INTERGOVERNMENTAL PANEL ON climate change

Our ref.: 5290-14/IPCC/AR5

Annex(es): 2

To designated IPCC Focal Points and
Ministries of Foreign Affairs (MFAs)
(if no focal point has been designated)

COPY

Geneva, 15 September 2014

Sir/Madam,

I wish to bring to your attention a new set of errors found in the Summary for Policymakers (SPM) of the Working Group III (WGIII) Contribution to the IPCC Fifth Assessment Report, *Climate Change 2014: Mitigation of Climate Change.* These were discovered after approval and acceptance at the 12th Session of Working Group III and the 39th Session of the IPCC in Berlin, April 2014.

The errors, which require correction, are listed in **Annex 1** to this letter. A document listing typographical errors is attached for your information as **Annex 2.**

Appendix A to the Principles Governing IPCC Work, ANNEX 3 - *IPCC Protocol for addressing possible errors in the IPCC Assessment reports, Synthesis Reports, Special Reports and Methodology Reports* (referred to below as "Error Protocol"), lays down the procedures to address alleged errors in the SPM of a Working Group Contribution (see Error Protocol Section 2, Step 5A). If Co-chairs and relevant Coordinating Lead Authors (CLAs) agree that there is an error, they construct an error statement and submit to the WG Bureau for approval. The Co-Chairs of WGIII have informed us that this step has been concluded.

The Error Protocol further stipulates: "*Following WG or TF Bureau approval, the proposed erratum is submitted to the Panel for approval. To allow for rapid response, the Panel may delegate this approval step to the Executive Committee, which can decide that the erratum be posted on the IPCC and WG or TF websites, or can decide to defer to the next session of the IPCC Bureau or of the Panel."*

The immediate correction of the errors described in Annex 1 would be highly desirable in order for the revised SPM to be ready for reprint and distribution in time for the IPCC 40th Plenary Session in Copenhagen and to have a fully corrected print version of the Working Group 3 Report ready for the Twentieth Session of the Conference of the Parties (COP 20) in Lima. Consistent with the Error Protocol, we suggest using the option foreseen for rapid response and in particular to submit the corrigendum, as constructed by the WGIII Co-Chairs and CLAs and approved by the WGIII Bureau, to the IPCC Executive Committee for approval.

The SPM in its final form including copyedits and the correction of these errors would be made available for download from the WGIII and IPCC web sites together with a notice in the form of an erratum stating that the errors have been corrected.

I sincerely hope that you agree with the proposed way forward, which will enable us to distribute a fully accurate version of the WGIII SPM. Unless we hear any objections by **Monday 22 September 2014**, **10:00 a.m**. CET Geneva time, we will proceed as suggested.

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WMO UNEP

A copy of this letter is being sent for information to the Ministry of Foreign Affairs and to the Permanent Representatives from your country to the World Meteorological Organization (WMO) and to the United Nations Environment Programme (UNEP).

Yours sincerely,

Carlos Martin-Novella
Deputy-Secretary of the IPCC

Potential errata in the WGIII SPM

Page 9, last paragraph, line 4, and Page 12, Table SPM.1, footnote 2: The text erroneously refers to the median as a range. Instead it is a range based on the median transient climate response estimate. This is corrected in both instances.

Current text, page 9: Baseline scenarios, those without additional mitigation, result in global mean surface temperature increases in 2100 from 3.7 to 4.8°C compared to pre-industrial levels (median values; the range is 2.5°C to 7.8°C when including climate uncertainty, see Table SPM.1).

Suggested correction, page 9: Baseline scenarios, those without additional mitigation, result in global mean surface temperature increases in 2100 from 3.7 to 4.8°C compared to pre-industrial levels (range based on median transient climate response; the range is 2.5°C to 7.8°C when including climate uncertainty, see Table SPM.1).

Current footnote 2, page 12: Together with the baseline scenarios in the >1000 ppm CO_2eq category, this leads to an overall 2100 temperature range of 2.5–7.8°C (median: 3.7–4.8°C) for baseline scenarios across both concentration categories.

