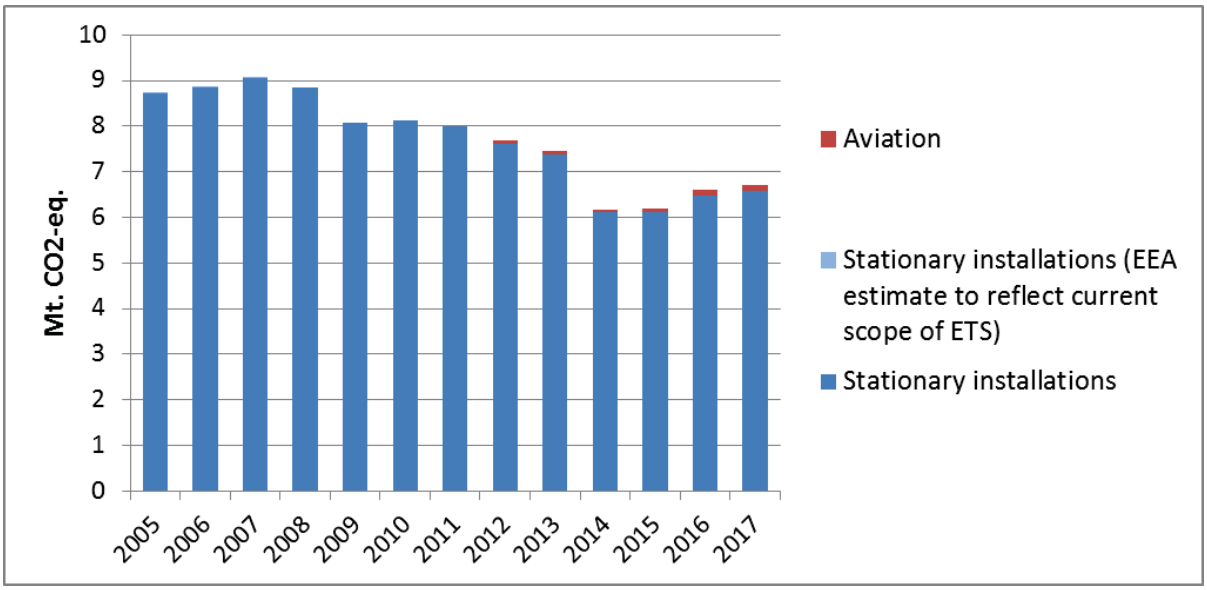

Figure 3: ETS emissions (Mt CO_2-eq.).[14]

3. Emissions in Effort Sharing sectors

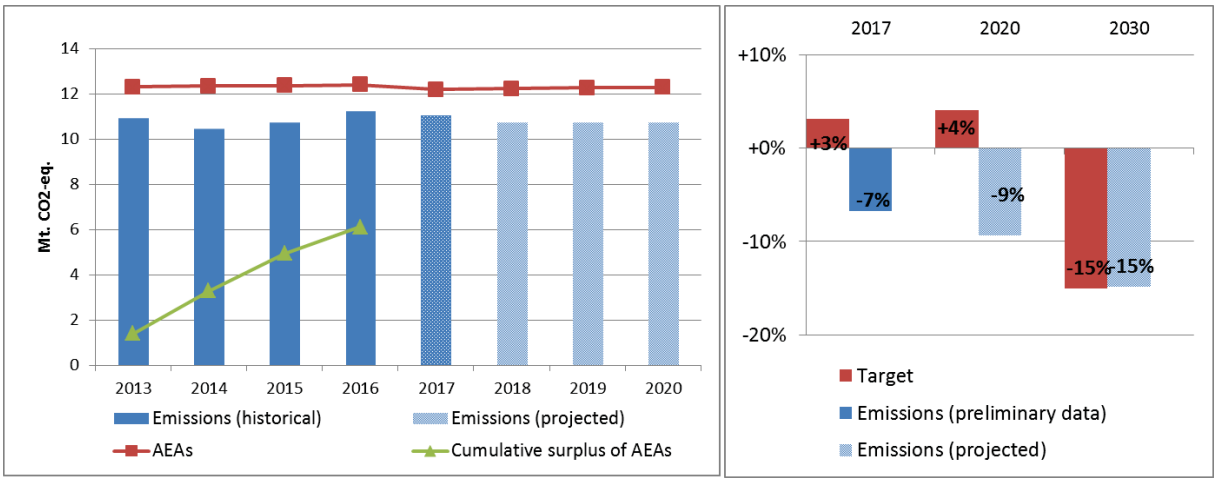

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[14] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

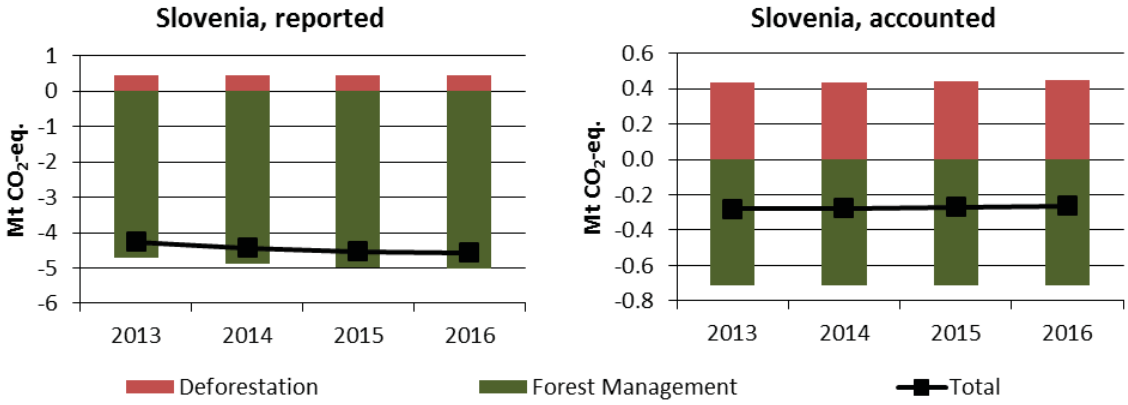

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[15]

Reported quantities under the Kyoto Protocol for Slovenia show net removals of, on average, -4.5 Mt CO_2-eq for the period 2013 to 2016. In this regard Slovenia contributes with 1.2% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -0.3 Mt CO_2-eq, which corresponds to 0.2% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals depict a small increase over the four-year period, while accounted net credits remain nearly unchanged. Slovenia is the only EU Member State which does not provide quantities to report and account for Afforestation/Reforestation. In this preliminary simulated accounting exercise potential credits by Forest Management of, on average, -1.7 Mt CO_2-eq per year are capped to -0.7 Mt CO_2-eq per year. Slovenia is one of eight EU Member States which exceed the cap of 3.5% from emissions of the base year (1986).

[15] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Spain

1. Total greenhouse gas emissions

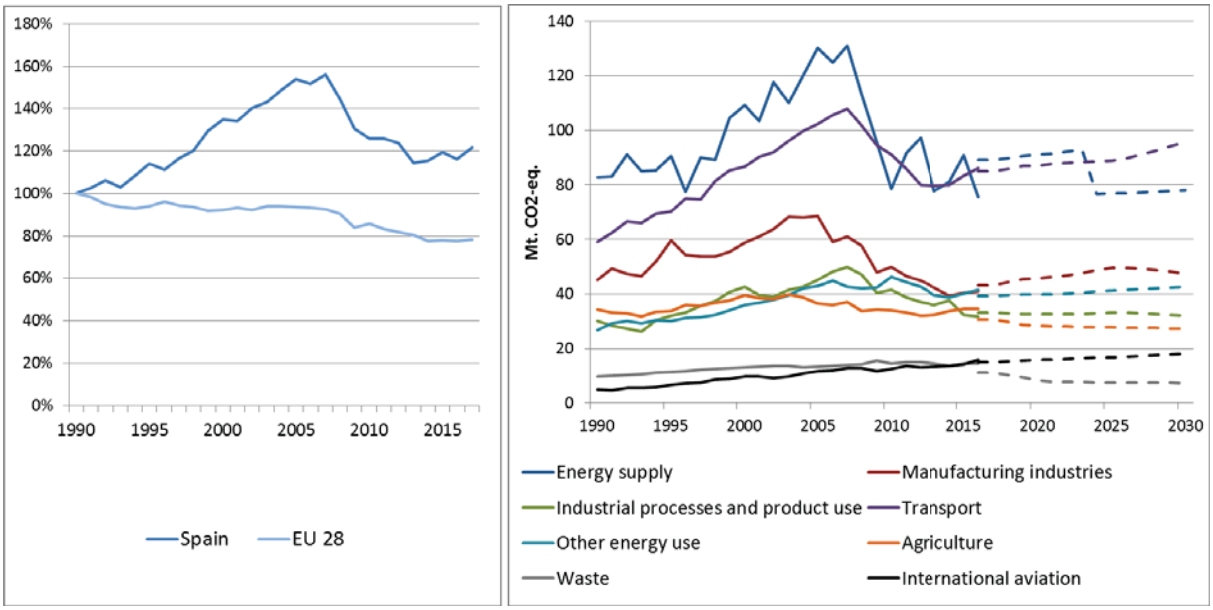

Figure 1: Left hand side: Total greenhouse gas emissions[16] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[17] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

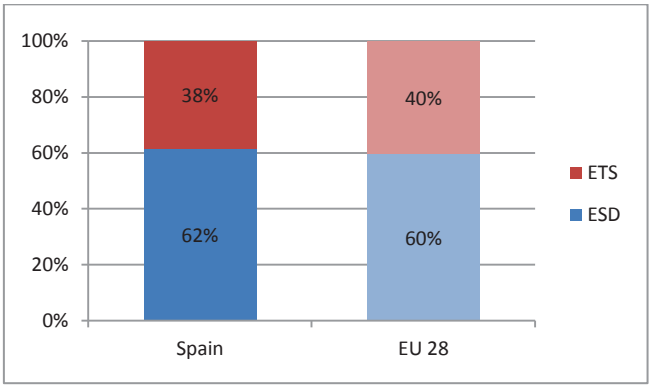

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[18]

[16] National total, including international aviation.
[17] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[18] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

