



附属履行机构

第五十一届会议

2019年12月2日至9日，圣地亚哥

临时议程项目 3(c)

《公约》附件一缔约方的报告和审评

《公约》附件一缔约方 1990-2016 年期间和
1990-2017 年期间国家温室气体清单数据报告

1990-2017 年期间国家温室气体清单数据

秘书处的报告*

概要

2019 年，所有 43 个《公约》附件一缔约方(附件一缔约方)都提交了温室气体(GHG)清单通用报告格式表和国家清单报告。到 2019 年 4 月 15 日截止日为止，共收到 39 个缔约方的通用报告格式表和国家清单报告。在 1990 至 2017 年期间，所有附件一缔约方不包括土地利用、土地利用变化与林业(LULUCF)排放量和清除量的温室气体排放合计总量下降了 13.2%，而包括 LULUCF 排放量和清除量的温室气体合计总量下降了 17.4%。经济转型期附件一缔约方不包括和包括 LULUCF 的温室气体排放量分别下降了 40.0%和 49.8%。非经济转型期附件一缔约方不包括和包括 LULUCF 的温室气体排放量分别下降了 1.6%和 2.9%。本文件中的资料所依据的是截至 2019 年 10 月 19 日收到的附件一缔约方国家温室气体清单数据。本文件印发之时，对附件一缔约方温室气体清单的年度审评工作仍在进行；因此，文中数据未必反映缔约方提供的最新资料。最新的温室气体清单数据可查阅《气候公约》网站。

* 出于提交人无法控制的情况，本文件订于在标准发布日期之后发布。



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简称和缩略语

| | |
|---|---|
| Annex I Parties | 《公约》附件一所列缔约方(附件一缔约方) |
| CH ₄ | 甲烷 |
| COP | 《公约》缔约方会议 |
| CO ₂ | 二氧化碳 |
| CO ₂ eq | 二氧化碳当量 |
| CRF | 通用报告格式 |
| EIT | 转型期经济体 |
| F-gases | 含氟气体 |
| GHG | 温室气体 |
| IPPU | 工业加工与产品使用 |
| LULUCF | 土地利用、土地利用变化与林业 |
| NIR | 国家清单报告 |
| N ₂ O | 氧化亚氮 |
| UNFCCC Annex I inventory reporting guidelines | 《公约》附件一所列缔约方国家信息通报编制指南 第一部分：《气候公约》年度温室气体清单报告指南(《气候公约》附件一缔约方清单报告指南) |

一. 导言

A. 任务

1. 《公约》缔约方会议第 24/CP.19 号决定请附件一缔约方在每年 4 月 15 日之前提交按源排放量和汇清除量分列的国家温室气体清单数据。《公约》缔约方会议在第 13/CP.20 号决定第 8 和第 10 段中, 请秘书处汇编并综合附件一缔约方提交的温室气体清单数据信息, 供《公约》缔约方会议及其附属机构审议。

B. 范围

2. 本文件列示附件一缔约方 2019 年提交温室气体清单报告的情况(第二章), 并概述 1990-2017 年期间温室气体排放量和清除量的现有最新数据(第三章)。本文提供二氧化碳、甲烷、氧化亚氮和含氟气体的数据,¹ 若缔约方选择予以报告, 本文还提供甲烷、一氧化碳和非甲烷挥发性有机化合物在空气中氧化导致的二氧化碳的间接排放量。本文提供温室气体排放的合计² 总量³ 数据, 既有包括也有不包括 LULUCF 的净温室气体排放量和清除量的数据。

3. 本文件中的资料所依据的是截至 2019 年 10 月 19 日收到的所有 43 个附件一缔约方的国家温室气体清单数据(见表 1)。

4. 本文件印发之时, 对附件一缔约方温室气体清单的年度审评工作仍在进行; 因此, 文中数据未必反映缔约方提供的最新资料。最新的温室气体清单数据可查阅《气候公约》网站。⁴

C. 附属履行机构可采取的行动

5. 附属履行机构不妨注意本文件所载信息, 并酌情向《公约》缔约方会议寻求进一步指导。

二. 报告提交情况

A. 提交材料的及时性和完整性

6. 根据《气候公约》附件一缔约方清单报告指南,⁵ 附件一缔约方须每年提交一份国家清单报告和通用报告格式表, 载列从基准年到提交年份前两年的数据。

¹ 含氟气体包括氢氟碳化物、全氟化碳、六氟化硫、氢氟碳化物和全氟化碳的不明混合物以及三氟化氮。

² “合计”一词指的是通用报告格式中各部门的排放量相加; 合计总和包括 LULUCF 的排放量时将单独说明; 除非另有说明, 合计总和不包括间接二氧化碳的排放量。

³ “总量”一词指的是温室气体排放量和清除量是作为二氧化碳、甲烷、氧化亚氮、氢氟碳化物、全氟碳化物、六氟化硫、氢氟碳化物和全氟化碳的不明混合物以及三氟化氮的加权总和计算的, 采用《公约》之下商定的全球升温潜能值计算。

⁴ <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2019>.

2019 年，所有 43 个附件一缔约方都提交了 1990 年⁶至 2017 年所有年份的温室气体数据。

7. 到 2019 年 4 月 15 日截止日为止，共收到 39 个缔约方的通用报告格式表和 38 个缔约方的国家清单报告。在上述日期后六周内，所有 43 个缔约方均提交了通用报告格式表和国家清单报告。在初步提交后，有 11 个缔约方提交了通用报告格式表的修订本，10 个缔约方重新提交了国家清单报告。初步提交通用报告格式表的日期见表 1。

表 1

2019 年附件一缔约方温室气体清单数据提交情况

| <i>Party</i> | <i>CRF tables submission date^a</i> | <i>Party</i> | <i>CRF tables submission date^a</i> |
|----------------|---|--------------------|---|
| Australia | <i>24 May 2019</i> | Liechtenstein | 15 April 2019 |
| Austria | 15 April 2019 | Lithuania | 12 April 2019 |
| Belarus | 12 April 2019 | Luxembourg | 4 April 2019 |
| Belgium | 15 April 2019 | Malta | <i>10 May 2019</i> |
| Bulgaria | 15 April 2019 | Monaco | 15 April 2019 |
| Canada | 15 April 2019 | Netherlands | 15 April 2019 |
| Croatia | 11 April 2019 | New Zealand | 10 April 2019 |
| Cyprus | <i>16 April 2019</i> | Norway | 12 April 2019 |
| Czechia | 12 April 2019 | Poland | 9 April 2019 |
| Denmark | 12 April 2019 | Portugal | 2 April 2019 |
| Estonia | 12 April 2019 | Romania | 15 April 2019 |
| European Union | 15 April 2019 | Russian Federation | 13 April 2019 |
| Finland | 10 April 2019 | Slovakia | 11 April 2019 |
| France | 3 April 2019 | Slovenia | 10 April 2019 |
| Germany | 12 April 2019 | Spain | 2 April 2019 |
| Greece | 15 April 2019 | Sweden | 12 April 2019 |
| Hungary | 15 April 2019 | Switzerland | 15 April 2019 |
| Iceland | 14 April 2019 | Turkey | 13 April 2019 |
| Ireland | 10 April 2019 | Ukraine | <i>16 May 2019</i> |
| Italy | 5 April 2019 | United Kingdom | 15 April 2019 |
| Japan | 15 April 2019 | United States | 13 April 2019 |
| Latvia | 12 April 2019 | | |

^a Dates after 15 April 2019 are shown in italics. The dates of submission of NIRs may be different.

B. 重新计算

8. 根据《气候公约》附件一缔约方清单报告指南，缔约方在必要时应进行重新计算，以提高排放量估算的质量并确保时间序列的一致性。

⁵ 第 24/CP.19 号决定，附件一。

⁶ 除非另有说明，某些缔约方所用数据为基准年数据，而不是 1990 年数据。根据第 9/CP.2 和第 11/CP.4 号决定，可不采用 1990 年为基准年的缔约方是保加利亚(1988 年)、匈牙利(1985 年至 1987 年的平均数)、波兰(1988 年)、罗马尼亚(1989 年)和斯洛文尼亚(1986 年)。

9. 2019 年，所有 43 个附件一缔约方都报告了对其 1990 年温室气体估算排放量有影响的重新计算情况(见表 2)。重新计算反映了活动数据、排放因素和方法的变动。37 个缔约方不包括 LULUCF 的温室气体排放合计总量变化不到 1%，两个缔约方的变化大于 3%。21 个缔约方包括 LULUCF 的温室气体排放合计总量变化不到 1%，八个缔约方的变化大于 3%。

表 2
2019 年附件一缔约方清单重新计算情况

| <i>Party</i> | <i>Impact on GHG emissions for 1990 without LULUCF (%)</i> | <i>Impact on GHG emissions for 1990 with LULUCF (%)</i> |
|--------------------|--|---|
| Australia | 0.05 | 4.87 |
| Austria | -0.03 | -0.04 |
| Belarus | 0.0002 | 0.0002 |
| Belgium | -0.05 | -0.66 |
| Bulgaria | 0.0008 | 2.51 |
| Canada | -0.17 | -0.29 |
| Croatia | -0.71 | -1.05 |
| Cyprus | 1.39 | 1.77 |
| Czechia | -0.04 | 0.66 |
| Denmark | -0.12 | 0.09 |
| Estonia | -0.02 | 0.12 |
| European Union | 0.06 | 0.34 |
| Finland | -0.01 | -1.33 |
| France | 0.31 | 1.09 |
| Germany | -0.05 | -0.05 |
| Greece | 0.00 | 0.01 |
| Hungary | -0.11 | -0.12 |
| Iceland | -0.99 | -5.26 |
| Ireland | 0.06 | -2.58 |
| Italy | -0.12 | -0.17 |
| Japan | 0.26 | 0.27 |
| Latvia | -0.64 | 4.43 |
| Liechtenstein | -0.12 | 0.49 |
| Lithuania | 0.28 | 0.31 |
| Luxembourg | -0.23 | 0.36 |
| Malta | 0.05 | 0.05 |
| Monaco | 1.90 | 1.90 |
| Netherlands | 0.09 | 0.28 |
| New Zealand | -0.22 | -4.88 |
| Norway | -0.94 | -0.22 |
| Poland | 1.06 | 1.13 |
| Portugal | -1.23 | -1.20 |
| Romania | 0.57 | 1.15 |
| Russian Federation | -14.66 | -20.03 |
| Slovakia | -0.83 | -1.19 |
| Slovenia | -0.38 | -2.47 |
| Spain | 0.29 | 1.74 |

| <i>Party</i> | <i>Impact on GHG emissions for 1990 without LULUCF (%)</i> | <i>Impact on GHG emissions for 1990 with LULUCF (%)</i> |
|----------------|--|---|
| Sweden | -0.30 | 3.71 |
| Switzerland | 0.10 | -3.24 |
| Turkey | 4.03 | -10.10 |
| Ukraine | -0.91 | -1.12 |
| United Kingdom | -0.25 | 0.05 |
| United States | 0.24 | 0.51 |

10. 表 3 为附件一缔约方 2018 年和 2019 年温室气体清单提交材料所载 1990 年温室气体排放合计总量估算数的比较。

表 3

2018 年与 2019 年报告的附件一缔约方 1990 年温室气体排放合计总量估算数的比较

| | <i>Estimate reported in 2018</i> | <i>Estimate reported in 2019</i> | <i>Explanation of the difference between the estimates reported in 2018 and 2019</i> |
|---|----------------------------------|----------------------------------|--|
| Total aggregate GHG emissions without LULUCF (thousands of Tg CO₂ eq) | | | |
| All Annex I Parties | 19.70 | 19.17 | Aggregate impact of inventory recalculations by individual Annex I Parties |
| Annex I EIT Parties | 6.36 | 5.81 | Inventory recalculations, for example by Hungary, Russian Federation and Ukraine |
| Annex I non-EIT Parties | 13.34 | 13.36 | Inventory recalculations, for example by Japan, United Kingdom and United States |
| Total aggregate GHG emissions with LULUCF (thousands of Tg CO₂ eq) | | | |
| All Annex I Parties | 18.68 | 17.94 | Aggregate impact of inventory recalculations by individual Annex I Parties |
| Annex I EIT Parties | 6.35 | 5.57 | Inventory recalculations, for example by Poland, Russian Federation and Ukraine |
| Annex I non-EIT Parties | 12.33 | 12.38 | Inventory recalculations, for example by Australia, Turkey and United States |