Suggested correction, footnote 2, page 12: Together with the baseline scenarios in the >1000 ppm CO_2eq category, this leads to an overall 2100 temperature range of 2.5–7.8°C (range based on median transient climate response: 3.7–4.8°C) for baseline scenarios across both concentration categories.

Page 12, Table SPM.1

Footnote 5: The current footnote wrongly refers to GHG concentrations instead of CO_2eq concentrations. In the rest of the table and the table footnotes, all entries refer to CO_2eq concentrations as aerosols etc. are included.

Current footnote: To evaluate the GHG concentration and climate implications of these scenarios, the MAGICC model was used in a probabilistic mode (see Annex II).

Suggested correction: To evaluate the CO_2eq concentration and climate implications of these scenarios, the MAGICC model was used in a probabilistic mode (see Annex II).

Footnote 12: The last sentence of footnote 12 erroneously refers to exceedance probabilities, while Table SPM.1 shows probabilities of keeping warming below certain temperature thresholds during the 21st century. Replace “exceed” and “exceeding” by “stay below” and “staying below” respectively.

Current footnote: The latter type of scenarios, in general, have an assessed probability of more unlikely than likely to exceed the 2 °C temperature level, while the former are mostly assessed to have an unlikely probability of exceeding this level.

Suggested correction: The latter type of scenarios, in general, have an assessed probability of more unlikely than likely to stay below the 2 °C temperature level, while the former are mostly assessed to have an unlikely probability of staying below this level.

Page 13, 2nd paragraph, last sentence, lines 8-9: The last sentence unintentionally and erroneously uses uncertainty language and does so in an incomplete way (only qualification of degree of evidence, but not agreement). Suggest to replace “only limited evidence on” by “uncertainty about”.

Current sentence: There is only limited evidence on the potential for large-scale deployment of BECCS, large-scale afforestation, and other CDR technologies and methods.

Suggested correction: There is uncertainty about the potential for large-scale deployment of BECCS, large-scale afforestation, and other CDR technologies and methods.

Page 13, footnote 16: This footnote erroneously refers to "net negative emission technologies". However, there are only "negative emission technologies", which are referred to as carbon dioxide removal technologies in the context of this report. Suggest to replace "net negative emission technologies" by "Carbon Dioxide Removal (CDR) technologies"; consequently, a small editorial correction is made in the subsequent sentence.

Current footnote: In addition, a large proportion of the new scenarios include net negative emissions technologies (see below). Other factors include the use of 2100 concentration levels instead of stabilization levels and the shift in reference year from 2000 to 2010. Scenarios with higher emissions in 2050 are characterized by a greater reliance on Carbon Dioxide Removal (CDR) technologies beyond mid-century.

Suggested correction: In addition, a large proportion of the new scenarios include Carbon Dioxide Removal (CDR) technologies (see below). Other factors include the use of 2100 concentration levels instead of stabilization levels and the shift in reference year from 2000 to 2010. Scenarios with higher emissions in 2050 are characterized by a greater reliance on CDR technologies beyond mid-century.

Page 14, 1st paragraph, lines 1-2: There are two problems with the referencing in this sentence. 1) Figure SPM.4 (top panel) does not support any statement on the role of CDR technologies in the context of scenarios with delay in mitigation (2030 emission levels >55$GtCO_2eq$). The reference to Figure SPM.4 therefore should be deleted. 2) Incomplete reference to Table SPM.2. Only parts of Table SPM.2 relate to scenarios with delayed mitigation. Therefore "orange segment" should be added to the reference.

Current sentence: […]; a larger reliance on CDR technologies in the long-term (Figure SPM.4, top panel); and higher transitional and long-term economic impacts (Table SPM.2).

Suggested correction: […]; a larger reliance on CDR technologies in the long-term; and higher transitional and long-term economic impacts (Table SPM.2, orange segment).

Page 17, 1st paragraph, last sentence, lines 4-6: The sentence is erroneous. Studies themselves are not consistent. Scenarios within the studies are consistent with this goal.

Current sentence: The limited number of published studies consistent with this goal produces scenarios that are characterized by (1) immediate mitigation action; (2) the rapid upscaling of the full portfolio of mitigation technologies; and (3) development along a low-energy demand trajectory.