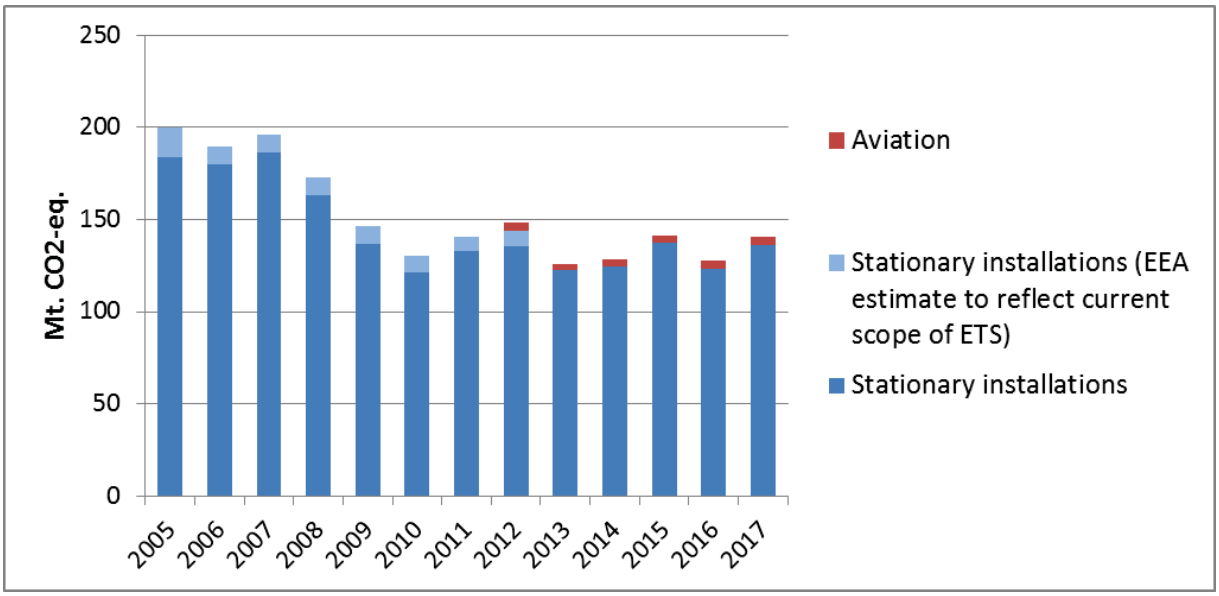

Figure 3: ETS emissions (Mt CO_2-eq.).[19]

3. Emissions in Effort Sharing sectors

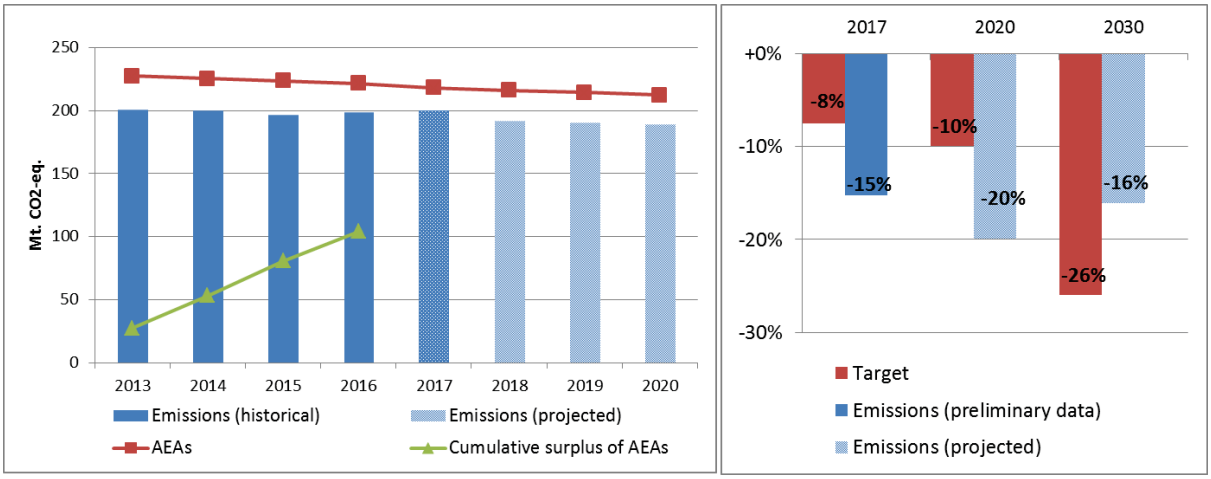

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[19] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

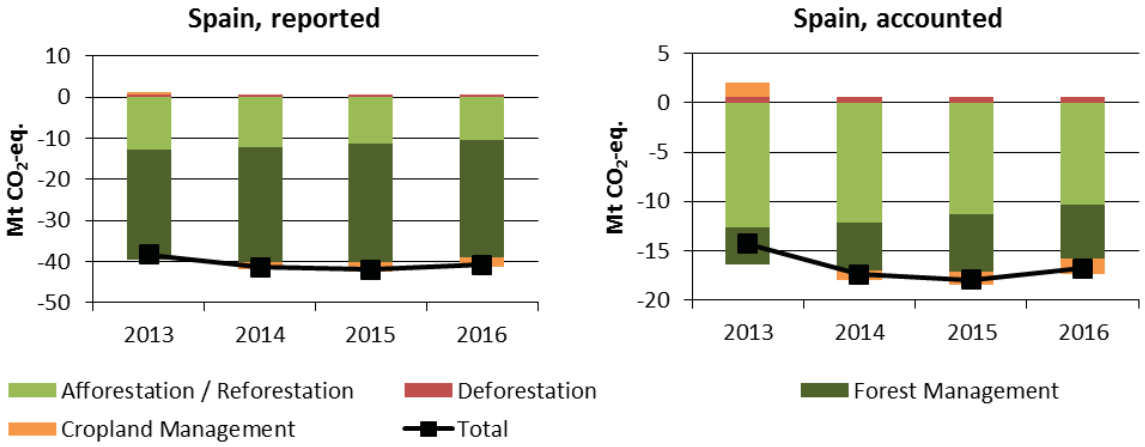

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[20]

Reported quantities under the Kyoto Protocol for Spain show net removals of, on average, -40.5 Mt CO_2-eq for the period 2013 to 2016. In this regard Spain contributes with 10.5% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -16.6 Mt CO_2-eq, which corresponds to 14.3% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals show an increase which levels off and slightly decreases for 2016. This pattern is more accentuated for accounted net credits. Spain is one of seven EU Member States which elected to report and account for Cropland Management.

[20] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: Sweden

1. Total greenhouse gas emissions

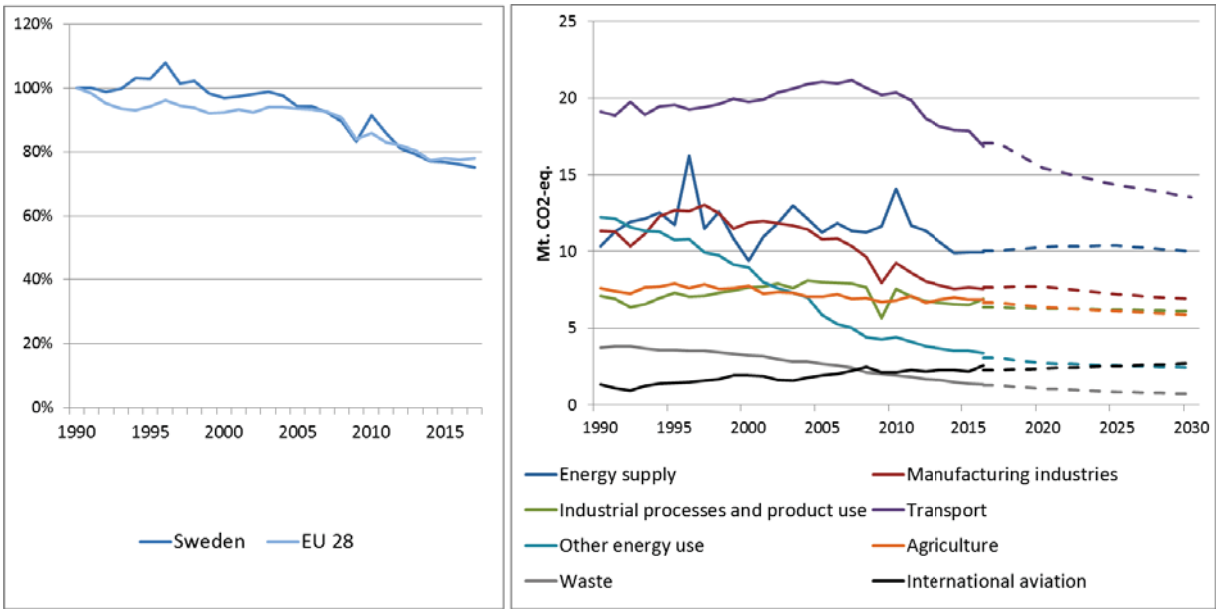

Figure 1: Left hand side: Total greenhouse gas emissions[21] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[22] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

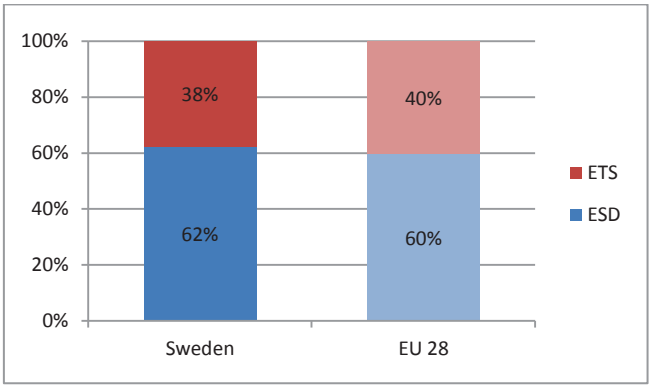

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[23]

[21] National total, including international aviation.
[22] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[23] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