三. 附件一缔约方的排放趋势和排放源概述

A. 温室气体排放合计总量

11. 1990 年至 2017 年, 所有附件一缔约方不包括 LULUCF 排放量和清除量的温室气体排放合计总量下降了 13.2%, 从 19,172.79 兆吨二氧化碳当量下降到 16,633.75 兆吨。包括 LULUCF 的温室气体排放合计总量同期下降了 17.4%, 从 17,944.45 兆吨二氧化碳当量下降到 14,818.81 兆吨。2000 年至 2017 年, 不包括和包括 LULUCF 的温室气体排放量分别下降了 7.0% 和 7.7%。2016 年至 2017 年, 不包括和包括 LULUCF 的温室气体排放量分别下降了 0.3% 和 0.8%。

12. 图 1 和图 2 显示 1990 年至 2017 年所有附件一缔约方、经济转型期附件一缔约方和非经济转型期附件一缔约方的温室气体排放合计总量的趋势。

图 1

1990、1995、2000、2005、2010、2015、2016 和 2017 年附件一缔约方温室气体排放量

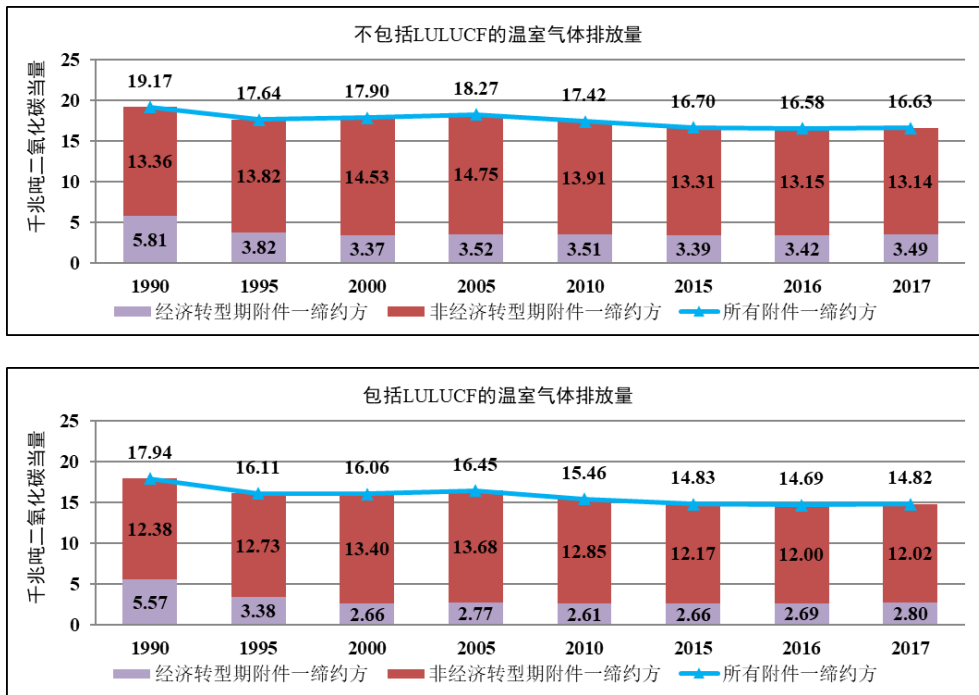
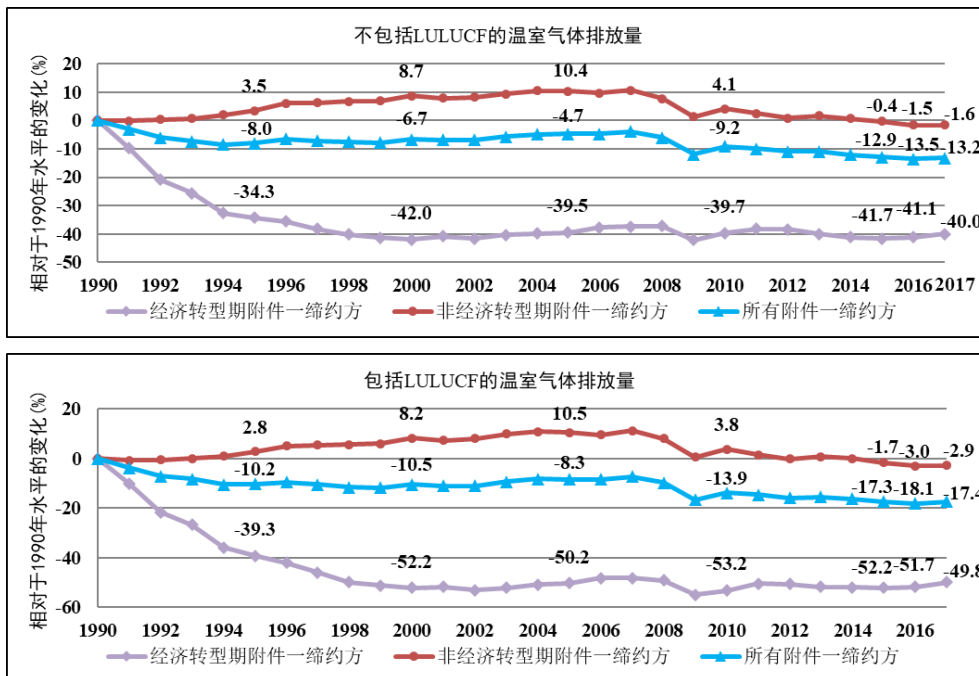


图 2

1990-2017 年附件一缔约方温室气体排放量的变化



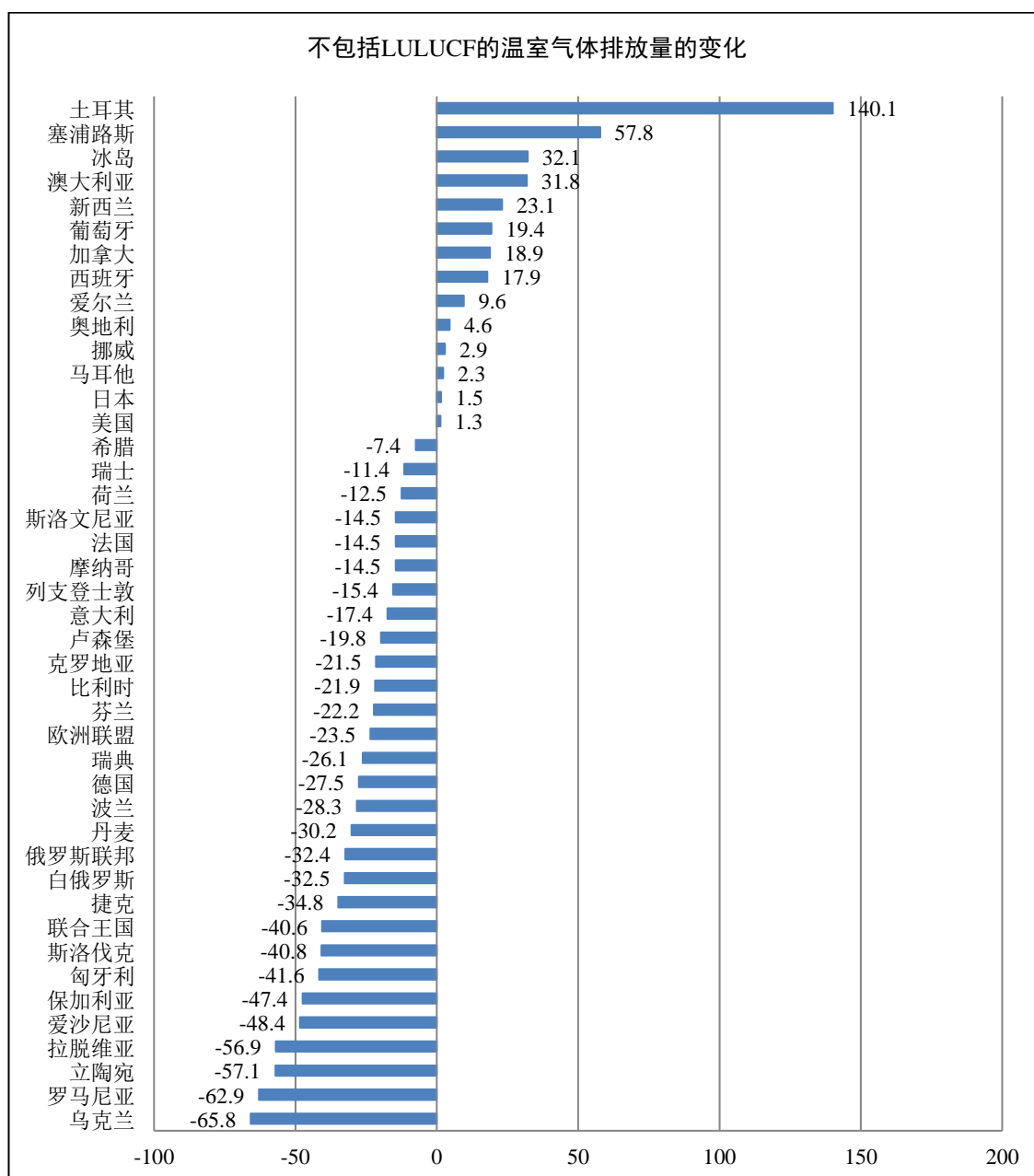
13. 1990 年至 2017 年，经济转型期附件一缔约方不包括和包括 LULUCF 的温室气体排放量分别下降了 40.0% 和 49.8%。2000 年至 2017 年，不包括和包括 LULUCF 的温室气体排放量分别上升了 3.6% 和 5.0%。2016 年至 2017 年，不包括和包括 LULUCF 的温室气体排放量分别上升了 2.0% 和 3.9%。

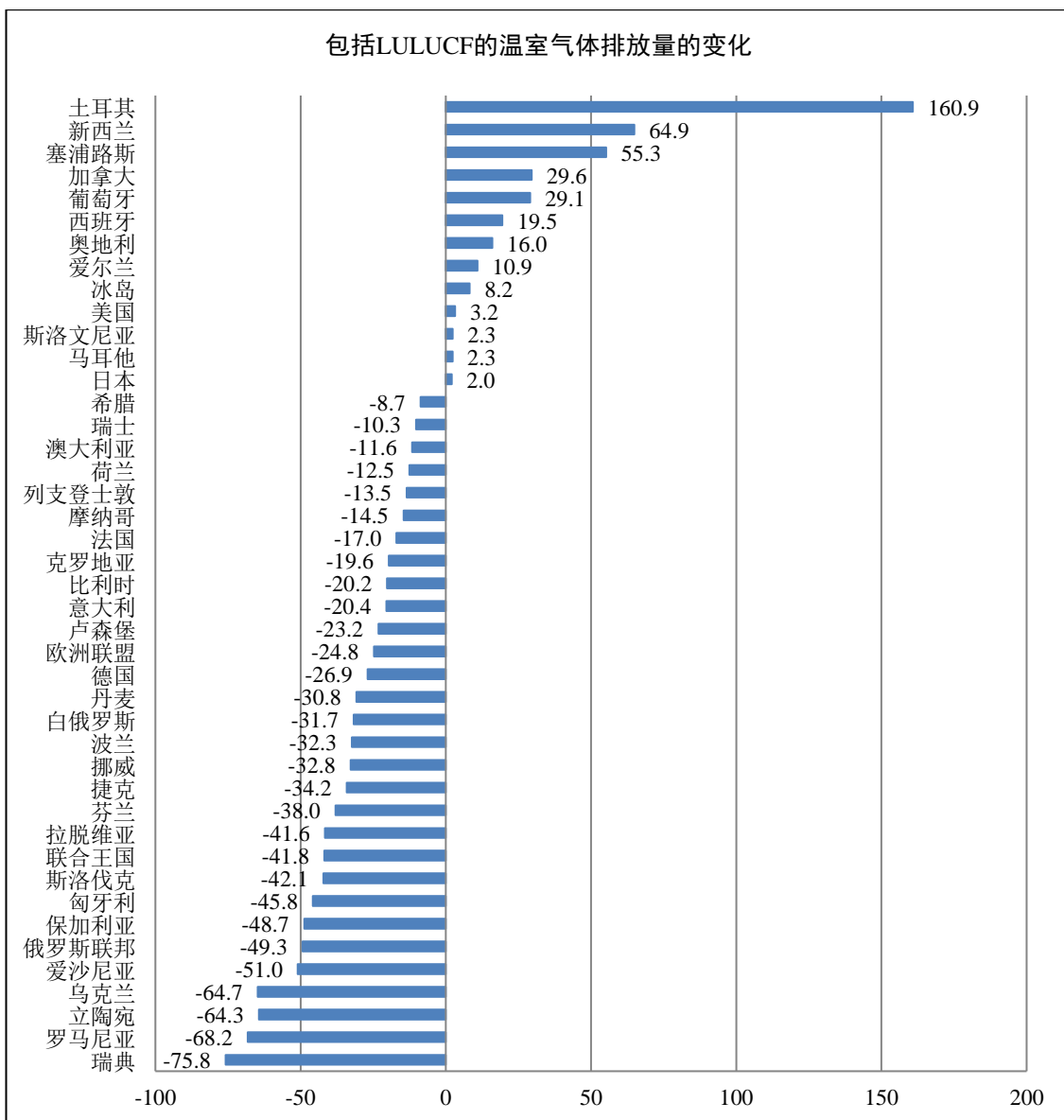
14. 1990年至2017年，非经济转型期附件一缔约方不包括和包括LULUCF的温室气体排放量分别下降了1.6%和2.9%。2000年至2017年，不包括和包括LULUCF的温室气体排放量分别下降了9.5%和10.3%。2016年至2017年，不包括LULUCF的温室气体排放量下降了0.1%，包括LULUCF的排放量上升0.2%。