Suggested correction: Scenarios associated with the limited number of published studies exploring this goal are characterized by (1) immediate mitigation action; (2) the rapid upscaling of the full portfolio of mitigation technologies; and (3) development along a low-energy demand trajectory.

Page 17, footnote 20: The carbon budgets were calculated during the plenary given a request by the delegates. Note that these scenarios are not part of the AR5 database, but from a limited set of studies that explored low GHG concentrations below 430 ppm). Only limited information was available during the approval process for these calculations. Considering full information from the studies cited in the report, the budget numbers adjust slightly. Note that the statistics for the emissions reductions in $GtCO_2eq$ were not affected.

Current footnote: In these scenarios, the cumulative CO_2 emissions range between 655 and 815 $GtCO_2$ for the period 2011–2050 and between 90 and 350 $GtCO_2$ for the period 2011–2100.

Suggested correction: In these scenarios, the cumulative CO_2 emissions range between 680 and 800 $GtCO_2$ for the period 2011-2050 and between 90 and 310 $GtCO_2$ for the period 2011-2100.

Page 25, Footnote 26: This footnote says that in many models carbon price is used as a proxy for the level of effort in mitigation policies. The second half of the sentence talks about this "subset" of models that use this proxy. The word "often" is erroneous and is suggested for deletion.

Current footnote: In many models that are used to assess the economic costs of mitigation, carbon price is often used as a proxy to represent the level of effort in mitigation policies (see WGIII AR5 Glossary).

Suggested correction: In many models that are used to assess the economic costs of mitigation, carbon price is used as a proxy to represent the level of effort in mitigation policies (see WGIII AR5 Glossary).

Changes to figures and figure captions

All figures and figure captions in the SPM of WG III were approved by the Panel subject to final quality check and copy edit. The changes shown below are presented to ensure complete transparency of the process.

Page 9, Figure SPM.3 and caption: All data contained in this figure are correct, but the x-axis and y-axis labels are modified as described below. To be consistent with the correction of the y-axis label, the figure caption is suggested to be adjusted accordingly. Figure and caption with suggested modifications are shown below:

The time reference on the x-axis leaves out the changes between year "0" and "1" of the four decades considered (1970-2010). Note that this figure shows results from a decomposition analysis, which refers to changes between start and end year.

Current x-axis label: "1971-1980, 1981-1990, 1991-2000, 2001-2010"

Suggested x-axis label: "1970-1980, 1980-1990, 1990-2000, 2000-2010"

The y-axis label identifies decadal changes in emissions and lacks a time reference in the unit description (in $GtCO_2$), whilst the figure reports the changes in levels of annual CO_2 emissions during the decade (in $GtCO_2$/yr).

Current y-axis label: "Decadal Change in Emissions [$GtCO_2$]"

Suggested y-axis label: "Change in Annual CO_2 Emissions by Decade [$GtCO_2$/yr]"

Current caption: Decomposition of the decadal change in total global CO_2 emissions from fossil fuel combustion by four driving factors; population, income (GDP) per capita, energy intensity of GDP and carbon intensity of energy.[…] Total decadal changes are indicated by a triangle. Changes are measured in gigatonnes (Gt) of CO_2 emissions per decade; income is converted into common units using purchasing power parities.

Suggested caption: Decomposition of the change in total annual CO_2 emissions from fossil fuel combustion by decade and four driving factors; population, income (GDP) per capita, energy intensity of GDP and carbon intensity of energy. […] Total emission changes are indicated by a triangle. The change in emissions over each decade is measured in gigatonnes of CO_2 per year [$GtCO_2$/yr]; income is converted into common units using purchasing power parities.