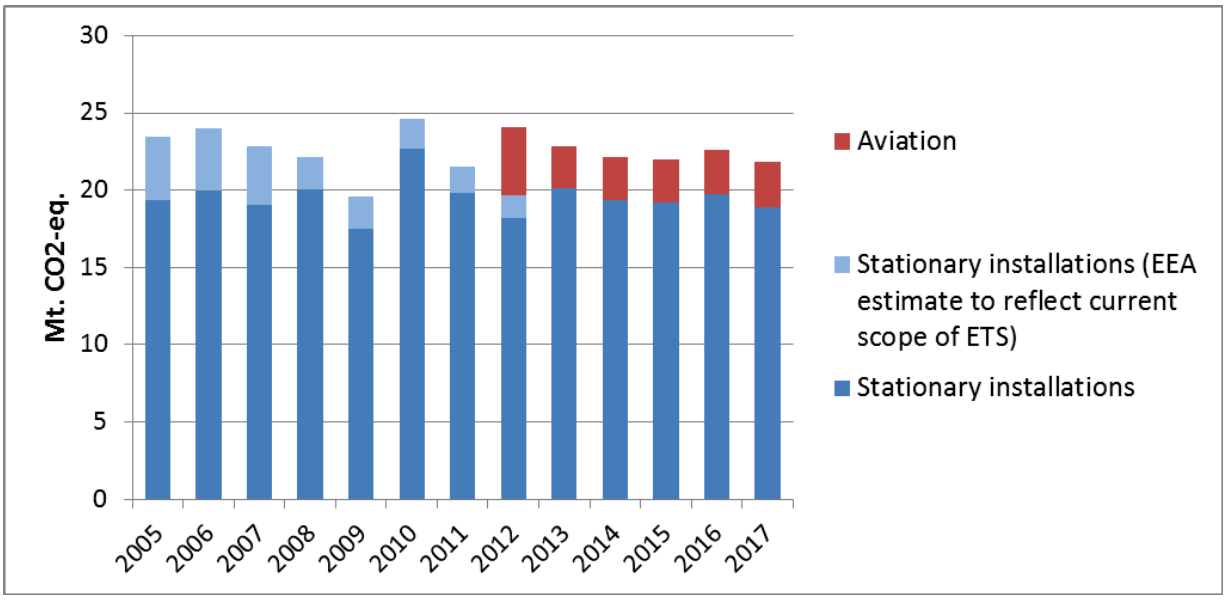

Figure 3: ETS emissions (Mt CO_2-eq.).[24]

3. Emissions in Effort Sharing sectors

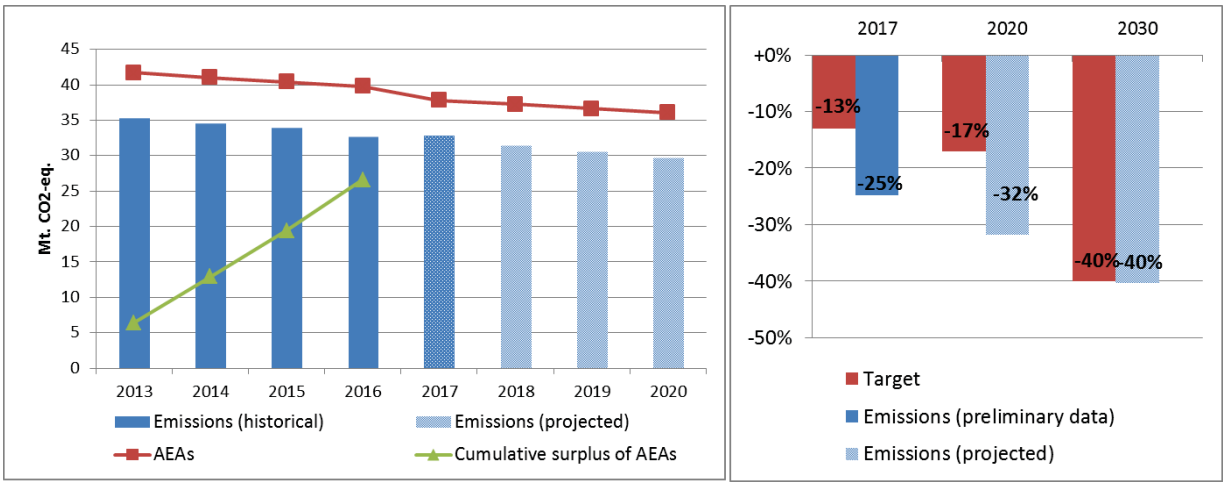

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.[25]

[24] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.
[25] Sweden has cancelled its surplus of AEAs to enhance the environmental integrity of the system as a whole.

4. Land use, land use change and forestry

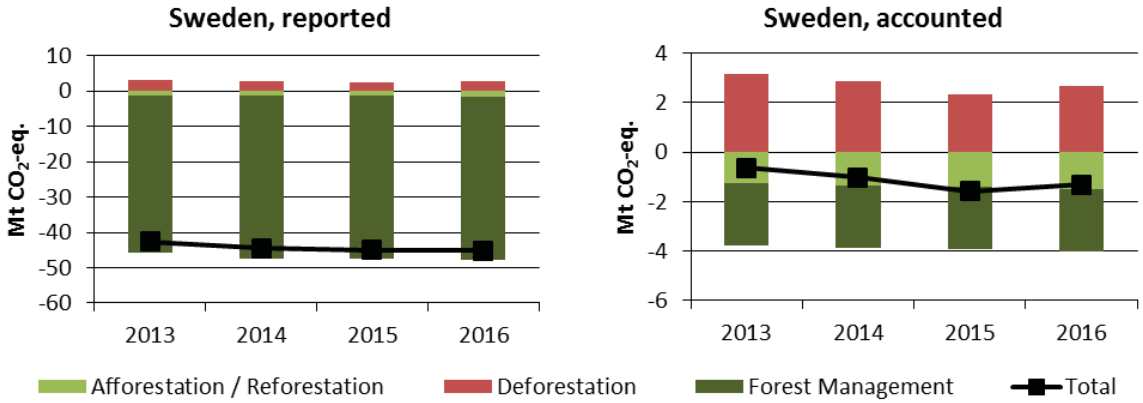

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[26]

Reported quantities under the Kyoto Protocol for Sweden show net removals of, on average, -44.3 Mt CO_2-eq for the period 2013 to 2016. In this regard Sweden contributes with 11.5% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -1.1 Mt CO_2-eq, which corresponds to 1.0% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals depict a small increase over the four-year period, while accounted net credits increase between 2013 and 2015 and slightly decrease for 2016. In this preliminary simulated accounting exercise potential credits by Forest Management of, on average, -13.5 Mt CO_2-eq per year are capped to -2.5 Mt CO_2-eq per year. Sweden is one of eight EU Member States which exceed the cap of 3.5% from emissions of the base year (1990).

[26] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Country fact sheet: United Kingdom

1. Total greenhouse gas emissions

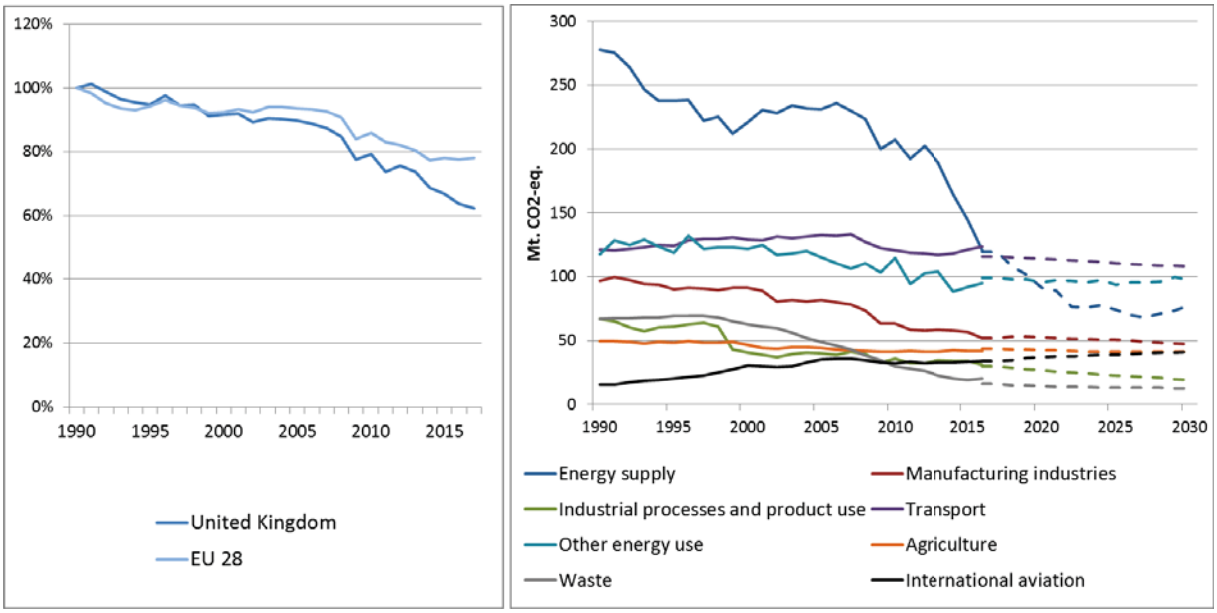

Figure 1: Left hand side: Total greenhouse gas emissions[27] 1990-2017 (index 1990 = 100 %). Right hand side: Total greenhouse gas emissions by sector[28] – historical emissions 1990-2016, projections 2017-2030 (Mt CO_2-eq.).

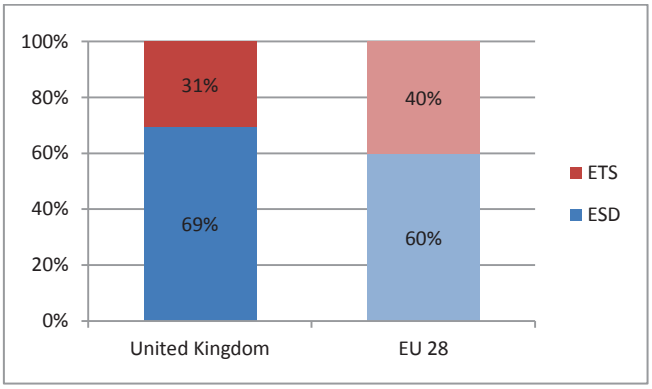

Figure 2: Share of emissions covered by the ETS and the ESD (2016).[29]

[27] National total, including international aviation.
[28] The sectors in the figure correspond to the following IPCC sectors: Energy supply: 1A1, 1B and 1C. Manufacturing industries: 1A2. Industrial processes and product use: 2. Transport: 1A3. Other energy use: 1A4, 1A5 and 6. Agriculture: 3. Waste: 5. International aviation: memo item.
[29] Excluding international aviation, CO_2 from domestic aviation and NF_3.