15. 1990年至2017年期间，各缔约方温室气体排放合计总量的变化差别很大(见图3)。就不包括LULUCF的排放量而言，乌克兰的降幅最大(65.8%)；就包括LULUCF的排放量而言，瑞典的降幅最大(75.8%)。就不包括和包括LULUCF的排放量而言，土耳其增幅最大(分别为140.1%和160.9%)。

图3

1990-2017年各附件一缔约方排放合计总量的变化





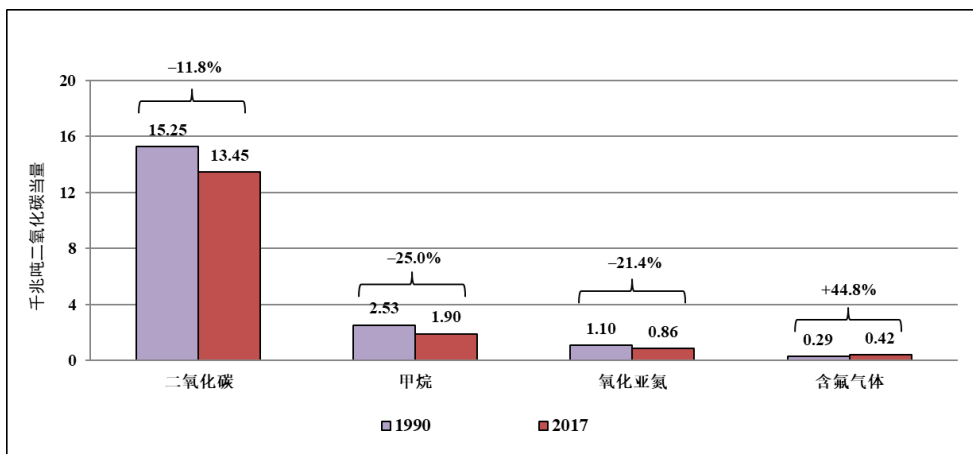
B. 按气体分列的温室气体排放量

16. 1990 年至 2017 年期间，二氧化碳在排放总量中所占比例最大，1990 年和 2017 年分别占排放总量的 79.5% 和 80.9%。甲烷在温室气体排放总量中所占比例排名第二(1990 年为 13.2%，2017 年为 11.4%)，然后是氧化亚氮(1990 年为 5.7%，2017 年为 5.2%)。含氟气体占 1990 年温室气体排放总量的 1.5%，2017 年的 2.5%。

17. 图 4 显示每一种温室气体在 1990 年和 2017 年不包括 LULUCF 的排放总量中所占比例，以及每一种温室气体从 1990 年至 2017 年在排放总量中占比的变化情况。二氧化碳、甲烷和氧化亚氮的排放量有所下降，而含氟气体的排放量增加了 44.8%。

图 4

1990 年和 2017 年附件一缔约方按气体分列的不包括土地利用、土地利用变化与林业的温室气体排放量



18. 2016 至 2017 年，二氧化碳、甲烷、氧化亚氮和含氟气体的排放量分别上升了 0.1%、0.8%、0.7% 和 4.0%。

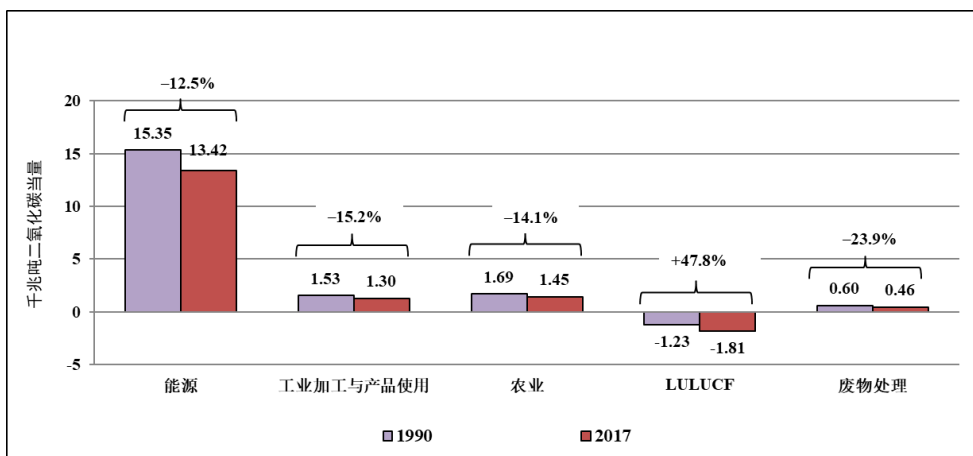
C. 按部门分列的温室气体排放量

19. 1990 年至 2017 年，所有部门的排放量均有所下降(见图 5)。废物处理部门的排放量相对降幅最大(23.9%)，然后依次是工业加工与产品使用、农业和能源部门。同期，LULUCF 的温室气体净清除量提高了 47.8%，从 -1,228.34 兆吨二氧化碳当量增加到 -1,814.94 兆吨。

20. 2016 年至 2017 年，能源、工业加工与产品使用和农业部门的排放量分别上升了 0.1%、1.8% 和 1.2%，而废物处理部门的排放量下降了 0.3%。LULUCF 的温室气体净清除量下降了 3.6%。

图 5

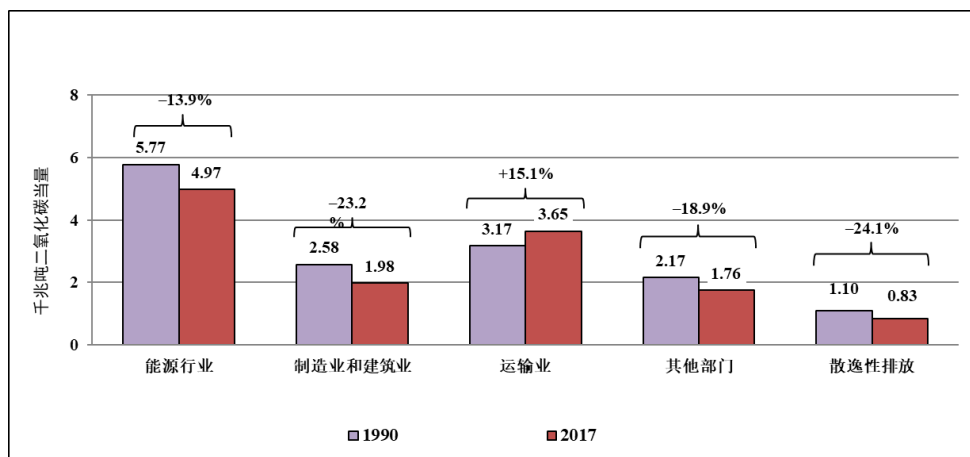
1990 年和 2017 年附件一缔约方按部门分列的温室气体排放量和清除量



注：图中没有列入其他部门，因为其对温室气体排放总量的影响微不足道。其他部门的排放量在 1990 年至 2017 年期间下降了 2.2%。

21. 在能源部门下，除运输分部门的排放量上升了 15.1%外，所有其他分部门的温室气体排放量在 1990 年至 2017 年期间均有所下降(见图 6)。排放量相对降幅最大的是燃料的散逸性排放(排放量下降了 24.1%)。

图 6
1990 年和 2017 年附件一缔约方能源部门的温室气体排放量

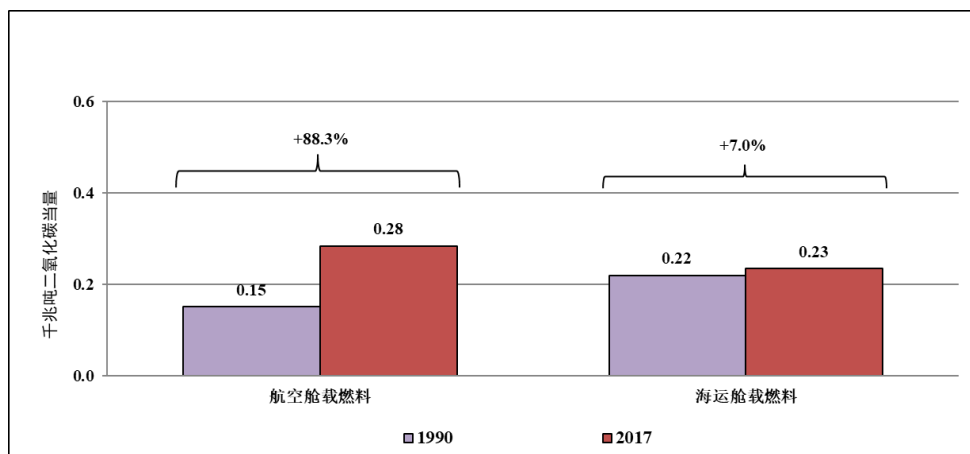


注：图中没有列入二氧化碳运输和储存分部门，因为该分部门对温室气体排放总量的影响微不足道。该分部门的排放量在 1990 年至 2017 年期间上升了 8,661.4%。

22. 2016 年至 2017 年，能源行业的排放量下降了 2.1%，而制造业和建筑业、运输业和其他部门的排放量以及散逸性排放分别增加了 1.4%、1.2%、2.2% 和 2.0%。

23. 1990 年至 2017 年期间，国际舱载燃料的排放量有所增加，航空业排放量增加了 88.3%，海运业增加了 7.0%(见图 7)。

图 7
1990 年和 2017 年附件一缔约方国际舱载燃料的温室气体排放量



24. 2016 年至 2017 年，国际舱载燃料的排放量有所下降，航空业排放量下降了 5.2%，海运业下降了 4.2%。

25. 表 4 比较了附件一缔约方 2018 年与 2019 年温室气体清单提交材料报告的 1990 年至最近年份温室气体排放合计总量的百分比变化，表中列有对估算数差别的解释。

表 4

2018 年和 2019 年报告的附件一缔约方温室气体排放合计总量变化的比较

| | <i>Estimate reported in 2018</i> | <i>Estimate reported in 2019</i> | <i>Explanation of the difference between the estimates reported in 2018 and 2019</i> |
|--|--------------------------------------|--------------------------------------|--|
| Change in total aggregate GHG emissions without LULUCF from 1990 to the latest available year (%) | | | |
| All Annex I Parties | -11.71 | -13.24 | Combined impact of changes for individual Annex I Parties |
| Annex I EIT Parties | -37.79 | -39.95 | Decreases in emissions between 2016 and 2017 and inventory recalculations, for example for Romania, Russian Federation and Ukraine |
| Annex I non-EIT Parties | 0.73 | -1.62 | Decreases in emissions between 2016 and 2017 and inventory recalculations, for example for Belgium, Japan and United States |
| Change in total aggregate GHG emissions with LULUCF from 1990 to the latest available year (%) | | | |
| All Annex I Parties | -17.42 | -17.42 | Combined impact of changes for individual Annex I Parties |
| Annex I EIT Parties | -50.23 | -49.79 | Increases in emissions between 2016 and 2017 and inventory recalculations, for example for Belarus, Czechia and Poland |
| Annex I non-EIT Parties | 0.54 | -2.85 | Decreases in emissions between 2016 and 2017 and inventory recalculations, for example for Germany, United Kingdom and United States |