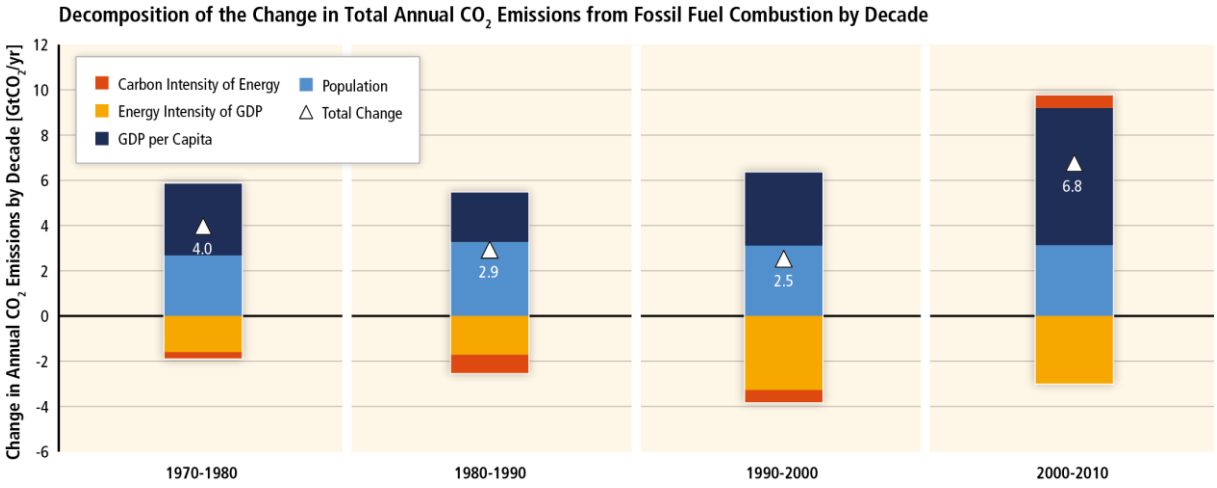
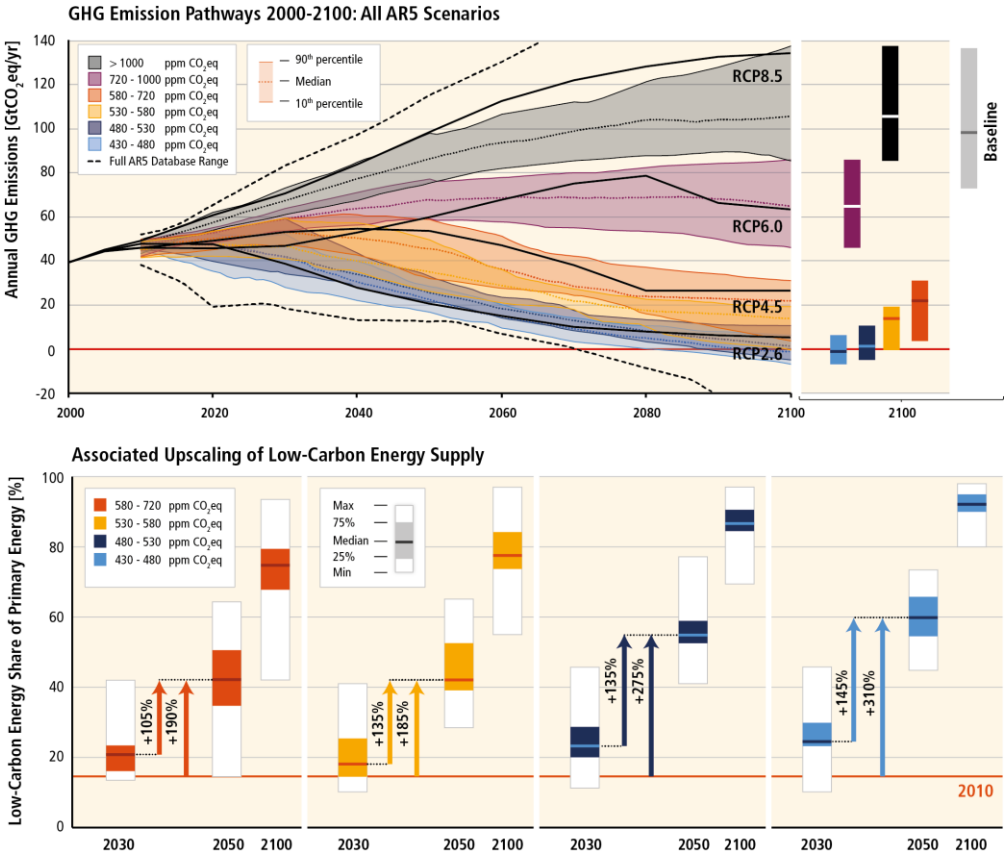