2. ETS emissions

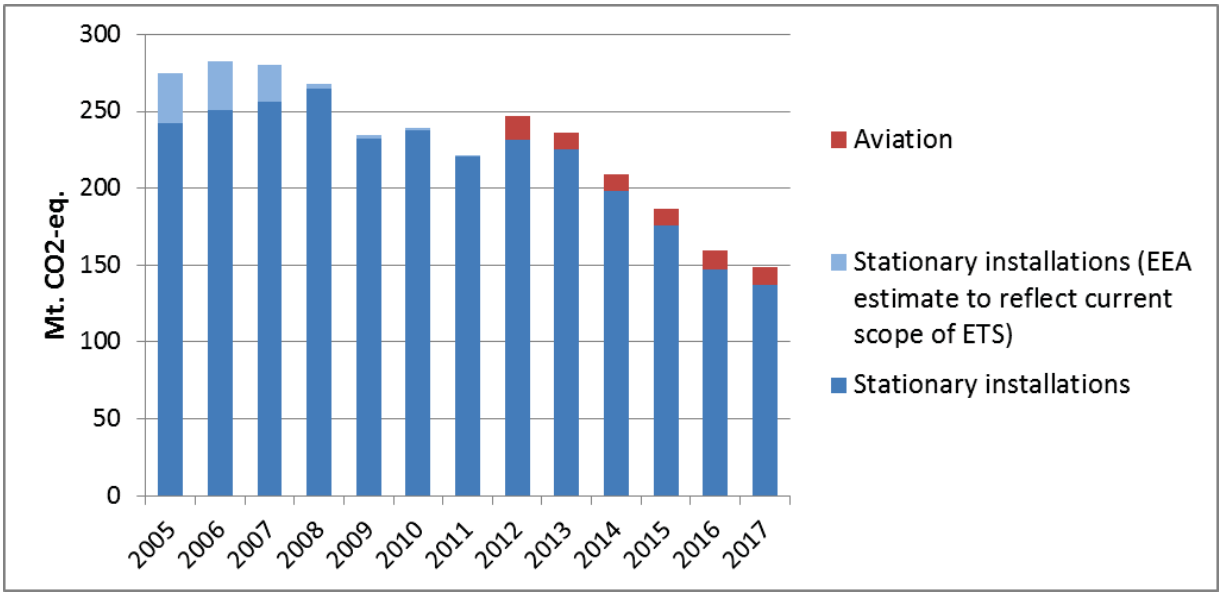

Figure 3: ETS emissions (Mt CO_2-eq.).[30]

3. Emissions in Effort Sharing sectors

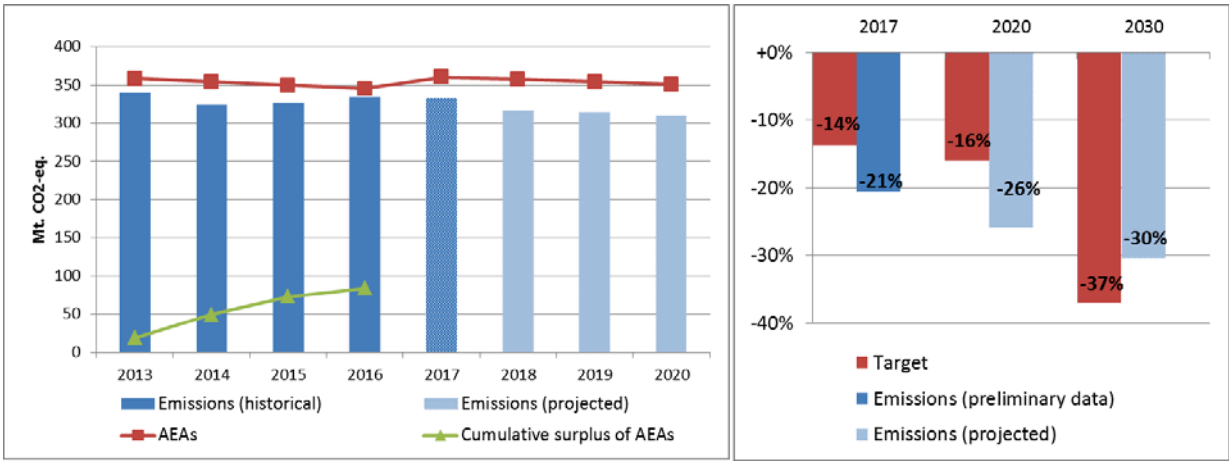

Figure 4: Left hand side: Emissions, annual emission allocations (AEAs) and accumulated surplus/ deficit of AEAs under the Effort Sharing Decision 2013-2020 (Mt CO_2-eq.). Right hand side: Emissions and targets under the Effort Sharing Decision/ Effort Sharing Regulation 2017, 2020 and 2030 as percentage change from 2005.

[30] The scope of ETS was extended from 2013. To reflect the current scope of ETS, estimates made by EEA are included in the figures from 2005 to 2012. The estimates cover only emissions from stationary installations.

4. Land use, land use change and forestry

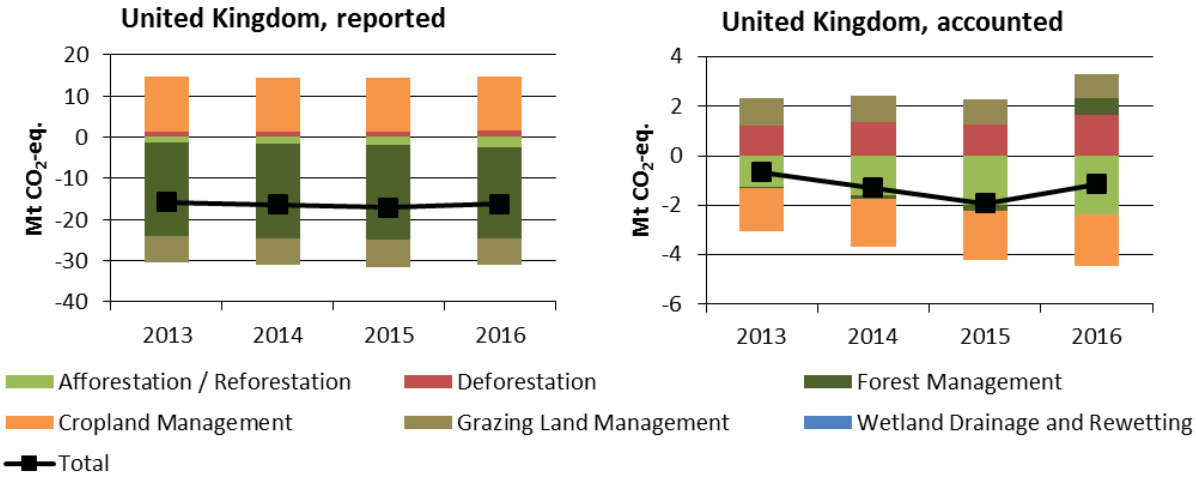

Figure 5: Reported and accounted emissions and removals from LULUCF (Mt CO_2-eq.)[31]

Reported quantities under the Kyoto Protocol for the United Kingdom show net removals of, on average, -16.4 Mt CO_2-eq for the period 2013 to 2016. In this regard United Kingdom contributes with 4.3% to the annual average sink of -384.4 Mt CO_2-eq of the EU-28. Accounting for the same period depicts net credits of, on average, -1.3 Mt CO_2-eq, which corresponds to 1.1% of the EU-28 accounted sink of -115.7 Mt CO_2-eq. Reported net removals are nearly unchanged, while accounted net credits increase between 2013 and 2015 and drop notably for 2016. The United Kingdom elected to report and account for Cropland Management as one of seven EU Member States and for Grazing Land Management as one of six EU Member States. The United Kingdom is the only EU Member State that elected to report and account for Wetland Drainage and Rewetting but has so far not provided any data.

[31] The differences between reported and accounted emissions from LULUCF under the Kyoto Protocol are described in part 1b.

Data sources for country fact sheets

Figure 1: Annual European Union greenhouse gas inventory 1990–2016 (EEA greenhouse gas data viewer: https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer). *Proxy GHG emission estimates for 2017Approximated EU greenhouse gas inventory 2017* (European Environment Agency). Member States national projections, reviewed by the European Environment Agency.

Figure 2: Verified ETS emissions abstracted from European Union Transaction Log 20.07.2018 (EEA ETS data viewer: https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1). ESD data from European Commission: *Commission Implementing Decision (EU) on greenhouse gas emissions for each Member State for the year 2016 covered by Decision No 406/2009/EC of the European Parliament and of the Council* (forthcoming).

Figure 3: abstract from European Union Transaction Log 20.07.2018 (EEA ETS data viewer: https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1).

Figure 4: European Commission: *Commission Implementing Decision (EU) on greenhouse gas emissions for each Member State for the year 2016 covered by Decision No 406/2009/EC of the European Parliament and of the Council* (forthcoming). *Proxy GHG emission estimates for 2017Approximated EU greenhouse gas inventory 2017* (European Environment Agency). Member States national projections, reviewed by the European Environment Agency.

Figure 5: European Commission based on data accounted and reported by Member States under the Kyoto Protocol.

Part 1B: Explanatory text on land use land use change and forestry – reported and accounted emissions under the Kyoto protocol

The figures presented in the country fact sheets provide reported emissions and removals and accounted debits and credits by applying the accounting rules for the Land Use Land Use Change and Forestry (LULUCF) of the second commitment period of the Kyoto Protocol. Reported data for mandatory and elected activities were collected from the EU Member States by the European Environmental Agency and underwent a simulated accounting process developed by the Joint Research Centre (JRC) together with DG CLIMA. The following country-sheets show the result for each of the 28 EU Member States and the total of the EU-28 for the period 2013-2016.

Almost all Member States reported emissions and removals for mandatory activities Afforestation/Reforestation, Deforestation and Forest Management; one EU Member State did not provide any activities and another no data for Afforestation/Reforestation. Elected Activities for Cropland Management were provided by seven EU Member States, for Grazing Land Management by six EU Member States and for Revegetation by one EU Member State. No data for Wetland Drainage and Rewetting were provided although one EU Member State has elected to do so.