D. 单个附件一缔约方的排放数据

26. 表 5 至 17 列有单个附件一缔约方详细的温室气体排放数据。表 5 和表 6 显示不包括和包括 LULUCF 排放量和清除量的温室气体排放合计总量；表 7 至 12 显示二氧化碳、甲烷和氧化亚氮(不包括和包括 LULUCF 排放量和清除量)的排放量；表 13 显示含氟气体的排放量；表 14 至 16 显示 LULUCF 的排放量和清除量。表 17 显示二氧化碳的间接排放量。

27. 表中空格有的是表示没有数据，有的是表示为报告排放数据使用了说明符号，如，“没有发生(NO)”、“没有估算(NE)”、“不适用(NA)”、“已包含在别处(IE)”或“机密(C)”。负值表示清除量；正值表示排放量。

28. 1990 年至 2017 年排放量的变化是用精确值(而非四舍五入)计算的，因此可能与用表中提供的四舍五入值计算的变化率不同。

表 5

1990、2000、2010、2016 和 2017 年二氧化碳、甲烷、氧化亚氮和含氟气体的人为排放合计总量(不包括土地利用、土地利用变化与林业的排放量/清除量)

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|-----------|-----------|-----------|-----------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 420 315 | 485 019 | 537 275 | 546 772 | 554 127 | 31.8 |
| Austria | 78 670 | 80 415 | 84 753 | 79 596 | 82 261 | 4.6 |
| Belarus ^a | 139 274 | 81 241 | 93 766 | 91 583 | 93 960 | -32.5 |
| Belgium | 146 587 | 149 730 | 132 922 | 115 783 | 114 540 | -21.9 |
| Bulgaria ^{a, b} | 116 754 | 59 567 | 60 550 | 59 085 | 61 367 | -47.4 |
| Canada | 602 184 | 730 588 | 692 619 | 707 727 | 715 749 | 18.9 |
| Croatia ^a | 31 858 | 25 861 | 28 085 | 24 385 | 25 020 | -21.5 |
| Cyprus | 5 669 | 8 387 | 9 459 | 8 741 | 8 945 | 57.8 |
| Czechia ^a | 197 393 | 149 334 | 139 734 | 129 757 | 128 675 | -34.8 |
| Denmark | 70 515 | 71 368 | 64 178 | 51 298 | 49 226 | -30.2 |
| Estonia ^a | 40 432 | 17 360 | 21 214 | 19 665 | 20 880 | -48.4 |
| European Union ^c | 5 649 529 | 5 168 912 | 4 783 628 | 4 303 392 | 4 323 163 | -23.5 |
| Finland | 71 133 | 70 130 | 75 627 | 58 044 | 55 334 | -22.2 |
| France | 551 049 | 556 370 | 517 116 | 467 622 | 471 028 | -14.5 |
| Germany | 1 250 993 | 1 045 187 | 942 542 | 911 049 | 906 611 | -27.5 |
| Greece | 103 101 | 126 346 | 118 436 | 91 698 | 95 421 | -7.4 |
| Hungary ^{a, b} | 109 314 | 73 208 | 64 949 | 61 140 | 63 788 | -41.6 |
| Iceland | 3 598 | 4 038 | 4 845 | 4 640 | 4 755 | 32.1 |
| Ireland | 55 417 | 68 478 | 61 105 | 61 270 | 60 744 | 9.6 |
| Italy | 517 746 | 554 106 | 505 773 | 432 119 | 427 708 | -17.4 |
| Japan | 1 270 004 | 1 374 847 | 1 302 732 | 1 305 751 | 1 289 631 | 1.5 |
| Latvia ^a | 26 259 | 10 488 | 12 279 | 11 269 | 11 306 | -56.9 |
| Liechtenstein | 229 | 248 | 229 | 188 | 194 | -15.4 |
| Lithuania ^a | 48 242 | 19 603 | 21 009 | 20 510 | 20 706 | -57.1 |
| Luxembourg | 12 756 | 9 678 | 12 180 | 10 052 | 10 236 | -19.8 |
| Malta | 2 103 | 2 768 | 2 910 | 1 896 | 2 152 | 2.3 |
| Monaco | 102 | 109 | 88 | 88 | 87 | -14.5 |
| Netherlands | 220 794 | 219 304 | 213 363 | 195 384 | 193 260 | -12.5 |
| New Zealand | 65 668 | 76 180 | 78 965 | 79 136 | 80 853 | 23.1 |
| Norway | 51 210 | 54 832 | 55 467 | 53 608 | 52 713 | 2.9 |
| Poland ^{a, b} | 577 258 | 395 472 | 411 669 | 399 123 | 413 781 | -28.3 |
| Portugal | 59 092 | 82 082 | 68 801 | 65 936 | 70 546 | 19.4 |
| Romania ^{a, b} | 306 690 | 143 126 | 123 905 | 114 272 | 113 796 | -62.9 |
| Russian Federation ^a | 3 186 796 | 1 900 820 | 2 057 673 | 2 097 477 | 2 155 471 | -32.4 |
| Slovakia ^a | 73 365 | 49 263 | 46 367 | 42 298 | 43 438 | -40.8 |
| Slovenia ^{a, b} | 20 415 | 19 076 | 19 626 | 17 681 | 17 453 | -14.5 |
| Spain | 288 492 | 387 528 | 357 677 | 326 383 | 340 231 | 17.9 |
| Sweden | 71 304 | 68 483 | 64 282 | 52 943 | 52 660 | -26.1 |
| Switzerland | 53 252 | 52 352 | 54 117 | 48 183 | 47 159 | -11.4 |
| Turkey ^d | 219 202 | 298 890 | 398 661 | 498 469 | 526 253 | 140.1 |
| Ukraine ^a | 938 603 | 425 536 | 405 103 | 335 116 | 320 626 | -65.8 |
| United Kingdom | 797 948 | 715 687 | 614 361 | 487 035 | 474 346 | -40.6 |
| United States | 6 371 001 | 7 232 011 | 6 938 592 | 6 492 267 | 6 456 718 | 1.3 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 29 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 0 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 14 |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 6

1990、2000、2010、2016 和 2017 年二氧化碳、甲烷、氧化亚氮和含氟气体的人为排放合计总量(包括土地利用、土地利用变化与林业的排放量/清除量)

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|-----------|-----------|-----------|-----------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 604 904 | 536 154 | 585 955 | 530 431 | 534 695 | -11.6 |
| Austria | 66 682 | 63 996 | 78 890 | 75 217 | 77 355 | 16.0 |
| Belarus ^a | 118 169 | 47 998 | 53 639 | 69 680 | 80 659 | -31.7 |
| Belgium | 143 273 | 147 955 | 132 591 | 115 498 | 114 280 | -20.2 |
| Bulgaria ^{a, b} | 104 064 | 47 379 | 50 722 | 50 810 | 53 335 | -48.7 |
| Canada | 533 943 | 688 682 | 660 211 | 682 316 | 692 027 | 29.6 |
| Croatia ^a | 25 204 | 18 894 | 20 968 | 18 841 | 20 253 | -19.6 |
| Cyprus | 5 418 | 8 455 | 8 970 | 8 817 | 8 411 | 55.3 |
| Czechia ^a | 192 167 | 141 446 | 134 195 | 124 599 | 126 540 | -34.2 |
| Denmark | 75 454 | 74 968 | 63 162 | 55 801 | 52 197 | -30.8 |
| Estonia ^a | 38 942 | 13 968 | 19 069 | 16 920 | 19 087 | -51.0 |
| European Union ^c | 5 404 553 | 4 871 910 | 4 468 688 | 4 017 554 | 4 065 089 | -24.8 |
| Finland | 56 361 | 51 245 | 53 478 | 39 518 | 34 956 | -38.0 |
| France | 529 213 | 539 912 | 477 846 | 434 365 | 439 420 | -17.0 |
| Germany | 1 219 681 | 1 007 227 | 926 173 | 897 140 | 891 426 | -26.9 |
| Greece | 100 993 | 124 405 | 115 393 | 88 224 | 92 212 | -8.7 |
| Hungary ^{a, b} | 107 557 | 72 801 | 60 937 | 56 837 | 58 349 | -45.8 |
| Iceland | 13 005 | 13 425 | 14 317 | 13 985 | 14 075 | 8.2 |
| Ireland | 60 185 | 74 138 | 66 427 | 65 037 | 66 741 | 10.9 |
| Italy | 514 462 | 537 877 | 471 099 | 395 561 | 409 329 | -20.4 |
| Japan | 1 207 528 | 1 286 939 | 1 232 185 | 1 251 231 | 1 232 173 | 2.0 |
| Latvia ^a | 16 431 | 1 736 | 12 357 | 10 962 | 9 599 | -41.6 |
| Liechtenstein | 236 | 273 | 250 | 197 | 204 | -13.5 |
| Lithuania ^a | 43 180 | 11 042 | 12 025 | 14 478 | 15 410 | -64.3 |
| Luxembourg | 12 881 | 9 007 | 12 092 | 9 600 | 9 892 | -23.2 |
| Malta | 2 106 | 2 771 | 2 912 | 1 899 | 2 155 | 2.3 |
| Monaco | 102 | 109 | 88 | 88 | 87 | -14.5 |
| Netherlands | 227 285 | 225 376 | 218 932 | 200 963 | 198 860 | -12.5 |
| New Zealand | 34 506 | 45 115 | 47 805 | 54 305 | 56 895 | 64.9 |
| Norway | 41 242 | 30 423 | 29 009 | 29 829 | 27 722 | -32.8 |
| Poland ^{a, b} | 561 554 | 362 576 | 381 648 | 373 079 | 379 935 | -32.3 |
| Portugal | 60 247 | 76 404 | 57 890 | 60 542 | 77 777 | 29.1 |
| Romania ^{a, b} | 289 617 | 122 214 | 103 187 | 91 167 | 92 116 | -68.2 |
| Russian Federation ^a | 3 113 394 | 1 388 351 | 1 330 618 | 1 480 903 | 1 577 767 | -49.3 |
| Slovakia ^a | 63 665 | 39 370 | 40 219 | 35 576 | 36 853 | -42.1 |
| Slovenia ^{a, b} | 15 565 | 14 837 | 13 232 | 15 278 | 15 929 | 2.3 |
| Spain | 252 617 | 348 005 | 320 257 | 288 154 | 301 903 | 19.5 |
| Sweden | 36 908 | 31 888 | 20 336 | 8 405 | 8 933 | -75.8 |
| Switzerland | 50 767 | 57 921 | 51 498 | 46 067 | 45 561 | -10.3 |
| Turkey ^d | 163 437 | 237 334 | 325 169 | 402 539 | 426 345 | 160.9 |
| Ukraine ^a | 879 311 | 379 881 | 375 758 | 333 284 | 310 271 | -64.7 |
| United Kingdom | 798 203 | 711 812 | 605 251 | 477 236 | 464 453 | -41.8 |
| United States | 5 563 986 | 6 464 573 | 6 269 233 | 5 769 654 | 5 742 623 | 3.2 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | <i>30</i> |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | <i>0</i> |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | <i>13</i> |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 7

1990、2000、2010、2016 和 2017 年二氧化碳的人为排放总量(不包括土地利用、土地利用变化与林业的排放量/清除量)

