Dear All – below is (1) the main technical request from the reviewers we need to address, (2) the start of the proposed response to reviewer, (3) additional text in the main body of our paper and (4) the new Supplementary Information.

Anonymous Referee #1

Huntingford et al. develops simple temperature-time profiles that stabilize at 1.5 and 2.0 degrees C above preindustrial levels. In climate model comparisons of global warming, typically the greenhouse gas concentrations or emissions are held constant across models and the range of temperature responses is examined. This paper provides a first step towards a method to standardize global mean temperature progressions which could then be used to assess the range of greenhouse gas concentration or emission functions that are consistent with such global mean temperature progressions. The paper is modest in its goals but is worthy of publication.

We thank this reviewer for their time and encouragement over this manuscript.

Line 21 – Comparisons between HadCRUT4 and ESM-simulated global mean surface air temperature should probably take into account the non-global spatial extent of HadCRUT4 as well as HadCRUT4's blend of air and sea surface temperatures (Cowtan et al., 2015)

Cowtan et al (2015) "Comparison of climate models with observations using blended land air and ocean sea surface temperatures" Geophys. Res. Lett 42, 6526–6534, doi:10.1002/2015GL064888.

We use HadCRUT4 to provide an estimate of recent temperature rise ΔT_0 (°C) and rate of temperature rise β (°C yr^{-1}). This provides initial conditions to our mathematical curves. For precise policy applications, then we agree it is important to make the user aware of these issues. We now write in the manuscript: "*We note, though, that when using HadCRUT4 as our observationally-based starting point, then it is necessary to be aware of its non-global spatial extent. Additionally it is compiled with a mix of air and sea surface temperatures, as described in Cowtan et al. (2015).*"

Line 22 – What does decadally smoothed mean? A 10-year running mean or some other filter?

We have clarified this from the HadCRUT4 documentation, and now write in the manuscript: "*HadCRUT4 smoothing is with a 21 point binomial filter applied to annual values*"

Figure 1 and 2 – I would suggest limiting the x-axis maximum to the year 300 so that the differences in the curves over the 21st century can be seen more easily.

Done – the *x*-axis is now for the period up to 300 years from present day.

Technical Corrections: Line 14 – I suggest that the authors change "but may be less able soon" to "but may be less able to in the near-term"

Done

Figure 4 caption – Becom -> become

Corrected

Anonymous Referee #2

General comments: Huntingford and colleagues present a simple and transparent parametrization of temperature profiles that stabilize global mean temperature rise to a predefined level. They show how variations of two parameters can result in a wide variety of temperature pro- files, with varying lengths of temperature overshoot. The authors suggest that these profiles can be used to better compare impact studies and that these profiles can be used to drive pattern scaling approaches. While I see no flaws in the mathematical description presented by the authors, there are several statements which have a weak factual basis, or for which evidence is missing. These statements require further analysis by the authors to show that their parametrization can capture temperature profiles in both a useful and appropriate way.

> We thank this reviewer, who has helped us to generate a better version of the paper. We have clarified with more rigour the statements highlighted by Referee #2. We have also performed the suggested further analysis by comparing our mathematical forms for temperature profiles against simulations in the IPCC scenario and SSP databases. Please see our full responses below, and including a new Supplementary Information.

Specific comments:

1) The validation of the appropriateness of the parametrization of temperature profiles is insufficient for the area of applicability. The authors claim that their profiles "enable a common framework for discussion of warming profiles that stabilize to pre-defined temperature limits", but provide no evidence other than being able to reasonably well fit to RCP2.6 simulations. To show its appropriateness as a common framework, the parametrizations should not only capture the response of multiple ESMs to one concentration profile, but also capture the multitude of concentration profiles available in the literature. The authors can deal with this by showing that their parametrization can be fitted to all temperature profiles of scenarios available in the IPCC scenario database (https://tntcat.iiasa.ac.at/AR5DB/), and the more recent SSP database (https://tntcat.iiasa.ac.at/SspDb/).