The quantities and tendencies between reported emissions and removals and accounted debits and credits may differ notably. Reported data represent what the "atmosphere sees" according the rules of the Kyoto Protocol. Accounting represents a means to evaluate policies and to raise ambition for more action in terms of reducing emissions and increasing removals. Note that debits and credits from accounting are preliminary and simulated, because definitive accounts can only be computed after the end of the commitment period (December 2020) with inventories becoming available by March 2022. “Preliminary” refers to the fact that reported emissions and removals for each category and year may still change, including for the base year (1990 for most Member States). This may mostly affect preliminary accounts following the net-net accounting rule for Cropland Management, Grazing Land Management and Revegetation while patterns for activities Afforestation/Reforestation and Deforestation with gross-net accounting should remain rather similar. Accounting for Forest Management uses the forest management reference level and most current technical corrections. Forest Management credits are capped and presented as yearly averages when the total Forest Management credits from 2013 to 2016 exceed the simulated cap over the 4-year period. There are several Members States with Forest Management accounts very close to the cap threshold, either showing specific tendencies to become capped or might not to be capped anymore in the future, which may have significant effects on the total accounted quantities for that Member State and the EU-28.

EUROPEAN
COMMISSION

Brussels, 26.10.2018
SWD(2018) 453 final

PART 6/6

COMMISSION STAFF WORKING DOCUMENT

Technical information

Accompanying the document

Report from the European Commission to the European Parliament and the Council

EU and the Paris Climate Agreement: Taking stock of progress at Katowice COP

{COM(2018) 716 final}

Part 2: Other technical information

1. Overview of EU climate targets

Table 1: Overview of EU climate targets.

	International commitments		EU domestic legislation			
	Kyoto Protocol	Paris Agreement	2020 Climate and Energy Package		2030 Climate and Energy Framework	
			EU ETS	Effort Sharing Decision (ESD)	EU ETS	Effort Sharing Regulation (ESR)
Target year of period	Second commitment period (2013-2020) (target for EU-28)	Already in force – covers the period post 2020	2013-2020	2013-2020	2021-2030	2021-2030
Emission reduction target	-20 %	at least -40 % in 2030	-21 % in 2020 compared to 2005 for ETS emissions	Annual targets by MS. In 2020 -10 % compared to 2005 for non-ETS emissions	-43 % in 2030 compared to 2005 for ETS emissions	Annual targets by MS. In 2030 -30 % compared to 2005 for non-ETS emissions
			Overall target: -20 % GHG emissions reduction vs 1990"		Overall target: at least -40 % domestic GHG emissions reduction vs 1990	
Further targets	-	• limiting global warming to well below 2°C.; • every 5 years to set more ambitious targets as required by science; • report on implementation/ track progress towards the long-term goal through a robust transparency and accountability	✓Renewable Energy Directive: 20 % share of renewable energy of gross final energy consumption;		✓At least 32 % share of renewable energy in EU energy consumption (with an upward review by 2023);	
			✓Energy Efficiency Directive : Increase energy efficiency by 20 %.		✓At least 32.5 % improvement in energy efficiency (with an upward review by 2023).	

	International commitments		EU domestic legislation			
	Kyoto Protocol	Paris Agreement	2020 Climate and Energy Package		2030 Climate and Energy Framework	
			EU ETS	Effort Sharing Decision (ESD)	EU ETS	Effort Sharing Regulation (ESR)
		system. • balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century.				
Base year	1990, but subject to flexibility rules. 1995 or 2000 may be used as its base year for NF3	1990	1990 for overall emission reduction target; 2005 for targets broken down into ETS and non-ETS emissions.		1990 for overall emission reduction target; 2005 for targets broken down into ETS and non-ETS emissions	
LULUCF	Included ARD and forest management, other activities if elected (new accounting rules)	Included	Excluded		Included: The LULUCF regulation (Regulation (EU) 2018/841) includes a "no debit rule", i.e. emissions from LULUCF must be compensated by carbon uptake after specified rules.	
Aviation[1]	Domestic aviation included. International aviation not attributed.	Economy-wide action encouraged	EU ETS: Domestic and some international aviation included.	ESD: Aviation generally excluded	EU ETS: Domestic and some international aviation included.	ESR: Aviation generally excluded

[1] May be reviewed in the light of the implementation of ICAO's global measure.

	International commitments			EU domestic legislation			
	Kyoto Protocol		Paris Agreement	2020 Climate and Energy Package		2030 Climate and Energy Framework	
				EU ETS	Effort Sharing Decision (ESD)	EU ETS	Effort Sharing Regulation (ESR)
Use of international credits	Use of KP flexible mechanisms subject to KP rules		The EU will not use international credits (according to its NDC)	Upper limit for credit use for period 2008-2020 at a maximum of 50 % of the reduction effort below 2005 levels	Annual use of carbon credits is limited to up to 3 % of each Member State's ESD emissions in 2005[2]	No	No
Carry-over of units from preceeding periods[3]	Subject to KP rules including those agreed in the Doha Amendment		No	EU ETS allowances can be banked into subsequent ETS trading periods since the second trading period	No carry over from previous period	Indefinite validity of allowances not limited to trading periods, no need to carry over.	No
Gases covered	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3		CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3	CO_2, N_2O, PFCs,	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6	CO_2, N_2O, PFCs,	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3
Sectors included	Energy, IPPU, agriculture, waste, LULUCF	Energy, IPPU, agriculture, waste, LULUCF	Energy, IPPU, agriculture, waste, LULUCF	Power & heat generation, energy-intensive industry sectors, aviation	Transport (except aviation), buildings, non-ETS industry, agriculture (non-CO_2) and waste	Power & heat generation, energy-intensive industry sectors, aviation	Transport (except aviation), buildings, non-ETS industry, agriculture (non CO_2) and waste
GWPs used	IPCC SAR	IPCC AR4	IPCC AR4	IPCC AR4		IPCC AR4	

[2] Member States that do not use their 3 % limit for the use of international credits in any specific year can transfer the unused part of their limit to another Member State or bank it for their own use until 2020. Member States fulfilling additional criteria (Austria, Belgium, Cyprus, Denmark, Finland, Ireland, Italy, Luxembourg, Portugal, Slovenia, Spain and Sweden) may use credits from projects in Least Developed Countries (LDCs) and Small Island Developing States (SIDS) up to an additional 1 % of their verified emissions in 2005. These credits are not bankable and transferable. A maximum of approximately 750 Mt of international credits can be used during the period from 2013 to 2020 in the ESD.

[3] For the CP2 it refers to carry over from CP1. For the ETS it refers to carry-over from previous trading period under the scheme itself.

	International commitments			EU domestic legislation			
	Kyoto Protocol		Paris Agreement	2020 Climate and Energy Package		2030 Climate and Energy Framework	
				EU ETS	Effort Sharing Decision (ESD)	EU ETS	Effort Sharing Regulation (ESR)
Applicable to number of MS	15 (additional KP targets for single MS)	EU-28 and Iceland	28 Member States + possibly Iceland and Norway	284		28	

[4] In addition to the 28 MS, Iceland, Liechtenstein and Norway are also covered under the EU-ETS.

2. Greenhouse gas emissions covered by the Kyoto Protocol and the EU Climate and Energy package

Table 2: Emissions covered by the EU Climate and Energy Package and by the Kyoto Protocol, second commitment period 1990, 2005, 2016 and 2020 (Mt CO_2-eq.)[5]

Mt. CO_2-eq.	1990	2005	2016	2020 projections (WEM)	2020 targets (-20 % compared to base year)
Total GHG emissions covered by EU Climate and Energy Package	5 720	5 351	4 441	4 218	4 576
of which domestic aviation	*14*	*20*	*16*		
of which international aviation	*69*	*131*	*148*	*146*	
Total GHG emissions covered by the Kyoto Protocol 2nd commitment period	5 650	5 220	4 293	4 071	4 701[6]
of which international aviation	*69*	*131*	*148*	*146*	

[5] Emissions from international aviation are covered by the EU climate and energy package, but not by the EU's obligations under the Kyoto Protocol. For further information about the scope of the EU 2020 targets, see http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/459381_european_union-nc7-br3-1-nc7_br3_combined_version.pdf p. 227-235.

[6] Kyoto base year emissions differ from 1990 inventory emissions. Kyoto base year emissions have been set to 5 876 Mt CO2-eq., including deforestation and including Iceland.

3. EU greenhouse gas emissions by sector

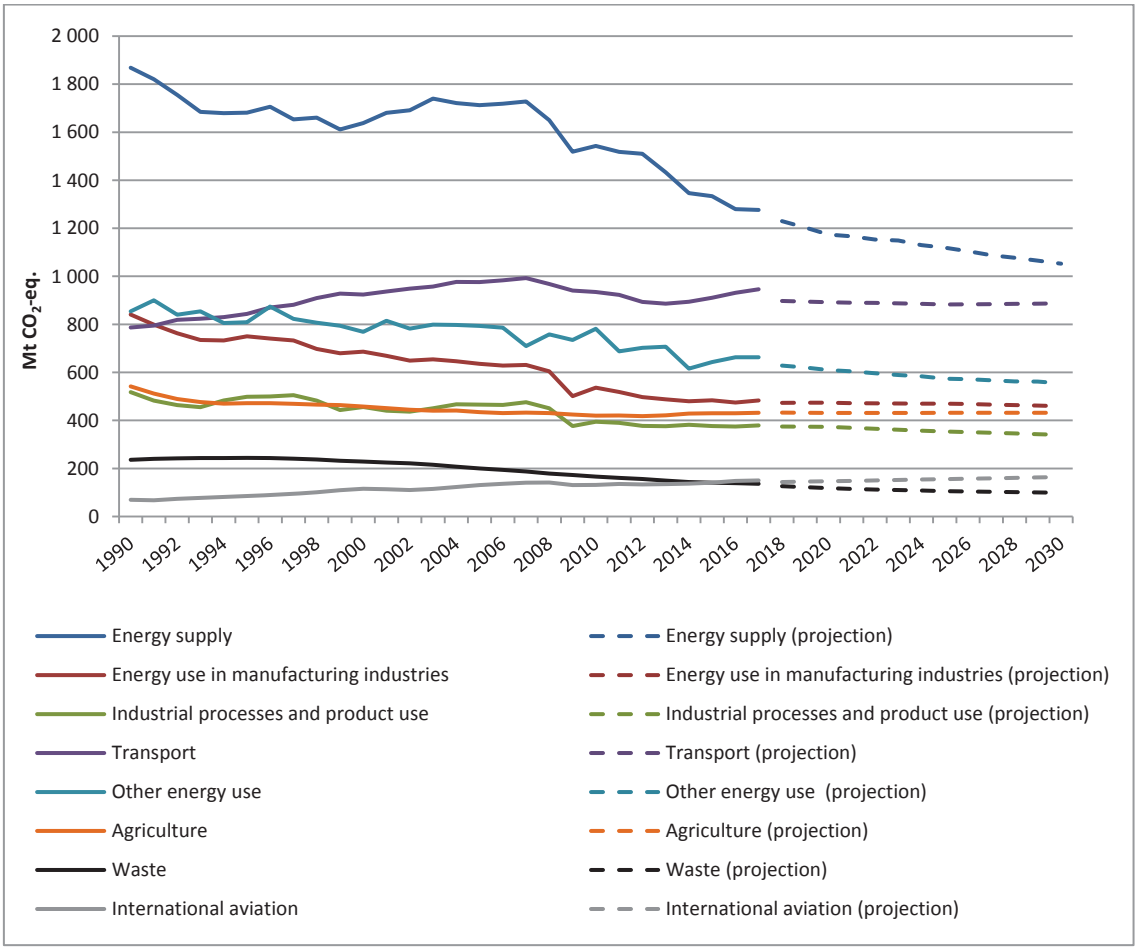

Figure 1: EU greenhouse gas emissions by sector, historical data (1990-2017) and projections (2017-2030).[7]

[7] Sources: EU greenhouse gas inventory 1990-2016. EU approximated greenhouse gas inventory 2017 (EEA). Member States projections reviewed by EEA (2018).