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|-----------|-----------|-----------|-----------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 278 424 | 350 195 | 406 426 | 413 157 | 417 041 | 49.8 |
| Austria | 62 323 | 66 313 | 72 228 | 67 315 | 69 979 | 12.3 |
| Belarus ^a | 104 139 | 55 463 | 63 883 | 60 942 | 62 699 | -39.8 |
| Belgium | 120 482 | 126 769 | 113 814 | 98 422 | 97 564 | -19.0 |
| Bulgaria ^{a, b} | 89 407 | 45 211 | 47 794 | 45 258 | 47 402 | -47.0 |
| Canada | 462 502 | 571 507 | 556 420 | 564 068 | 571 139 | 23.5 |
| Croatia ^a | 23 337 | 19 699 | 21 064 | 18 083 | 18 717 | -19.8 |
| Cyprus | 4 665 | 7 140 | 8 082 | 7 362 | 7 538 | 61.6 |
| Czechia ^a | 164 204 | 127 060 | 117 460 | 106 599 | 105 607 | -35.7 |
| Denmark | 54 850 | 55 611 | 50 695 | 38 329 | 36 283 | -33.9 |
| Estonia ^a | 37 067 | 15 360 | 19 016 | 17 477 | 18 654 | -49.7 |
| European Union ^c | 4 469 107 | 4 180 838 | 3 941 225 | 3 497 546 | 3 515 490 | -21.3 |
| Finland | 56 972 | 57 038 | 64 097 | 47 241 | 44 705 | -21.5 |
| France | 403 207 | 419 301 | 394 447 | 349 248 | 352 285 | -12.6 |
| Germany | 1 052 520 | 900 376 | 832 388 | 801 655 | 797 966 | -24.2 |
| Greece | 83 375 | 102 982 | 97 343 | 71 367 | 74 845 | -10.2 |
| Hungary ^{a, b} | 85 570 | 58 560 | 52 138 | 47 430 | 49 646 | -42.0 |
| Iceland | 2 237 | 2 934 | 3 621 | 3 490 | 3 614 | 61.5 |
| Ireland | 32 891 | 45 200 | 41 678 | 39 895 | 38 728 | 17.7 |
| Italy | 439 640 | 470 294 | 426 351 | 353 487 | 348 991 | -20.6 |
| Japan | 1 158 515 | 1 264 978 | 1 214 424 | 1 206 166 | 1 188 122 | 2.6 |
| Latvia ^a | 19 505 | 7 065 | 8 554 | 7 232 | 7 235 | -62.9 |
| Liechtenstein | 199 | 217 | 191 | 149 | 155 | -22.0 |
| Lithuania ^a | 35 810 | 11 880 | 13 964 | 13 368 | 13 628 | -61.9 |
| Luxembourg | 11 848 | 8 729 | 11 217 | 9 076 | 9 243 | -22.0 |
| Malta | 1 943 | 2 526 | 2 532 | 1 413 | 1 609 | -17.2 |
| Monaco | 97 | 99 | 76 | 75 | 73 | -24.5 |
| Netherlands | 162 428 | 171 943 | 182 186 | 166 387 | 164 478 | 1.3 |
| New Zealand | 25 455 | 32 298 | 34 997 | 34 260 | 36 024 | 41.5 |
| Norway | 35 323 | 42 515 | 46 229 | 44 463 | 43 702 | 23.7 |
| Poland ^{a, b} | 471 979 | 318 209 | 333 457 | 323 022 | 336 557 | -28.7 |
| Portugal | 45 631 | 66 128 | 52 937 | 50 368 | 54 658 | 19.8 |
| Romania ^{a, b} | 208 946 | 95 428 | 84 022 | 75 798 | 74 998 | -64.1 |
| Russian Federation ^a | 2 525 501 | 1 471 235 | 1 613 523 | 1 617 653 | 1 647 041 | -34.8 |
| Slovakia ^a | 61 577 | 41 224 | 38 499 | 34 893 | 36 034 | -41.5 |
| Slovenia ^{a, b} | 16 669 | 15 445 | 16 369 | 14 414 | 14 259 | -14.5 |
| Spain | 231 061 | 310 828 | 283 109 | 260 289 | 274 427 | 18.8 |
| Sweden | 57 446 | 54 678 | 52 845 | 42 582 | 42 050 | -26.8 |
| Switzerland | 44 162 | 43 612 | 45 043 | 39 187 | 38 172 | -13.6 |
| Turkey ^d | 151 508 | 229 791 | 314 380 | 401 240 | 425 330 | 180.7 |
| Ukraine ^a | 705 832 | 285 338 | 294 079 | 234 204 | 223 220 | -68.4 |
| United Kingdom | 601 481 | 567 902 | 512 672 | 400 554 | 388 101 | -35.5 |
| United States | 5 121 179 | 5 997 299 | 5 700 108 | 5 306 662 | 5 270 749 | 2.9 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 29 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 0 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 14 |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 8

1990、2000、2010、2016 和 2017 年二氧化碳的人为排放总量(包括土地利用、土地利用变化与林业的排放量/清除量)

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|-----------|-----------|-----------|-----------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 443 947 | 382 862 | 437 062 | 381 424 | 381 754 | -14.0 |
| Austria | 50 166 | 49 735 | 66 206 | 62 775 | 64 910 | 29.4 |
| Belarus ^a | 83 012 | 22 192 | 23 736 | 39 019 | 49 378 | -40.5 |
| Belgium | 117 157 | 124 944 | 113 381 | 97 979 | 97 141 | -17.1 |
| Bulgaria ^{a, b} | 76 494 | 32 550 | 37 451 | 36 407 | 38 804 | -49.3 |
| Canada | 392 956 | 528 082 | 522 974 | 537 732 | 546 532 | 39.1 |
| Croatia ^a | 16 649 | 12 534 | 13 865 | 12 443 | 13 751 | -17.4 |
| Cyprus | 4 413 | 7 200 | 7 592 | 7 422 | 7 004 | 58.7 |
| Czechia ^a | 158 893 | 119 097 | 111 821 | 101 381 | 103 404 | -34.9 |
| Denmark | 59 568 | 58 998 | 49 467 | 42 608 | 39 035 | -34.5 |
| Estonia ^a | 35 275 | 11 661 | 16 549 | 14 404 | 16 533 | -53.1 |
| European Union ^c | 4 197 475 | 3 856 491 | 3 601 333 | 3 185 039 | 3 231 149 | -23.0 |
| Finland | 38 536 | 34 657 | 38 864 | 25 700 | 21 304 | -44.7 |
| France | 377 135 | 397 899 | 350 826 | 311 708 | 316 366 | -16.1 |
| Germany | 1 019 502 | 860 743 | 814 342 | 786 020 | 781 052 | -23.4 |
| Greece | 81 198 | 100 806 | 94 266 | 67 846 | 71 601 | -11.8 |
| Hungary ^{a, b} | 83 766 | 58 057 | 48 060 | 43 067 | 44 131 | -47.3 |
| Iceland | 7 873 | 8 563 | 9 380 | 9 132 | 9 232 | 17.3 |
| Ireland | 37 053 | 50 228 | 45 927 | 42 884 | 43 630 | 17.7 |
| Italy | 434 050 | 452 453 | 390 908 | 316 117 | 328 643 | -24.3 |
| Japan | 1 095 737 | 1 176 793 | 1 143 624 | 1 151 393 | 1 130 387 | 3.2 |
| Latvia ^a | 8 599 | -2 782 | 7 580 | 5 790 | 4 378 | -49.1 |
| Liechtenstein | 206 | 241 | 211 | 158 | 165 | -19.6 |
| Lithuania ^a | 30 614 | 3 181 | 4 815 | 7 158 | 7 921 | -73.4 |
| Luxembourg | 11 951 | 8 036 | 11 112 | 8 612 | 8 888 | -25.6 |
| Malta | 1 946 | 2 529 | 2 534 | 1 417 | 1 612 | -17.2 |
| Monaco | 97 | 99 | 76 | 75 | 73 | -24.5 |
| Netherlands | 168 914 | 177 953 | 187 651 | 171 871 | 169 982 | 0.6 |
| New Zealand | -6 012 | 914 | 3 542 | 9 194 | 11 865 | -297.4 |
| Norway | 24 958 | 17 666 | 19 300 | 20 203 | 18 231 | -27.0 |
| Poland ^{a, b} | 452 009 | 280 849 | 298 728 | 290 441 | 299 117 | -33.8 |
| Portugal | 45 909 | 59 623 | 41 327 | 44 105 | 60 061 | 30.8 |
| Romania ^{a, b} | 190 633 | 72 790 | 61 461 | 50 849 | 51 473 | -73.0 |
| Russian Federation ^a | 2 420 392 | 923 015 | 851 671 | 963 718 | 1 031 746 | -57.4 |
| Slovakia ^a | 51 770 | 31 252 | 32 304 | 28 117 | 29 391 | -43.2 |
| Slovenia ^{a, b} | 11 767 | 11 157 | 9 934 | 11 979 | 12 706 | 8.0 |
| Spain | 194 501 | 270 475 | 245 273 | 221 588 | 235 636 | 21.1 |
| Sweden | 21 283 | 16 290 | 7 159 | -3 623 | -3 332 | -115.7 |
| Switzerland | 41 592 | 49 119 | 42 365 | 37 007 | 36 514 | -12.2 |
| Turkey ^d | 95 617 | 167 959 | 240 823 | 305 175 | 325 291 | 240.2 |
| Ukraine ^a | 646 310 | 239 389 | 264 500 | 232 233 | 212 698 | -67.1 |
| United Kingdom | 599 468 | 561 910 | 501 958 | 389 288 | 376 771 | -37.1 |
| United States | 4 306 396 | 5 210 014 | 5 018 158 | 4 568 589 | 4 541 186 | 5.5 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | <i>31</i> |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | <i>1</i> |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | <i>11</i> |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 9

1990、2000、2010、2016 和 2017 年甲烷的人为排放总量(不包括土地利用、土地利用变化与林业的排放量/清除量)

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|---|-----------------------|---------|---------|---------|---------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 120 081 | 112 761 | 102 501 | 102 048 | 103 602 | -13.7 |
| Austria | 10 363 | 8 396 | 7 256 | 6 617 | 6 597 | -36.3 |
| Belarus ^a | 18 744 | 13 507 | 15 982 | 16 721 | 16 875 | -10.0 |
| Belgium | 12 198 | 11 008 | 8 789 | 8 073 | 7 973 | -34.6 |
| Bulgaria ^{a, b} | 16 838 | 10 149 | 7 736 | 7 049 | 6 785 | -59.7 |
| Canada | 89 032 | 112 546 | 92 742 | 93 165 | 92 848 | 4.3 |
| Croatia ^a | 4 424 | 3 524 | 4 191 | 4 224 | 4 108 | -7.1 |
| Cyprus | 655 | 781 | 813 | 846 | 864 | 32.0 |
| Czechia ^a | 23 492 | 15 351 | 14 433 | 13 701 | 13 511 | -42.5 |
| Denmark | 7 635 | 7 910 | 7 345 | 6 914 | 6 920 | -9.4 |
| Estonia ^a | 1 896 | 1 236 | 1 216 | 1 065 | 1 071 | -43.5 |
| European Union ^c | 727 449 | 605 491 | 490 359 | 454 079 | 453 422 | -37.7 |
| Finland | 7 746 | 6 608 | 5 369 | 4 733 | 4 606 | -40.5 |
| France | 69 642 | 69 765 | 61 656 | 57 090 | 56 659 | -18.6 |
| Germany | 120 944 | 88 789 | 59 353 | 55 924 | 55 247 | -54.3 |
| Greece | 10 907 | 11 630 | 11 001 | 9 665 | 9 915 | -9.1 |
| Hungary ^{a, b} | 12 447 | 8 778 | 7 877 | 7 389 | 7 539 | -39.4 |
| Iceland | 543 | 602 | 632 | 594 | 581 | 7.1 |
| Ireland | 14 761 | 14 346 | 12 069 | 13 715 | 14 034 | -4.9 |
| Italy | 48 263 | 50 765 | 46 919 | 43 577 | 43 852 | -9.1 |
| Japan | 44 347 | 37 951 | 34 497 | 30 504 | 30 064 | -32.2 |
| Latvia ^a | 3 537 | 1 808 | 1 729 | 1 779 | 1 805 | -49.0 |
| Liechtenstein | 19 | 17 | 19 | 18 | 18 | -5.8 |
| Lithuania ^a | 7 006 | 3 861 | 3 685 | 3 335 | 3 285 | -53.1 |
| Luxembourg | 580 | 584 | 591 | 586 | 594 | 2.3 |
| Malta | 105 | 175 | 180 | 184 | 187 | 78.1 |
| Monaco | 2 | 3 | 3 | 3 | 2 | 13.5 |
| Netherlands | 31 850 | 24 283 | 19 407 | 18 348 | 18 031 | -43.4 |
| New Zealand | 32 150 | 35 223 | 34 221 | 34 196 | 34 132 | 6.2 |
| Norway | 5 801 | 5 698 | 5 380 | 5 093 | 5 024 | -13.4 |
| Poland ^{a, b} | 75 727 | 53 114 | 51 380 | 49 487 | 49 413 | -34.7 |
| Portugal | 9 606 | 11 162 | 10 348 | 9 431 | 9 477 | -1.3 |
| Romania ^{a, b} | 74 074 | 36 329 | 31 037 | 29 012 | 28 725 | -61.2 |
| Russian Federation ^a | 462 817 | 316 584 | 350 911 | 366 885 | 383 258 | -17.2 |
| Slovakia ^a | 6 993 | 5 285 | 4 753 | 4 564 | 4 601 | -34.2 |
| Slovenia ^{a, b} | 2 680 | 2 563 | 2 272 | 2 152 | 2 102 | -21.6 |
| Spain | 35 233 | 42 497 | 40 322 | 39 468 | 40 013 | 13.6 |
| Sweden | 7 422 | 6 840 | 5 243 | 4 554 | 4 518 | -39.1 |
| Switzerland | 6 005 | 5 286 | 5 127 | 4 917 | 4 854 | -19.2 |
| Turkey ^d | 42 407 | 43 562 | 51 315 | 53 867 | 54 193 | 27.8 |
| Ukraine ^a | 182 442 | 117 892 | 84 497 | 65 967 | 63 638 | -65.1 |
| United Kingdom | 132 991 | 108 901 | 64 298 | 51 508 | 51 884 | -61.0 |
| United States | 779 846 | 709 304 | 697 450 | 654 898 | 656 317 | -15.8 |
| Number of Parties showing a decrease in emissions by more than 1%: | | | | | | 34 |
| Number of Parties showing a change in emissions within 1%: | | | | | | 0 |
| Number of Parties showing an increase in emissions by more than 1%: | | | | | | 9 |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 10