Figure SPM.3 Decomposition of the change in total annual CO_2 emissions from fossil fuel combustion by decade and four driving factors; population, income (GDP) per capita, energy intensity of GDP and carbon intensity of energy. The bar segments show the changes associated with each factor alone, holding the respective other factors constant. Total emission changes are indicated by a triangle. The change in emissions over each decade is measured in gigatonnes of CO_2 per year [$GtCO_2$/yr]; income is converted into common units using purchasing power parities. [Figure 1.7]

<u>Page 11, Figure SPM.4, top panel:</u> The RCP emission pathways erroneously exclude fluorinated gases in the current version of the figure and therefore do not represent all GHG emissions (Kyoto basket). The suggested correction adds f-gases to the four RCP lines in Figure SPM.4 (upper panel). The addition leads to a minor adjustment of the four RCP lines in the figure. The ranges for the different CO_2eq concentration scenario categories are not affected. The updated figure is included below.



Page 14, caption Figure SPM.5

Lines 1-2: The first sentence erroneously implies that the middle and right panels of Figure SPM.5 refer to the period 2030-2050. While this is true for the middle panel, the right panel refers to the period 2030-2100. Also, the word "about" needs to be added before "500" to make clear that this refers to a broader concentration class (i.e. 480-530 ppm CO_2eq and not a single concentration level).

Current sentence: The implications of different 2030 GHG emissions levels (left panel) for the rate of CO_2 emissions reductions (middle panel) and low-carbon energy upscaling from 2030 to 2050 (right panel) in mitigation scenarios reaching about 450 to 500 (430 – 530) ppm CO_2eq concentrations by 2100.

Suggested correction: The implications of different 2030 GHG emissions levels (left panel) for the rate of CO_2 emissions reductions from 2030 to 2050 (middle panel) and low-carbon energy upscaling from 2030 to 2050 and 2100 (right panel) in mitigation scenarios reaching about 450 to about 500 (430 – 530) ppm CO_2eq concentrations by 2100.

Line 6: This sentence erroneously states that the grey bar of the figure shows the average annual emission growth over 20 year periods since 1900. However, this is not the case for 2000-2010 where annual average emissions over a decade are shown.

Current sentence: Annual rates of historical emissions change (sustained over a period of 20 years) are shown in grey.

Suggested correction: Annual rates of historical emissions change between 1900-2010 (sustained over a period of 20 years) and the average annual emissions change between 2000-2010 are shown in grey.

Typographical errors

This document is divided into three parts. The first part outlines a mixed set of typographical errors that has been identified. The second part outlines a batch of typographical errors that relates to the referencing of atmospheric CO_2eq concentration categories. The third part provides an overview of corrections of typographical errors in figures and figure captions that were undertaken as part of the final quality check and copy edit.

Part 1: General typographical errors

Page 6, footnote 6: Correction of reference in bracketed term at the end as Arabic 2 was wrongly included. Replace "Annex II.2.9" by „Annex II.9".

Current footnote: All metrics have limitations and uncertainties in assessing consequences of different emissions. [3.9.6, Box TS.5, Annex II.2.9, WGI SPM]

Suggested correction: All metrics have limitations and uncertainties in assessing consequences of different emissions. [3.9.6, Box TS.5, Annex II. 9, WGI SPM]

Page 7, last paragraph, lines 1-3: Figure reference was erroneously not removed after the relevant figure had been excluded from the SPM during the approval process. Delete reference "(Figure SPM.2)" as no Figure in the approved SPM supports this particular finding.

Current sentence: In 1970, cumulative CO_2 emissions from fossil fuel combustion, cement production and flaring since 1750 were 420 ± 35 $GtCO_2$; in 2010, that cumulative total had tripled to 1300 ± 110 $GtCO_2$ (Figure SPM.2).

Suggested correction: In 1970, cumulative CO_2 emissions from fossil fuel combustion, cement production and flaring since 1750 were 420 ± 35 $GtCO_2$; in 2010, that cumulative total had tripled to 1300 ± 110 $GtCO_2$.