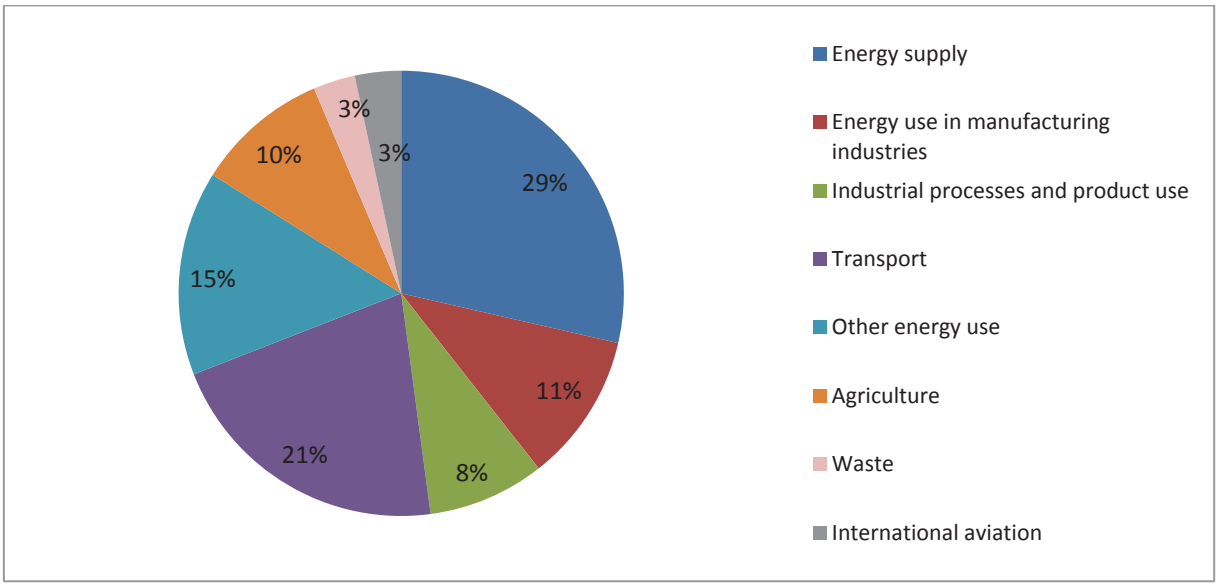

Figure 2: EU greenhouse gas emissions by sector 2017 (in % of total emissions).[8]

The sectors used in the figures correspond to the following IPCC sectors:

- Energy supply: 1A1, 1B and 1C,
- Energy use in manufacturing industries: 1A2,
- Industrial processes and product use: 2,
- Transport: 1A3,
- Other energy use: 1A4, 1A5 and 6,
- Agriculture: 3,
- Waste: 5,
- International aviation: memo item.

[8] Source: EU approximated greenhouse gas inventory 2017 (EEA).

4. Greenhouse gas intensity in the EU and its Member States

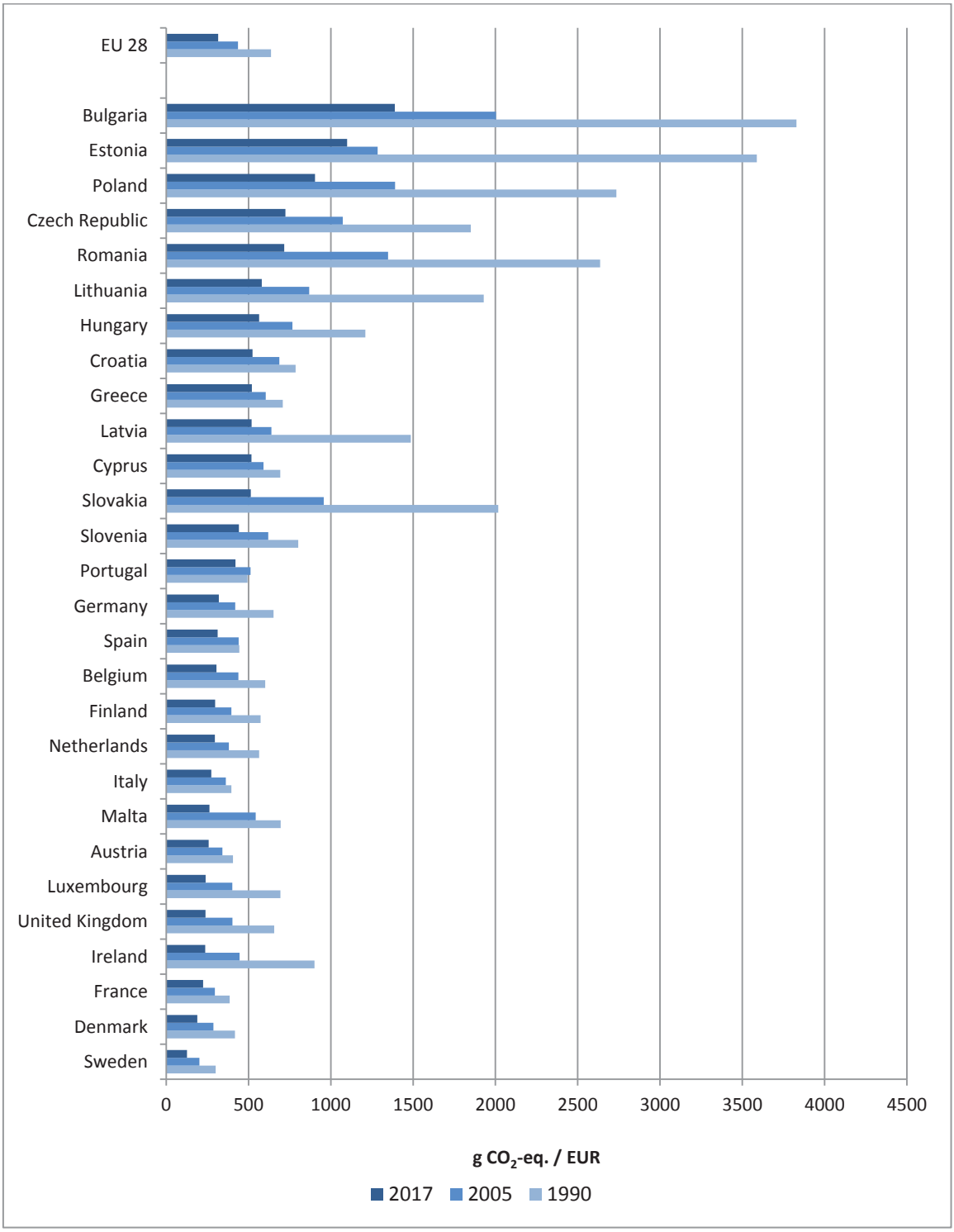

Figure 3: Greenhouse gas emissions intensity (i.e. the ratio between emissions and GDP) in the EU and its Member States 1990, 2005 and 2017 (g CO_2-eq./ EUR).[9]

[9] Sources: EU greenhouse gas inventory 1990-2016, EU approximated greenhouse gas inventory 2017 (EEA). GDP data from Ameco database (European Commission, DG ECFIN).