1990、2000、2010、2016 和 2017 年甲烷的人为排放总量(包括土地利用、土地利用变化与林业的排放量/清除量)

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|---------|---------|---------|---------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 134 838 | 126 928 | 115 794 | 113 609 | 115 533 | -14.3 |
| Austria | 10 387 | 8 419 | 7 280 | 6 641 | 6 621 | -36.3 |
| Belarus ^a | 18 752 | 13 516 | 15 987 | 16 725 | 16 880 | -10.0 |
| Belgium | 12 198 | 11 008 | 8 789 | 8 073 | 7 973 | -34.6 |
| Bulgaria ^{a, b} | 16 839 | 10 284 | 7 751 | 7 064 | 6 795 | -59.6 |
| Canada | 89 901 | 113 557 | 93 441 | 93 781 | 93 433 | 3.9 |
| Croatia ^a | 4 425 | 3 621 | 4 193 | 4 232 | 4 177 | -5.6 |
| Cyprus | 655 | 788 | 814 | 858 | 864 | 32.0 |
| Czechia ^a | 23 536 | 15 393 | 14 489 | 13 734 | 13 549 | -42.4 |
| Denmark | 7 828 | 8 098 | 7 529 | 7 107 | 7 112 | -9.1 |
| Estonia ^a | 1 955 | 1 297 | 1 277 | 1 127 | 1 133 | -42.1 |
| European Union ^c | 734 874 | 613 315 | 496 119 | 459 873 | 461 437 | -37.2 |
| Finland | 9 280 | 7 956 | 6 347 | 5 654 | 5 526 | -40.5 |
| France | 70 659 | 71 537 | 62 871 | 58 283 | 57 874 | -18.1 |
| Germany | 121 820 | 89 660 | 60 221 | 56 789 | 56 111 | -53.9 |
| Greece | 10 969 | 11 838 | 11 018 | 9 697 | 9 933 | -9.4 |
| Hungary ^{a, b} | 12 472 | 8 804 | 7 886 | 7 398 | 7 558 | -39.4 |
| Iceland | 4 263 | 4 304 | 4 285 | 4 236 | 4 222 | -1.0 |
| Ireland | 15 222 | 14 775 | 12 695 | 14 097 | 14 672 | -3.6 |
| Italy | 49 746 | 51 698 | 47 276 | 43 973 | 45 333 | -8.9 |
| Japan | 44 432 | 38 031 | 34 569 | 30 571 | 30 154 | -32.1 |
| Latvia ^a | 4 036 | 2 313 | 2 174 | 2 298 | 2 338 | -42.1 |
| Liechtenstein | 19 | 17 | 19 | 18 | 18 | -5.8 |
| Lithuania ^a | 7 009 | 3 865 | 3 687 | 3 336 | 3 285 | -53.1 |
| Luxembourg | 580 | 584 | 591 | 586 | 594 | 2.3 |
| Malta | 105 | 175 | 180 | 184 | 187 | 78.1 |
| Monaco | 2 | 3 | 3 | 3 | 2 | 13.5 |
| Netherlands | 31 850 | 24 283 | 19 407 | 18 348 | 18 031 | -43.4 |
| New Zealand | 32 248 | 35 307 | 34 322 | 34 302 | 34 225 | 6.1 |
| Norway | 5 946 | 5 848 | 5 532 | 5 245 | 5 175 | -13.0 |
| Poland ^{a, b} | 75 771 | 53 146 | 51 412 | 49 529 | 49 450 | -34.7 |
| Portugal | 9 906 | 11 496 | 10 643 | 9 882 | 10 736 | 8.4 |
| Romania ^{a, b} | 74 074 | 36 333 | 31 037 | 29 013 | 28 727 | -61.2 |
| Russian Federation ^a | 484 006 | 336 869 | 373 656 | 389 689 | 406 169 | -16.1 |
| Slovakia ^a | 7 003 | 5 309 | 4 771 | 4 583 | 4 622 | -34.0 |
| Slovenia ^{a, b} | 2 681 | 2 563 | 2 272 | 2 153 | 2 103 | -21.6 |
| Spain | 35 547 | 42 790 | 40 410 | 39 630 | 40 177 | 13.0 |
| Sweden | 7 893 | 7 315 | 5 693 | 4 992 | 4 953 | -37.3 |
| Switzerland | 6 034 | 5 301 | 5 140 | 4 933 | 4 868 | -19.3 |
| Turkey ^d | 42 483 | 43 721 | 51 338 | 53 927 | 54 251 | 27.7 |
| Ukraine ^a | 182 480 | 117 908 | 84 535 | 65 979 | 63 666 | -65.1 |
| United Kingdom | 133 007 | 108 930 | 64 333 | 51 541 | 51 913 | -61.0 |
| United States | 784 833 | 720 778 | 704 445 | 663 657 | 665 105 | -15.3 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 33 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 1 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 9 |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 11

1990、2000、2010、2016 和 2017 年氧化亚氮的人为排放总量(不包括土地利用、土地利用变化与林业的排放量/清除量)

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|---------|---------|---------|---------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 15 558 | 18 950 | 19 312 | 19 172 | 20 851 | 34.0 |
| Austria | 4 329 | 4 320 | 3 366 | 3 582 | 3 505 | -19.0 |
| Belarus ^a | 16 392 | 12 271 | 13 899 | 13 917 | 14 382 | -12.3 |
| Belgium | 10 094 | 10 219 | 7 560 | 5 698 | 5 938 | -41.2 |
| Bulgaria ^{a, b} | 10 506 | 4 167 | 4 338 | 5 360 | 5 345 | -49.1 |
| Canada | 38 896 | 35 892 | 33 368 | 37 233 | 38 037 | -2.2 |
| Croatia ^a | 2 847 | 2 479 | 2 441 | 1 589 | 1 700 | -40.3 |
| Cyprus | 286 | 345 | 318 | 288 | 293 | 2.6 |
| Czechia ^a | 9 613 | 6 365 | 5 329 | 5 912 | 5 838 | -39.3 |
| Denmark | 7 988 | 6 993 | 5 233 | 5 385 | 5 473 | -31.5 |
| Estonia ^a | 1 469 | 682 | 805 | 884 | 916 | -37.7 |
| European Union ^c | 380 966 | 302 513 | 237 135 | 232 931 | 237 733 | -37.6 |
| Finland | 6 362 | 5 739 | 4 754 | 4 659 | 4 689 | -26.3 |
| France | 66 360 | 55 281 | 42 135 | 40 759 | 42 129 | -36.5 |
| Germany | 64 134 | 42 745 | 36 362 | 37 858 | 37 666 | -41.3 |
| Greece | 7 443 | 6 346 | 5 489 | 4 301 | 4 351 | -41.5 |
| Hungary ^{a, b} | 10 920 | 5 292 | 3 642 | 4 546 | 4 687 | -57.1 |
| Iceland | 322 | 307 | 269 | 271 | 284 | -11.8 |
| Ireland | 7 730 | 7 964 | 6 350 | 6 469 | 6 751 | -12.7 |
| Italy | 26 084 | 28 445 | 18 826 | 17 944 | 17 796 | -31.8 |
| Japan | 31 788 | 29 876 | 22 282 | 20 262 | 20 461 | -35.6 |
| Latvia ^a | 3 217 | 1 600 | 1 823 | 2 007 | 2 021 | -37.2 |
| Liechtenstein | 11 | 10 | 10 | 10 | 10 | -10.8 |
| Lithuania ^a | 5 425 | 3 840 | 3 095 | 3 070 | 3 074 | -43.3 |
| Luxembourg | 328 | 333 | 311 | 316 | 318 | -3.0 |
| Malta | 55 | 59 | 50 | 42 | 44 | -20.3 |
| Monaco | 2 | 3 | 4 | 3 | 3 | 30.1 |
| Netherlands | 18 040 | 16 152 | 8 634 | 8 487 | 8 721 | -51.7 |
| New Zealand | 7 133 | 8 355 | 8 631 | 9 090 | 9 116 | 27.8 |
| Norway | 4 093 | 3 826 | 2 486 | 2 439 | 2 394 | -41.5 |
| Poland ^{a, b} | 29 405 | 22 583 | 19 773 | 19 792 | 20 824 | -29.2 |
| Portugal | 3 855 | 4 349 | 3 370 | 3 038 | 3 112 | -19.3 |
| Romania ^{a, b} | 19 224 | 9 615 | 7 794 | 7 513 | 7 835 | -59.2 |
| Russian Federation ^a | 146 044 | 75 644 | 75 160 | 84 615 | 86 429 | -40.8 |
| Slovakia ^a | 4 480 | 2 621 | 2 473 | 2 155 | 2 048 | -54.3 |
| Slovenia ^{a, b} | 823 | 877 | 706 | 726 | 702 | -14.8 |
| Spain | 17 930 | 21 268 | 17 836 | 17 548 | 18 278 | 1.9 |
| Sweden | 5 759 | 5 701 | 4 807 | 4 569 | 4 870 | -15.4 |
| Switzerland | 2 831 | 2 626 | 2 449 | 2 362 | 2 394 | -15.4 |
| Turkey ^d | 24 661 | 24 808 | 29 426 | 37 068 | 38 535 | 56.3 |
| Ukraine ^a | 50 093 | 22 173 | 25 747 | 34 031 | 32 730 | -34.7 |
| United Kingdom | 46 128 | 26 554 | 19 913 | 18 912 | 19 271 | -58.2 |
| United States | 370 308 | 376 997 | 382 929 | 364 486 | 360 516 | -2.6 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 37 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 0 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 6 |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 12

1990、2000、2010、2016 和 2017 年氧化亚氮的人为排放总量(包括土地利用、土地利用变化与林业的排放量/清除量)