Page 12, Table SPM.1

Column 1, first row: The current entry misses the unit "ppm" in the brackets.

Current entry: CO_2eq Concentrations in 2100 (CO_2eq)

Suggested correction: CO_2eq Concentrations in 2100 [ppm CO_2eq]

Column 9, last two rows: The two cells should not be separated. This error was introduced during the typesetting of the document. The approved SPM was correct.

Column 10, last row: The uncertainty qualifier "*unlikely*" points towards footnote 26 instead of 11. This error was introduced during the typesetting process. The approved version was correct. The table entry will read *"Unlikely*[11]*".*

Footnote 1: The footnote erroneously refers to the range of the 10-90th percentile instead of the 10th-90th percentile.

Current footnote: The 'total range' for the 430 – 480 ppm CO_2eq scenarios corresponds to the range of the 10 – 90th percentile of the subcategory of these scenarios shown in table 6.3.

Suggested correction: The 'total range' for the 430 – 480 ppm CO_2eq scenarios corresponds to the range of the 10th – 90th percentile of the subcategory of these scenarios shown in table 6.3.

Footnote 6: The footnote erroneously refers to the 90th percentile instead of 90 percent range (5th to 95th percentile).

Current footnote: The assumed 90th percentile uncertainty range of the TCR for MAGICC is 1.2 – 2.6°C (median 1.8°C).This compares to the 90th percentile range of TCR between 1.2–2.4°C for CMIP5 (WGI 9.7) and an assessed likely range of 1–2.5°C from multiple lines of evidence reported in the IPCC AR5 WGI report (Box 12.2 in chapter 12.5).

Suggested correction: The assumed 90% range of the TCR for MAGICC is 1.2 – 2.6°C (median 1.8°C). This compares to the 90% range of TCR between 1.2–2.4°C for CMIP5 (WGI 9.7) and an assessed likely range of 1–2.5°C from multiple lines of evidence reported in the IPCC AR5 WGI report (Box 12.2 in chapter 12.5).

Footnote 9: The footnote erroneously implies that aerosols and albedo change are GHGs.

Current footnote: The CO_2-equivalent concentration includes the forcing of all GHGs including halogenated gases and tropospheric ozone, aerosols and albedo change (calculated on the basis of the total forcing from a simple carbon cycle / climate model MAGICC).

Suggested correction: The CO_2-equivalent concentration includes the forcing of all GHGs including halogenated gases and tropospheric ozone, as well as aerosols and albedo change (calculated on the basis of the total forcing from a simple carbon cycle / climate model MAGICC).

Page 13, 3rd paragraph, lines 1-4: This sentence contains two typographical errors. 1) Incomplete likelihood statement. "At least *as likely as not*" should read "at least *about as likely as not*". 2) The two neighboring atmospheric CO_2eq concentration categories describe a range, which is not expressed by the language. Suggest to replace "and about 500ppm" by "to about 500ppm" (see Part 2 of this document).

Current sentence: Estimated global GHG emissions levels in 2020 based on the Cancún Pledges are not consistent with cost-effective long-term mitigation trajectories that are at least *as likely as not* to limit temperature change to 2 °C relative to pre-industrial levels (2100 concentrations of about 450 and about 500 ppm CO_2eq), but they do not preclude the option to meet that goal (high confidence).

Suggested correction: Estimated global GHG emissions levels in 2020 based on the Cancún Pledges are not consistent with cost-effective long-term mitigation trajectories that are at least *about as likely as not* to limit temperature change to 2 °C relative to pre-industrial levels (2100 concentrations of about 450 to about 500 ppm CO_2eq), but they do not preclude the option to meet that goal (high confidence).

Page 13, last paragraph, lines 4-6: This sentence contains two typographical errors. The first typographical error refers to an incomplete likelihood statement. "At least *as likely as not*" should read "at least *about as likely as not*". The second typographical error refers to atmospheric concentrations in 2100 "between about 450 and 500ppm CO_2eq". As there is no concentration category "between 450 and 500" as can be seen in Table SPM.1, the word "between" should be changed to "of" and the word "and" to "to about" (see Part 2 of this document).