5. Greenhouse gas emissions per capita in the EU and its Member States

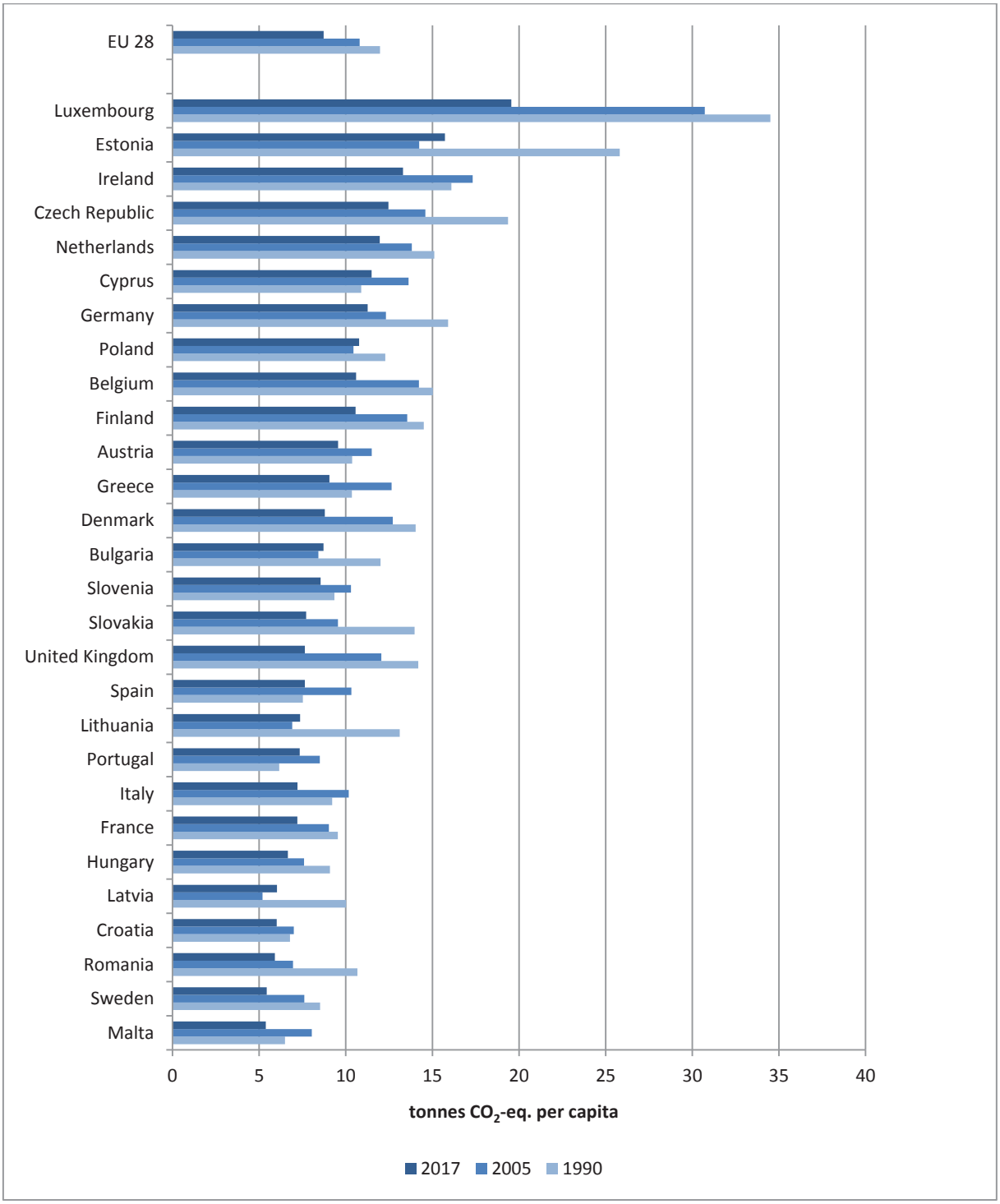

Figure 4: Greenhouse gas emissions per capita in the EU and its Member States 1990, 2005 and 2016 (tonnes CO2-eq. per capita).[10]

[10] Sources: EU greenhouse gas inventory 1990-2016, EU approximated greenhouse gas inventory 2017 (EEA). Average population (total) (Eurostat (1990 value gap-filled for France by EEA)).

6. EU ETS emissions

Table 3: Verified ETS emissions (Mt CO_2-eq.) and percentage change from year x-1.

	2011	2012	2013	2014	2015	2016	2017
Verified total emissions	1 904	1 867	1 908	1 814	1 803	1 751	1 754
Change to year x-1	-1.8%	-2.0%	2.2%	-4.9%	-0.6%	-2.9%	0.2%
Verified emissions from power sector	1 155	1 153	1 101	1 011	1 005	957	949
Change to year x-1		-0.2%	-4.5%	-8.1%	-0.6%	-4.8%	-0.8%
Verified emissions from industrial installations	749	714	807	803	798	794	805
Change to year x-1		-4.7%	-13.1%	-0.6%	-0.6%	-0.5%	-1.4%
Real GDP growth rate EU-2811	1.7%	-0.5%	0.2%	1.7%	2.2%	1.9%	2.4%

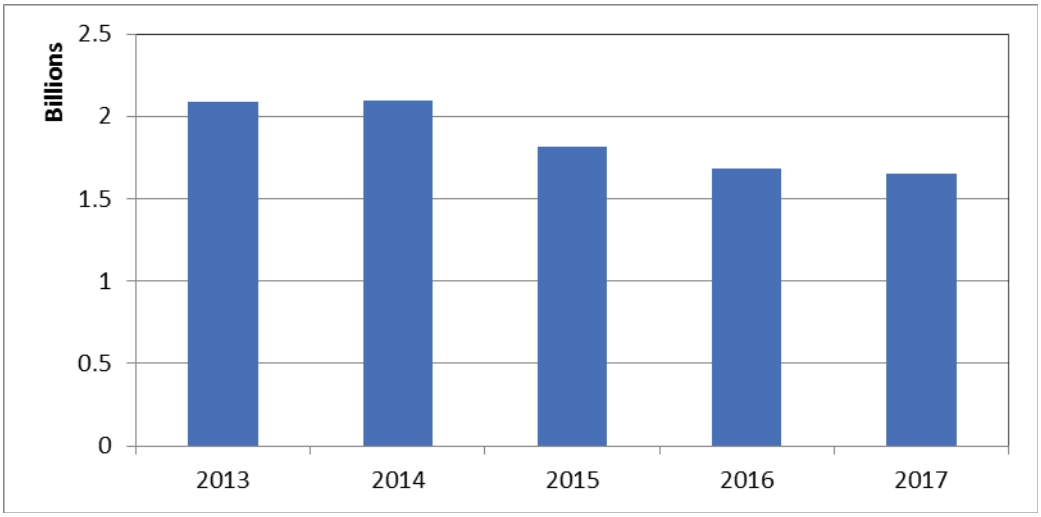

Figure 5: Development of the surplus in the European carbon market 2013-2017.

[11] GDP data as reported on:
http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tec00115
(accessed in July 2018).

7. Emissions covered by the effort-sharing legislation

Table 4: Member States targets, emissions and distance to targets under the effort-sharing legislation in percentage change from 2005 base year emissions. For distance to targets, negative values indicate overachievement while positive values indicate underachievement.

Member State	2016 (final)	2017 (preliminary)	2020 (projections)	2030 (projections)
Austria				
Target	-10%	-13%	-16%	-36%
Emissions	-11%	-10%	-14%	-21%
Distance to target	-1%	3%	2%	15%
Belgium				
Target	-8%	-10%	-15%	-35%
Emissions	-8%	-10%	-12%	-14%
Distance to target	0%	0%	3%	21%
Bulgaria				
Target	25%	17%	20%	0%
Emissions	16%	18%	-2%	1%
Distance to target	-10%	1%	-22%	1%
Croatia				
Target	16%	7%	11%	-7%
Emissions	-8%	-8%	-12%	-8%
Distance to target	-24%	-15%	-23%	-1%
Cyprus				
Target	42%	0%	-5%	-24%
Emissions	-2%	3%	7%	23%
Distance to target	-43%	3%	12%	47%
Czech Republic				
Target	5%	6%	9%	-14%
Emissions	2%	4%	0%	-12%
Distance to target	-3%	-2%	-9%	2%
Denmark				
Target	-15%	-13%	-20%	-39%
Emissions	-17%	-19%	-22%	-24%
Distance to target	-2%	-5%	-2%	15%
Estonia				
Target	17%	9%	11%	-13%
Emissions	15%	10%	11%	13%
Distance to target	-3%	1%	0%	26%
Finland				
Target	-11%	-11%	-16%	-39%
Emissions	-8%	-9%	-15%	-22%
Distance to target	3%	2%	1%	17%

Member State	2016 (final)	2017 (preliminary)	2020 (projections)	2030 (projections)
France				
Target	-5%	-10%	-14%	-37%
Emissions	-12%	-11%	-20%	-28%
Distance to target	-7%	-1%	-6%	9%
Germany				
Target	-5%	-10%	-14%	-38%
Emissions	-5%	-3%	-11%	-22%
Distance to target	0%	7%	3%	16%
Greece				
Target	-4%	-5%	-4%	-16%
Emissions	-28%	-29%	-22%	-23%
Distance to target	-24%	-24%	-18%	-7%
Hungary				
Target	12%	4%	10%	-7%
Emissions	-12%	-9%	-19%	-18%
Distance to target	-24%	-13%	-29%	-11%
Ireland				
Target	-8%	-13%	-20%	-30%
Emissions	-7%	-6%	0%	1%
Distance to target	1%	7%	20%	31%
Italy				
Target	-10%	-11%	-13%	-33%
Emissions	-19%	-20%	-21%	-25%
Distance to target	-9%	-9%	-8%	8%
Latvia				
Target	12%	14%	17%	-6%
Emissions	7%	8%	8%	13%
Distance to target	-5%	-6%	-9%	19%
Lithuania				
Target	6%	7%	15%	-9%
Emissions	5%	7%	2%	6%
Distance to target	-1%	1%	-13%	15%
Luxembourg				
Target	-12%	-14%	-20%	-40%
Emissions	-16%	-15%	-17%	-20%
Distance to target	-4%	-1%	3%	20%
Malta				
Target	4%	5%	5%	-19%
Emissions	19%	28%	16%	27%
Distance to target	15%	23%	11%	46%

Member State	2016 (final)	2017 (preliminary)	2020 (projections)	2030 (projections)
Netherlands				
Target	-9%	-11%	-16%	-36%
Emissions	-21%	-21%	-26%	-31%
Distance to target	-12%	-10%	-10%	5%
Poland				
Target	10%	11%	14%	-7%
Emissions	10%	14%	6%	3%
Distance to target	1%	3%	-8%	10%
Portugal				
Target	3%	-1%	1%	-17%
Emissions	-14%	-14%	-17%	-24%
Distance to target	-18%	-13%	-18%	-7%
Romania				
Target	7%	11%	19%	-2%
Emissions	-3%	-2%	1%	10%
Distance to target	-11%	-13%	-18%	12%
Slovakia				
Target	9%	9%	13%	-12%
Emissions	-14%	-14%	-12%	-12%
Distance to target	-23%	-23%	-25%	0%
Slovenia				
Target	5%	3%	4%	-15%
Emissions	-5%	-7%	-9%	-15%
Distance to target	-10%	-10%	-13%	0%
Spain				
Target	-6%	-8%	-10%	-26%
Emissions	-16%	-15%	-20%	-16%
Distance to target	-10%	-8%	-10%	10%
Sweden				
Target	-9%	-13%	-17%	-40%
Emissions	-25%	-25%	-32%	-40%
Distance to target	-16%	-12%	-15%	0%
United Kingdom				
Target	-17%	-14%	-16%	-37%
Emissions	-20%	-21%	-26%	-30%
Distance to target	-3%	-7%	-10%	7%

Table 5: Annual emissions allocations[12], emissions and gap to targets under the Effort Sharing Decision (Mt. CO_2-eq.). Positive gap to target indicate overachievement, negative values indicate underachievement.