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|---------|---------|---------|---------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 19 866 | 23 251 | 24 062 | 23 005 | 24 777 | 24.7 |
| Austria | 4 473 | 4 456 | 3 500 | 3 720 | 3 644 | -18.5 |
| Belarus ^a | 16 406 | 12 290 | 13 915 | 13 933 | 14 398 | -12.2 |
| Belgium | 10 105 | 10 269 | 7 661 | 5 856 | 6 101 | -39.6 |
| Bulgaria ^{a, b} | 10 727 | 4 505 | 4 838 | 5 920 | 5 901 | -45.0 |
| Canada | 39 331 | 36 400 | 33 707 | 37 542 | 38 337 | -2.5 |
| Croatia ^a | 2 880 | 2 580 | 2 523 | 1 676 | 1 829 | -36.5 |
| Cyprus | 286 | 348 | 318 | 292 | 293 | 2.6 |
| Czechia ^a | 9 653 | 6 399 | 5 372 | 5 939 | 5 868 | -39.2 |
| Denmark | 8 015 | 7 020 | 5 260 | 5 416 | 5 501 | -31.4 |
| Estonia ^a | 1 712 | 928 | 1 065 | 1 151 | 1 183 | -30.9 |
| European Union ^c | 400 196 | 322 034 | 256 327 | 253 807 | 255 984 | -36.0 |
| Finland | 8 493 | 7 888 | 6 860 | 6 753 | 6 792 | -20.0 |
| France | 69 578 | 58 452 | 45 273 | 43 848 | 45 224 | -35.0 |
| Germany | 64 964 | 43 546 | 37 171 | 38 718 | 38 531 | -40.7 |
| Greece | 7 450 | 6 373 | 5 507 | 4 318 | 4 367 | -41.4 |
| Hungary ^{a, b} | 10 943 | 5 362 | 3 699 | 4 598 | 4 744 | -56.6 |
| Iceland | 374 | 362 | 329 | 332 | 346 | -7.4 |
| Ireland | 7 875 | 8 167 | 6 797 | 6 866 | 7 209 | -8.5 |
| Italy | 26 907 | 29 123 | 19 238 | 18 360 | 18 285 | -32.0 |
| Japan | 32 005 | 30 074 | 22 463 | 20 447 | 20 650 | -35.5 |
| Latvia ^a | 3 795 | 2 190 | 2 430 | 2 623 | 2 639 | -30.5 |
| Liechtenstein | 11 | 10 | 10 | 10 | 10 | -9.6 |
| Lithuania ^a | 5 557 | 3 974 | 3 260 | 3 247 | 3 263 | -41.3 |
| Luxembourg | 349 | 354 | 328 | 328 | 329 | -5.6 |
| Malta | 55 | 59 | 50 | 42 | 44 | -20.3 |
| Monaco | 2 | 3 | 4 | 3 | 3 | 29.9 |
| Netherlands | 18 045 | 16 213 | 8 738 | 8 582 | 8 817 | -51.1 |
| New Zealand | 7 340 | 8 591 | 8 825 | 9 219 | 9 223 | 25.7 |
| Norway | 4 344 | 4 116 | 2 806 | 2 767 | 2 723 | -37.3 |
| Poland ^{a, b} | 33 626 | 27 014 | 24 450 | 26 287 | 24 380 | -27.5 |
| Portugal | 4 432 | 4 842 | 3 774 | 3 457 | 3 680 | -17.0 |
| Romania ^{a, b} | 20 465 | 11 337 | 9 636 | 9 356 | 9 678 | -52.7 |
| Russian Federation ^a | 156 562 | 91 110 | 87 212 | 99 171 | 101 110 | -35.4 |
| Slovakia ^a | 4 577 | 2 676 | 2 503 | 2 191 | 2 085 | -54.4 |
| Slovenia ^{a, b} | 874 | 926 | 747 | 756 | 729 | -16.6 |
| Spain | 18 301 | 21 806 | 18 164 | 17 858 | 18 577 | 1.5 |
| Sweden | 7 055 | 7 018 | 6 096 | 5 798 | 6 090 | -13.7 |
| Switzerland | 2 887 | 2 674 | 2 495 | 2 411 | 2 440 | -15.5 |
| Turkey ^d | 24 711 | 24 924 | 29 468 | 37 143 | 38 609 | 56.2 |
| Ukraine ^a | 50 286 | 22 451 | 25 943 | 34 158 | 32 869 | -34.6 |
| United Kingdom | 48 380 | 28 642 | 21 483 | 20 346 | 20 679 | -57.3 |
| United States | 373 090 | 385 370 | 388 527 | 371 186 | 367 195 | -1.6 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 37 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 0 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 6 |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 13
1990、2000、2010、2016 和 2017 年含氟气体的人为排放合计总量

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|---------|---------|---------|---------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 6 252 | 3 113 | 9 037 | 12 393 | 12 632 | 102.0 |
| Austria | 1 656 | 1 387 | 1 904 | 2 082 | 2 180 | 31.6 |
| Belarus ^a | | 0.1 | 2 | 3 | 3 | |
| Belgium | 3 813 | 1 734 | 2 759 | 3 590 | 3 066 | -19.6 |
| Bulgaria ^{a, b} | 3 | 40 | 682 | 1 419 | 1 835 | - |
| Canada | 11 755 | 10 643 | 10 089 | 13 260 | 13 725 | 16.8 |
| Croatia ^a | 1 251 | 160 | 388 | 490 | 495 | -60.4 |
| Cyprus | 64 | 120 | 246 | 245 | 250 | 290.8 |
| Czechia ^a | 84 | 558 | 2 512 | 3 545 | 3 719 | 4315.1 |
| Denmark | 42 | 853 | 906 | 670 | 549 | 1195.5 |
| Estonia ^a | | 82 | 177 | 238 | 239 | |
| European Union ^c | 72 008 | 80 070 | 114 909 | 118 836 | 116 519 | 61.8 |
| Finland | 53 | 744 | 1 407 | 1 412 | 1 335 | 2432.0 |
| France | 11 840 | 12 024 | 18 877 | 20 525 | 19 956 | 68.6 |
| Germany | 13 395 | 13 278 | 14 440 | 15 612 | 15 732 | 17.5 |
| Greece | 1 376 | 5 388 | 4 603 | 6 364 | 6 310 | 358.6 |
| Hungary ^{a, b} | 377 | 578 | 1 292 | 1 775 | 1 916 | 407.9 |
| Iceland | 496 | 194 | 322 | 285 | 275 | -44.6 |
| Ireland | 35 | 968 | 1 008 | 1 191 | 1 231 | 3393.8 |
| Italy | 3 759 | 4 602 | 13 678 | 17 111 | 17 068 | 354.0 |
| Japan | 35 354 | 42 042 | 31 529 | 48 820 | 50 982 | 44.2 |
| Latvia ^a | | 15 | 173 | 251 | 245 | |
| Liechtenstein | 0.0001 | 4 | 10 | 11 | 11 | - |
| Lithuania ^a | | 23 | 264 | 737 | 719 | |
| Luxembourg | 1 | 33 | 61 | 75 | 81 | 9149.3 |
| Malta | 0.01 | 8 | 147 | 257 | 312 | - |
| Monaco | 0.2 | 4 | 5 | 7 | 8 | 3702.7 |
| Netherlands | 8 476 | 6 927 | 3 136 | 2 162 | 2 030 | -76.1 |
| New Zealand | 930 | 303 | 1 116 | 1 590 | 1 581 | 70.0 |
| Norway | 5 993 | 2 793 | 1 372 | 1 613 | 1 593 | -73.4 |
| Poland ^{a, b} | 147 | 1 566 | 7 059 | 6 822 | 6 988 | 4645.2 |
| Portugal | | 443 | 2 146 | 3 098 | 3 299 | |
| Romania ^{a, b} | 4 447 | 1 754 | 1 052 | 1 949 | 2 237 | -49.7 |
| Russian Federation ^a | 52 433 | 37 357 | 18 078 | 28 324 | 38 742 | -26.1 |
| Slovakia ^a | 315 | 133 | 642 | 686 | 755 | 139.7 |
| Slovenia ^{a, b} | 243 | 191 | 280 | 390 | 391 | 60.8 |
| Spain | 4 268 | 12 935 | 16 410 | 9 078 | 7 513 | 76.0 |
| Sweden | 677 | 1 264 | 1 387 | 1 238 | 1 222 | 80.5 |
| Switzerland | 254 | 828 | 1 498 | 1 717 | 1 740 | 586.1 |
| Turkey ^d | 625 | 730 | 3 539 | 6 294 | 8 195 | 1210.6 |
| Ukraine ^a | 236 | 132 | 780 | 913 | 1 038 | 340.1 |
| United Kingdom | 17 349 | 12 330 | 17 477 | 16 061 | 15 090 | -13.0 |
| United States | 99 668 | 148 411 | 158 104 | 166 221 | 169 137 | 69.7 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 8 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 0 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 27 |

Note: An en dash (–) signifies a percentage change exceeding 10,000 per cent.

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 14

1990、2000、2010、2016 和 2017 年土地利用、土地利用变化与林业的二氧化碳人为净排放量/清除量

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|----------|----------|----------|----------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 165 523 | 32 667 | 30 636 | -31 734 | -35 287 | -121.3 |
| Austria | -12 157 | -16 578 | -6 022 | -4 540 | -5 069 | -58.3 |
| Belarus ^a | -21 127 | -33 271 | -40 148 | -21 923 | -13 321 | -36.9 |
| Belgium | -3 325 | -1 825 | -433 | -443 | -422 | -87.3 |
| Bulgaria ^{a, b} | -12 913 | -12 661 | -10 344 | -8 851 | -8 598 | -33.4 |
| Canada | -69 546 | -43 425 | -33 446 | -26 337 | -24 607 | -64.6 |
| Croatia ^a | -6 689 | -7 166 | -7 200 | -5 640 | -4 965 | -25.8 |
| Cyprus | -251 | 59 | -490 | 60 | -535 | 112.7 |
| Czechia ^a | -5 310 | -7 963 | -5 639 | -5 218 | -2 203 | -58.5 |
| Denmark | 4 718 | 3 386 | -1 227 | 4 278 | 2 752 | -41.7 |
| Estonia ^a | -1 792 | -3 699 | -2 466 | -3 074 | -2 121 | 18.4 |
| European Union ^c | -271 631 | -324 347 | -339 892 | -312 507 | -284 341 | 4.7 |
| Finland | -18 436 | -22 382 | -25 233 | -21 541 | -23 401 | 26.9 |
| France | -26 072 | -21 402 | -43 621 | -37 539 | -35 919 | 37.8 |
| Germany | -33 018 | -39 633 | -18 045 | -15 634 | -16 914 | -48.8 |
| Greece | -2 177 | -2 176 | -3 077 | -3 522 | -3 243 | 49.0 |
| Hungary ^{a, b} | -1 804 | -503 | -4 078 | -4 363 | -5 515 | 205.8 |
| Iceland | 5 635 | 5 629 | 5 759 | 5 642 | 5 618 | -0.3 |
| Ireland | 4 162 | 5 028 | 4 249 | 2 989 | 4 902 | 17.8 |
| Italy | -5 590 | -17 841 | -35 443 | -37 370 | -20 349 | 264.0 |
| Japan | -62 778 | -88 185 | -70 800 | -54 772 | -57 735 | -8.0 |
| Latvia ^a | -10 906 | -9 847 | -974 | -1 442 | -2 858 | -73.8 |
| Liechtenstein | 7 | 24 | 20 | 9 | 10 | 52.5 |
| Lithuania ^a | -5 197 | -8 699 | -9 150 | -6 210 | -5 485 | 5.6 |
| Luxembourg | 103 | -693 | -105 | -464 | -355 | -444.2 |
| Malta | 3 | 3 | 2 | 3 | 4 | 23.1 |
| Monaco | -0.01 | -0.05 | -0.06 | -0.02 | -0.01 | 45.1 |
| Netherlands | 6 486 | 6 010 | 5 465 | 5 484 | 5 504 | -15.1 |
| New Zealand | -31 467 | -31 385 | -31 455 | -25 065 | -24 158 | -23.2 |
| Norway | -10 365 | -24 849 | -26 930 | -24 259 | -25 471 | 145.7 |
| Poland ^{a, b} | -19 969 | -37 360 | -34 730 | -32 581 | -37 440 | 87.5 |
| Portugal | 278 | -6 505 | -11 609 | -6 263 | 5 404 | 1844.5 |
| Romania ^{a, b} | -18 314 | -22 638 | -22 561 | -24 949 | -23 525 | 28.5 |
| Russian Federation ^a | -105 110 | -548 220 | -761 852 | -653 934 | -615 295 | 485.4 |
| Slovakia ^a | -9 807 | -9 973 | -6 196 | -6 777 | -6 642 | -32.3 |
| Slovenia ^{a, b} | -4 902 | -4 288 | -6 435 | -2 435 | -1 553 | -68.3 |
| Spain | -36 560 | -40 354 | -37 835 | -38 701 | -38 791 | 6.1 |
| Sweden | -36 163 | -38 388 | -45 686 | -46 205 | -45 382 | 25.5 |
| Switzerland | -2 571 | 5 507 | -2 678 | -2 180 | -1 658 | -35.5 |
| Turkey ^d | -55 891 | -61 832 | -73 557 | -96 065 | -100 039 | 79.0 |
| Ukraine ^a | -59 523 | -45 949 | -29 579 | -1 971 | -10 522 | -82.3 |
| United Kingdom | -2 012 | -5 992 | -10 715 | -11 266 | -11 330 | 463.1 |
| United States | -814 784 | -787 285 | -681 951 | -738 074 | -729 563 | -10.5 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 20 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 1 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 22 |