Current sentence: Cost-effective mitigation scenarios that make it at least *as likely as not* that temperature change will remain below 2 °C relative to pre-industrial levels (2100 concentrations between about 450 and 500 ppm CO_2eq) are typically characterized by annual GHG emissions in 2030 of roughly between 30 $GtCO_2$eq and 50 $GtCO_2$eq (Figure SPM.5, left panel).

Suggested correction: Cost-effective mitigation scenarios that make it at least *about as likely as not* that temperature change will remain below 2 °C relative to pre-industrial levels (2100 concentrations

of about 450 to about 500 ppm CO_2eq) are typically characterized by annual GHG emissions in 2030 of roughly between 30 $GtCO_2$eq and 50 $GtCO_2$eq (Figure SPM.5, left panel).

Page 14, 1st paragraph, lines 2-4: Incomplete likelihood statement. "At least *as likely as not*" should read "at least *about as likely as not*".

Current sentence: Due to these increased mitigation challenges, many models with annual 2030 GHG emissions higher than 55 $GtCO_2$eq could not produce scenarios reaching atmospheric concentration levels that make it *as likely as not* that temperature change will remain below 2 °C relative to pre-industrial levels.

Suggested correction: Due to these increased mitigation challenges, many models with annual 2030 GHG emissions higher than 55 $GtCO_2$eq could not produce scenarios reaching atmospheric concentration levels that make it *about as likely as not* that temperature change will remain below 2 °C relative to pre-industrial levels.

Page 16, Caption Table SPM.2, lines 6-7: The bracketed term with concentration levels misses the unit "ppm" in one instance.

Current sentence: These scenarios with delayed additional mitigation are grouped by emission levels of less or more than 55 $GtCO_2$eq in 2030, and two concentration ranges in 2100 (430 – 530 ppm CO_2eq and 530 – 650 CO_2eq).

Suggested correction: These scenarios with delayed additional mitigation are grouped by emission levels of less or more than 55 $GtCO_2$eq in 2030, and two concentration ranges in 2100 (430 – 530 ppm CO_2eq and 530 – 650 ppm CO_2eq).

Part 2: Typographical errors related to referencing of atmospheric CO_2eq concentration categories

In WGIII AR5 scenarios are grouped together according to their atmospheric CO_2eq concentration levels in 2100. These categories are outlined in Table SPM.1.

A) One set of typographical errors in referencing to these categories is related to using the short-hands 450 (for 430-480 category), 500 (480-530) and 550 (530-580). When these are used in text without the entire range, the word "about" or "around" was omitted erroneously suggesting the reference to a single concentration level rather than a broader class. All suggestion corrections below therefore suggest to add the word "about" where this is the case.

Page 10, Footnote 15:

Current footnote: Mitigation scenarios, including those reaching 2100 concentrations as high as or higher than 550 ppm CO_2eq, can temporarily 'overshoot' atmospheric CO_2eq concentration levels before descending to lower levels later.

Suggested footnote correction: Mitigation scenarios, including those reaching 2100 concentrations as high as or higher than about 550 ppm CO_2eq, can temporarily 'overshoot' atmospheric CO_2eq concentration levels before descending to lower levels later.

Page 13, 1st paragraph, Lines 6-11:

Current text: In scenarios reaching 500 ppm CO_2eq by 2100, 2050 emissions levels are 25 % to 55 % lower than in 2010 globally. In scenarios reaching 550 ppm CO_2eq, emissions in 2050 are from 5 % above 2010 levels to 45 % below 2010 levels globally (Table SPM.1). At the global level, scenarios reaching 450 ppm CO_2eq are also characterized by more rapid improvements of energy efficiency, a

tripling to nearly a quadrupling of the share of zero- and low-carbon energy supply from renewables, nuclear energy and fossil energy with carbon dioxide capture and storage (CCS), or bioenergy with CCS (BECCS) by the year 2050 (Figure SPM.4, lower panel).