Member State	2005	2013	2014	2015	2016	2017	2018	2019	2020
	Base year emissions	Final data 2013-2016				Preliminary data	Projections 2018-2020		
Austria									
AEAs		52.6	52.1	51.5	51.0	49.5	48.9	48.3	47.8
Emissions	56.8	50.1	48.2	49.3	50.6	51.3	49.4	49.3	49.1
gap to target		2.5	3.9	2.2	0.4	-1.8	-0.5	-1.0	-1.4
Belgium									
AEAs		78.4	76.9	75.3	73.8	72.5	71.1	69.7	68.2
Emissions	80.3	74.3	70.1	72.7	74.1	72.4	71.7	71.5	71.0
gap to target		4.1	6.8	2.6	-0.3	0.1	-0.7	-1.8	-2.8
Bulgaria									
AEAs		26.9	27.2	27.5	27.7	25.9	26.1	26.3	26.5
Emissions	22.1	22.2	22.9	25.4	25.6	26.1	22.2	22.0	21.7
gap to target		4.7	4.3	2.1	2.1	-0.2	3.9	4.4	4.8
Croatia									
AEAs		19.6	19.8	20.0	20.2	18.7	18.9	19.1	19.3
Emissions	17.4	15.1	14.7	15.6	16.0	16.1	15.2	15.2	15.2
gap to target		4.5	5.1	4.4	4.2	2.6	3.7	3.9	4.1
Cyprus									
AEAs		5.9	5.9	5.9	5.9	4.2	4.1	4.0	4.0
Emissions	4.2	3.9	3.9	4.1	4.1	4.3	4.3	4.4	4.5
gap to target		2.0	2.0	1.9	1.8	-0.1	-0.2	-0.3	-0.5
Czech Republic									
AEAs		62.5	63.2	64.0	64.7	65.2	65.9	66.5	67.2
Emissions	61.7	61.5	57.6	61.3	62.8	64.0	60.2	61.1	61.9
gap to target		1.0	5.6	2.7	1.9	1.2	5.7	5.5	5.3
Denmark									
AEAs		36.8	35.9	35.0	34.1	34.8	33.9	33.0	32.1
Emissions	40.1	33.7	32.6	32.5	33.1	32.6	31.8	31.5	31.1
gap to target		3.1	3.3	2.5	1.0	2.2	2.1	1.5	0.9
Estonia									
AEAs		6.3	6.3	6.3	6.4	5.9	6.0	6.0	6.0
Emissions	5.4	5.8	6.1	6.1	6.2	6.0	6.0	6.0	6.0
gap to target		0.5	0.2	0.2	0.2	0.0	-0.1	0.0	0.0

[12] AEAs for the years 2017-2020 have been recalculated for all Member States to reflect updates in methodologies for reporting of GHG inventories. This recalculation ensures maintaining of the originally intended effort of each Member State (in % of 2005 emissions).

Member State	2005	2013	2014	2015	2016	2017	2018	2019	2020
Finland									
AEAs		31.8	31.3	30.8	30.3	30.2	29.6	29.1	28.5
Emissions	33.9	31.6	30.1	29.9	31.4	30.8	29.4	29.1	28.8
gap to target		0.2	1.1	0.9	-1.0	-0.6	0.2	0.0	-0.3
France									
AEAs		394.1	389.5	384.4	379.4	358.2	352.9	347.7	342.5
Emissions	398.2	366.1	353.5	353.0	351.9	354.7	332.1	325.2	318.2
gap to target		28.0	35.9	31.4	27.5	3.5	20.8	22.5	24.3
Germany									
AEAs		472.5	465.8	459.1	452.4	432.3	425.2	418.1	410.9
Emissions	477.8	460.2	436.8	444.1	454.2	464.7	436.3	431.2	426.5
gap to target		12.3	29.0	15.1	-1.7	-32.4	-11.1	-13.1	-15.6
Greece									
AEAs		59.0	59.3	59.6	59.9	59.1	59.4	59.7	60.0
Emissions	62.6	44.2	44.4	45.4	44.9	44.3	48.2	48.7	48.9
gap to target		14.8	14.9	14.2	15.0	14.9	11.2	11.1	11.1
Hungary									
AEAs		50.4	51.5	52.6	53.8	50.1	51.0	51.9	52.8
Emissions	48.0	38.4	38.4	41.4	42.1	43.8	40.0	39.5	39.1
gap to target		12.0	13.1	11.2	11.7	6.3	11.0	12.4	13.7
Ireland									
AEAs		46.9	45.8	44.6	43.5	40.9	39.8	38.7	37.7
Emissions	47.1	42.2	41.7	43.0	43.8	44.0	45.9	46.4	46.8
gap to target		4.7	4.1	1.6	-0.3	-3.1	-6.1	-7.7	-9.2
Italy									
AEAs		308.2	306.2	304.2	302.3	298.3	295.8	293.4	291.0
Emissions	334.5	273.3	265.3	273.3	270.7	268.9	267.5	265.1	262.7
gap to target		34.8	40.9	31.0	31.6	29.3	28.4	28.3	28.3
Latvia									
AEAs		9.3	9.4	9.4	9.5	9.7	9.8	9.9	10.0
Emissions	8.5	8.8	9.0	9.0	9.1	9.2	9.1	9.2	9.2
gap to target		0.5	0.3	0.4	0.4	0.5	0.7	0.7	0.8
Lithuania									
AEAs		12.9	13.3	13.7	14.0	14.1	14.5	14.9	15.2
Emissions	13.3	12.4	12.9	13.3	13.9	14.2	13.5	13.6	13.6
gap to target		0.5	0.4	0.4	0.1	-0.1	1.0	1.3	1.7
Luxembourg									
AEAs		9.5	9.3	9.1	8.9	8.7	8.5	8.3	8.1
Emissions	10.1	9.4	8.9	8.6	8.5	8.7	8.4	8.4	8.4
gap to target		0.2	0.5	0.5	0.4	0.1	0.2	0.0	-0.3

Member State	2005	2013	2014	2015	2016	2017	2018	2019	2020
Malta									
AEAs		1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Emissions	1.1	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3
gap to target		-0.1	-0.1	-0.1	-0.2	-0.3	-0.1	-0.1	-0.1
Netherlands									
AEAs		122.9	120.7	118.4	116.1	114.1	111.8	109.6	107.4
Emissions	127.8	108.3	97.9	101.1	101.3	101.1	96.9	96.0	94.6
gap to target		14.7	22.8	17.3	14.8	13.0	14.9	13.6	12.8
Poland									
AEAs		193.6	194.9	196.1	197.4	200.0	201.7	203.4	205.2
Emissions	180.0	186.1	181.5	186.8	198.7	204.8	189.5	189.8	190.1
gap to target		7.5	13.3	9.4	-1.3	-4.8	12.2	13.6	15.1
Portugal									
AEAs		49.3	49.6	49.9	50.1	47.9	48.3	48.7	49.1
Emissions	48.6	38.6	38.8	40.6	41.6	41.7	41.4	41.0	40.5
gap to target		10.7	10.8	9.2	8.6	6.2	6.9	7.7	8.6
Romania									
AEAs		75.6	77.5	79.3	81.1	84.1	86.0	87.9	89.8
Emissions	75.5	72.7	72.5	74.6	73.1	74.2	75.6	76.0	76.5
gap to target		2.9	4.9	4.7	8.0	9.9	10.4	11.8	13.3
Slovakia									
AEAs		24.0	24.4	24.7	25.1	25.0	25.3	25.6	25.9
Emissions	23.0	21.1	19.8	20.1	19.8	19.7	20.0	20.1	20.2
gap to target		2.9	4.6	4.7	5.3	5.3	5.3	5.6	5.8
Slovenia									
AEAs		12.3	12.4	12.4	12.4	12.2	12.2	12.3	12.3
Emissions	11.8	10.9	10.5	10.7	11.2	11.0	10.7	10.7	10.7
gap to target		1.4	1.9	1.7	1.2	1.2	1.5	1.5	1.6
Spain									
AEAs		227.6	225.6	223.7	221.8	218.3	216.3	214.3	212.4
Emissions	236.0	200.3	199.8	196.2	198.5	199.9	191.2	190.4	189.1
gap to target		27.3	25.9	27.6	23.3	18.4	25.1	23.9	23.3
Sweden									
AEAs		41.7	41.0	40.4	39.8	37.8	37.2	36.7	36.1
Emissions	43.5	35.3	34.5	33.9	32.6	32.7	31.4	30.5	29.7
gap to target		6.4	6.5	6.5	7.2	5.1	5.9	6.1	6.4
United Kingdom									
AEAs		358.7	354.2	349.7	345.2	360.4	357.2	354.1	350.9
Emissions	417.8	339.5	324.4	326.0	333.9	331.9	316.7	314.4	309.4
gap to target		19.3	29.8	23.7	11.3	28.5	40.6	39.7	41.5

8. Use of revenues from auctioning of ETS allowances

Table 6: Member States' revenues from auctioning of ETS allowances and amounts of the revenues spent on climate and energy purposes, 2017 (EUR 1000).

Member State	Total revenues from the auctioning of allowances from EU ETS (EUR 1000)	Total revenues used (or planned to be used) for climate related purposes (EUR 1000)
Austria[13]	157 380	
Belgium	145 100	133 097
Bulgaria	130 418	138 240
Croatia	27 152	18 920
Cyprus	6 393	788
Czech Republic	199 775	199 775
Denmark	71 723	71 723
Estonia	39 354	15 905
Finland[14]	95 260	9 530
France	313 402	313 402
Germany	1 146 818	1 130 840
Greece	198 028	198 028
Hungary	85 129	0
Ireland	53 560	53 560
Italy	549 806	383 692
Latvia	15 391	3 790
Lithuania	31 513	31 513
Luxembourg	6 875	3 471
Malta	5 952	6 878
Netherlands	190 706	190 706
Poland	505 994	290 378
Portugal	100 350	95 096
Romania	260 752	0
Slovakia	87 064	40 873
Slovenia[15]	25 093	25 093
Spain	493 551	445 466
Sweden	52 572	28 808
United Kingdom	614 758	614 758
EU 28	5 609 868	4 444 330

[13] Austria reported the following: Revenues are not ear-marked. Actual climate-related spending exceeds the total amount of revenues.

[14] Finland does not ear mark revenues for specific uses, including the auctioning revenues from the operation of EU ETS in Finland. Finland's total spending in 2017 on the purposes specified under Article 10 (3) of the EU Emission Trading Directive 2003/87/EC is higher than the equivalent financial value of auction revenues in 2016 but is not reported here.

[15] Slovenia reported billion EUR 25.093. In the table it is assumed that the correct figure is 1000 EUR 25 093.