^a EIT Party.^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 15
1990、2000、2010、2016 和 2017 年土地利用、土地利用变化与林业的甲烷人为排放量

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|--------|--------|--------|--------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 14 757 | 14 167 | 13 293 | 11 560 | 11 930 | -19.2 |
| Austria | 24 | 24 | 24 | 24 | 24 | -1.6 |
| Belarus ^a | 8 | 9 | 5 | 5 | 5 | -40.0 |
| Belgium | 1 | 0.002 | | | | |
| Bulgaria ^{a, b} | 1 | 135 | 15 | 15 | 11 | 889.0 |
| Canada | 869 | 1 011 | 700 | 616 | 585 | -32.7 |
| Croatia ^a | 1 | 97 | 2 | 9 | 69 | 5526.8 |
| Cyprus | 0.05 | 7 | 1 | 12 | 0.4 | 622.0 |
| Czechia ^a | 44 | 41 | 57 | 33 | 38 | -13.7 |
| Denmark | 193 | 188 | 185 | 194 | 192 | -0.8 |
| Estonia ^a | 60 | 61 | 61 | 62 | 62 | 3.3 |
| European Union ^c | 7 425 | 7 824 | 5 760 | 5 793 | 8 015 | 7.9 |
| Finland | 1 534 | 1 348 | 978 | 921 | 920 | -40.0 |
| France | 1 018 | 1 772 | 1 214 | 1 193 | 1 216 | 19.5 |
| Germany | 876 | 871 | 868 | 865 | 865 | -1.2 |
| Greece | 63 | 208 | 16 | 32 | 19 | -70.4 |
| Hungary ^{a, b} | 25 | 26 | 9 | 9 | 19 | -23.8 |
| Iceland | 3 720 | 3 703 | 3 653 | 3 642 | 3 641 | -2.1 |
| Ireland | 461 | 429 | 626 | 381 | 637 | 38.3 |
| Italy | 1 483 | 933 | 357 | 396 | 1 481 | -0.1 |
| Japan | 85 | 80 | 72 | 67 | 89 | 4.3 |
| Latvia ^a | 499 | 505 | 445 | 520 | 533 | 6.9 |
| Liechtenstein | | | | | | |
| Lithuania ^a | 3 | 4 | 1 | 1 | 0.3 | -89.8 |
| Luxembourg | | | | | | |
| Malta | | | | | | |
| Monaco | | | | | | |
| Netherlands | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 32.0 |
| New Zealand | 98 | 84 | 101 | 106 | 93 | -5.1 |
| Norway | 145 | 150 | 152 | 152 | 151 | 4.1 |
| Poland ^{a, b} | 44 | 33 | 32 | 42 | 38 | -15.0 |
| Portugal | 300 | 334 | 295 | 450 | 1 259 | 319.1 |
| Romania ^{a, b} | 0.09 | 3 | 0.2 | 1 | 2 | 2185.8 |
| Russian Federation ^a | 21 190 | 20 285 | 22 745 | 22 804 | 22 911 | 8.1 |
| Slovakia ^a | 10 | 25 | 18 | 19 | 21 | 110.2 |
| Slovenia ^{a, b} | 1 | 0.5 | 0.3 | 1 | 1 | -24.0 |
| Spain | 314 | 292 | 88 | 162 | 164 | -47.8 |
| Sweden | 472 | 475 | 450 | 438 | 434 | -7.9 |
| Switzerland | 30 | 15 | 13 | 16 | 14 | -53.2 |
| Turkey ^d | 76 | 160 | 23 | 60 | 58 | -24.3 |
| Ukraine ^a | 38 | 16 | 38 | 12 | 29 | -24.1 |
| United Kingdom | 16 | 29 | 35 | 33 | 28 | 77.9 |
| United States | 4 987 | 11 474 | 6 995 | 8 759 | 8 788 | 76.2 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 19 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 2 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 17 |

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 16

1990、2000、2010、2016 和 2017 年土地利用、土地利用变化与林业的氧化亚氮人为排放量

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|--------|--------|--------|--------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | 4 308 | 4 301 | 4 750 | 3 832 | 3 925 | -8.9 |
| Austria | 144 | 136 | 135 | 137 | 139 | -3.6 |
| Belarus ^a | 14 | 19 | 16 | 16 | 15 | 11.6 |
| Belgium | 11 | 50 | 102 | 157 | 163 | 1376.0 |
| Bulgaria ^{a, b} | 221 | 338 | 501 | 561 | 555 | 150.9 |
| Canada | 435 | 509 | 339 | 309 | 300 | -31.2 |
| Croatia ^a | 33 | 102 | 82 | 87 | 130 | 295.7 |
| Cyprus | 0.02 | 3 | 0.4 | 4 | 0.1 | 622.0 |
| Czechia ^a | 40 | 34 | 43 | 27 | 30 | -23.9 |
| Denmark | 27 | 27 | 26 | 32 | 28 | 3.7 |
| Estonia ^a | 243 | 246 | 261 | 267 | 267 | 9.8 |
| European Union ^c | 19 230 | 19 521 | 19 192 | 20 875 | 18 251 | -5.1 |
| Finland | 2 131 | 2 149 | 2 106 | 2 095 | 2 104 | -1.3 |
| France | 3 218 | 3 171 | 3 138 | 3 089 | 3 095 | -3.8 |
| Germany | 830 | 801 | 809 | 860 | 864 | 4.1 |
| Greece | 6 | 27 | 17 | 17 | 16 | 143.4 |
| Hungary ^{a, b} | 22 | 70 | 56 | 52 | 57 | 157.3 |
| Iceland | 52 | 55 | 60 | 61 | 62 | 20.0 |
| Ireland | 145 | 203 | 446 | 396 | 458 | 215.1 |
| Italy | 823 | 679 | 413 | 416 | 489 | -40.6 |
| Japan | 218 | 198 | 181 | 185 | 189 | -13.4 |
| Latvia ^a | 578 | 591 | 607 | 616 | 618 | 6.9 |
| Liechtenstein | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 34.0 |
| Lithuania ^a | 132 | 134 | 165 | 177 | 189 | 43.2 |
| Luxembourg | 21 | 21 | 17 | 12 | 12 | -46.0 |
| Malta | | | | | | |
| Monaco | 0.01 | 0.01 | 0.009 | 0.01 | 0.01 | -8.3 |
| Netherlands | 6 | 61 | 104 | 94 | 96 | 1581.0 |
| New Zealand | 207 | 236 | 194 | 128 | 107 | -48.4 |
| Norway | 251 | 290 | 320 | 329 | 329 | 30.8 |
| Poland ^{a, b} | 4 222 | 4 431 | 4 678 | 6 495 | 3 556 | -15.8 |
| Portugal | 577 | 493 | 404 | 419 | 568 | -1.5 |
| Romania ^{a, b} | 1 241 | 1 723 | 1 843 | 1 843 | 1 843 | 48.6 |
| Russian Federation ^a | 10 518 | 15 466 | 12 052 | 14 557 | 14 681 | 39.6 |
| Slovakia ^a | 97 | 55 | 30 | 35 | 37 | -61.9 |
| Slovenia ^{a, b} | 51 | 49 | 41 | 30 | 28 | -45.9 |
| Spain | 371 | 538 | 328 | 310 | 299 | -19.4 |
| Sweden | 1 296 | 1 317 | 1 289 | 1 229 | 1 220 | -5.9 |
| Switzerland | 57 | 47 | 46 | 49 | 46 | -18.0 |
| Turkey ^d | 50 | 116 | 42 | 75 | 74 | 47.0 |
| Ukraine ^a | 193 | 278 | 196 | 127 | 139 | -28.2 |
| United Kingdom | 2 252 | 2 088 | 1 570 | 1 434 | 1 409 | -37.4 |
| United States | 2 783 | 8 373 | 5 598 | 6 701 | 6 679 | 140.0 |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | 21 |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | 0 |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | 21 |

^a EIT Party.^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.

表 17
1990、2000、2010、2016 和 2017 年二氧化碳的间接排放量

| Party | kt CO ₂ eq | | | | | Change from 1990 to 2017 (%) |
|--|-----------------------|-------|-------|-------|-------|---------------------------------|
| | 1990 | 2000 | 2010 | 2016 | 2017 | |
| Australia | | | | | | |
| Austria | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | -3.4 |
| Belarus ^a | | | | | | |
| Belgium | | | | | | |
| Bulgaria ^{a, b} | | | | | | |
| Canada | 805 | 967 | 634 | 564 | 546 | -32.2 |
| Croatia ^a | | | | | | |
| Cyprus | | | | | | |
| Czechia ^a | 1 849 | 1 161 | 968 | 752 | 708 | -61.7 |
| Denmark | 1 129 | 824 | 470 | 285 | 281 | -75.1 |
| Estonia ^a | | | | | | |
| European Union ^c | 4 218 | 2 873 | 2 180 | 1 716 | 1 705 | -59.6 |
| Finland | 167 | 109 | 68 | 54 | 53 | -68.2 |
| France | | | | | | |
| Germany | | | | | | |
| Greece | | | | | | |
| Hungary ^{a, b} | | | | | | |
| Iceland | | | | | | |
| Ireland | | | | | | |
| Italy | | | | | | |
| Japan | 5 474 | 4 220 | 2 406 | 2 103 | 2 118 | -61.3 |
| Latvia ^a | 40 | 25 | 16 | 18 | 19 | -52.5 |
| Liechtenstein | | | | | | |
| Lithuania ^a | | | | | | |
| Luxembourg | | | | | | |
| Malta | | | | | | |
| Monaco | | | | | | |
| Netherlands | 917 | 532 | 458 | 451 | 453 | -50.6 |
| New Zealand | | | | | | |
| Norway | | | | | | |
| Poland ^{a, b} | | | | | | |
| Portugal | 115 | 222 | 199 | 156 | 190 | 65.3 |
| Romania ^{a, b} | | | | | | |
| Russian Federation ^a | | | | | | |
| Slovakia ^a | | | | | | |
| Slovenia ^{a, b} | | | | | | |
| Spain | | | | | | |
| Sweden | | | | | | |
| Switzerland | 403 | 179 | 109 | 95 | 96 | -76.3 |
| Turkey ^d | | | | | | |
| Ukraine ^a | | | | | | |
| United Kingdom | | | | | | |
| United States | | | | | | |
| <i>Number of Parties showing a decrease in emissions by more than 1%:</i> | | | | | | <i>10</i> |
| <i>Number of Parties showing a change in emissions within 1%:</i> | | | | | | <i>0</i> |
| <i>Number of Parties showing an increase in emissions by more than 1%:</i> | | | | | | <i>1</i> |

Note: In accordance with decision 24/CP.19, Annex I Parties may report indirect CO₂ from the atmospheric oxidation of CH₄, carbon monoxide and non-methane volatile organic compounds. Eleven Parties voluntarily reported indirect CO₂ emissions in their 2019 inventory submissions.

^a EIT Party.

^b Data for the base year defined by decisions 9/CP.2 and 11/CP.4 (Bulgaria (1988), Hungary (average of 1985–1987), Poland (1988), Romania (1989) and Slovenia (1986)) are used for this Party instead of 1990 data.

^c Emission estimates of the European Union are as reported for its 28 member States as a group and are reported separately from those of each individual member State.

^d Decision 26/CP.7 invited Parties to recognize the special circumstances of Turkey, which place it in a situation different from that of other Annex I Parties.