Suggested correction: In scenarios reaching about 500 ppm CO_2eq by 2100, 2050 emissions levels are 25 % to 55 % lower than in 2010 globally. In scenarios reaching about 550 ppm CO_2eq, emissions in 2050 are from 5 % above 2010 levels to 45 % below 2010 levels globally (Table SPM.1). At the global level, scenarios reaching about 450 ppm CO_2eq are also characterized by more rapid improvements of energy efficiency, a tripling to nearly a quadrupling of the share of zero- and low-carbon energy supply from renewables, nuclear energy and fossil energy with carbon dioxide capture and storage (CCS), or bioenergy with CCS (BECCS) by the year 2050 (Figure SPM.4, lower panel).

Page 13, 2nd paragraph, Lines 1-2:

Current text: Mitigation scenarios reaching about 450 ppm CO_2eq in 2100 typically involve temporary overshoot of atmospheric concentrations, as do many scenarios reaching about 500 ppm to 550 ppm CO_2eq in 2100.

Suggested correction: Mitigation scenarios reaching about 450 ppm CO_2eq in 2100 typically involve temporary overshoot of atmospheric concentrations, as do many scenarios reaching about 500 ppm to about 550 ppm CO_2eq in 2100.

Page 18, 2nd paragraph, lines 4-6:

Current footnote: Some studies exploring particular effort-sharing frameworks, under the assumption of a global carbon market, have estimated substantial global financial flows associated with mitigation for scenarios leading to 2100 atmospheric concentrations of about 450 to 550 ppm CO_2eq.

Suggested correction: Some studies exploring particular effort-sharing frameworks, under the assumption of a global carbon market, have estimated substantial global financial flows associated with mitigation for scenarios leading to 2100 atmospheric concentrations of about 450 to about 550 ppm CO_2eq.

B) A second set of typographical errors is related to the way how the current text refers to a range of multiple neighboring scenario categories. Very different language is used throughout the text which erroneously suggests different meanings of these references. The suggested corrections establish a consistent and correct language throughout the document.

Page 17, 2nd paragraph, lines 1-4:

Current text: Mitigation scenarios reaching about 450 or 500 ppm CO_2eq by 2100 show reduced costs for achieving air quality and energy security objectives, with significant co-benefits for human health, ecosystem impacts, and sufficiency of resources and resilience of the energy system; these scenarios did not quantify other co-benefits or adverse side-effects (medium confidence).

Suggested correction: Mitigation scenarios reaching about 450 to about 500 ppm CO_2eq by 2100 show reduced costs for achieving air quality and energy security objectives, with significant co-benefits for human health, ecosystem impacts, and sufficiency of resources and resilience of the energy system; these scenarios did not quantify other co-benefits or adverse side-effects (medium confidence).

Page 21, 1st paragraph, lines 1-3:

Current text: Efficiency enhancements and behavioural changes, in order to reduce energy demand compared to baseline scenarios without compromising development, are a key mitigation strategy in scenarios reaching atmospheric CO_2eq concentrations of about 450 or 500 ppm by 2100 (robust evidence, high agreement).

Suggested correction: Efficiency enhancements and behavioural changes, in order to reduce energy demand compared to baseline scenarios without compromising development, are a key mitigation strategy in scenarios reaching atmospheric CO_2eq concentrations of about 450 to about 500 ppm by 2100 (robust evidence, high agreement).

Part 3: Changes to figures and figure captions

All figures and figure captions in the SPM of WG III were approved by the Panel subject to final quality check and copy edit. The changes shown below are presented to ensure complete transparency of the process.

Page 17, caption Figure SPM.6, lines 1-3:

Current footnote: Baseline scenarios without additional efforts to reduce GHG emissions beyond those in place today are compared to scenarios with stringent mitigation policies, which are consistent with reaching about 450 to 500 (430– 530) ppm CO_2eq concentrations by 2100.

Suggested correction: Baseline scenarios without additional efforts to reduce GHG emissions beyond those in place today are compared to scenarios with stringent mitigation policies, which are consistent with reaching about 450 to about 500 (430– 530) ppm CO_2eq concentrations by 2100.

Page 19, caption Figure SPM.7, lines 3-4:

Current text: Note that many models cannot reach 450 ppm CO_2eq concentration by 2100 in the absence of CCS, resulting in a low number of scenarios for the right panel.

Suggested correction: Note that many models cannot reach about 450 ppm CO_2eq concentration by 2100 in the absence of CCS, resulting in a low number of scenarios for the right panel.