> We thank the reviewer for this comment. We have undertaken the analysis as suggested, and this has created a new Supplementary Information for our paper. We have fitted our trajectory structure to all temperature profiles presented (by group and scenario) in the AR5 database, and also for the marker scenarios in the shared socioeconomic pathways database. This is subject to a criterion that the decadal temperature estimates for any particular projection show evidence of stabilisation. We set this as temperature remaining below three degrees above pre-industrial, and that the absolute difference in temperature between year 2090 and year 2100 is less than 0.1ºC.
>
> These additional calculations generate a new Supplementary Information Table S1, repeated in full at the bottom of this response. In addition to presenting the fitted parameters, we also calculate the root-mean square deviations of the differences between model fit and our analytical. In all instances, we find this to be very small (order 0.02ºC) suggesting the curve structure is sufficiently versatile to fit model responses to multiple concentration profiles.
>
> We now write in the manuscript a new paragraph under Section 2.3, as: "*We additionally fit our curves to pathways in which emissions are generated using integrated assessment models (IAM), and related global temperature profiles created using a simple climate model. This is for warming profiles from the IPCC scenario database (https://tntcat.iiasa.ac.at/AR5DB/) and for the marker scenarios of the more recent shared socioeconomic pathways (SSP) database (https://tntcat.iiasa.ac.at/SspDb). We demonstrate that the functional forms used here can also be fitted to these IAM-based scenarios to a good level of accuracy (see Supplementary Information).*"

2) A smaller point is the dependence of the framework on stabilizing temperatures. For impact studies, it would also be interesting to be able to explore pathways which gradually decline temperatures.

> The mathematical form of the equations has been designed such that they will eventually tend towards convergence i.e. stabilisation. However it is possible that the time at which stabilisation is approached is beyond the horizon of any particular impacts study. Hence the curves can enable temperature to be either raising or falling through more immediate times of interest. The yellow curves Figure 1 for instance, are slow to stabilise. Based on this comment, we now write in the conclusions: "*Where an impacts study is for a period ahead that is much less than the time to*

stabilisation, then these curves allow for the possibility of gradually rising or declining temperatures through any analysis period"

3) P1L3: The Paris Agreement is committed to holding the rise in global average temperature increase to "well below" 2◦C

We have added the word "well", as suggested.

4) P1L4-5: The "given emissions cuts to achieve the lower target may be especially difficult to achieve" argument is weak, and is not supported in the remainder of the manuscript. Depending on timing, similar emissions cuts are to be considered for 1.5◦C and 2◦C scenarios (but with a delay of 1 decade or so). In addition to the questions highlighted here, there is at least one more very important question, which is related to the reversibility of warming after an overshoot. I think this should also be mentioned.

Based on this remark, we have taken out these words (i.e. "given emissions…..”). We accept this could inadvertently be regarded as a judgement statement. This sentence now reads simply: "*Second, what is the benefit from reduced climate impacts by keeping warming at or below 1.5ºC*?" Hence this now makes no statement on feasibility.

Regarding reversibility of warming, our profiles do allow for this (e.g. yellow curves in Figure 1, 2). Based on this comment, we re-iterate this more strongly in the Conclusions that these curves can allow overshoot. Again we do not present any view on feasibility of particular profiles, including ability to "get back" to lower temperatures. Hence we have adjusted the Conclusions to say: "*….through to stabilised temperature levels. They can include an initial overshoot of temperatures above any desired final warming level*".

5) P1L7: The basis for this "implication" is weak. Until now, models have been run in forward mode and have been able to provide lots of useful information for limiting warming to and impacts at specific temperature limits.

We agree, and have adjusted this statement, acknowledging that there are studies that run in forward mode and that do provide useful information for impacts at different warming levels. We now simply say: "*It is useful to operate models in invertible form, to make model-specific estimates of greenhouse gas (GHG) concentration pathways consistent with prescribed temperature profiles*"

6) P1L14: Please specify that these are projections by different ESMs.

Done. We now write: "*The curves capture temperature profiles from the existing rcp2.6 scenario projections by a range of different earth system models (ESMs), which….*"

7) P2L3-4: It would be good to provide a reference for this claim.

This sentence has been re-written, and now includes two additional references. We now write: *"..below a 1.5 degrees warming threshold. To achieve the latter could in particular involve major changes of energy demand or production (Rogelj et al., 2013), and extensive reliance on artificial carbon removal (Fuss et al., 2014) such as biofuels combined with carbon capture and storage.*"

8) P2L4-5: Not clear what the relevance is of this statement. The authors refer here to the purely academic case of constant concentrations. Such a case is arguably in practice even harder to achieve than eliminating emissions.

We respectfully request we retain this, as the idea of a constant stabilised concentration commitment is long-established. It was mentioned, in particular, in AR4-WG1.

9) P2L9-10: Inverse modelling also cannot answer these questions, because there is no way to ensure that pathways are supported by technologies.

We agree, and based on this comment, we state that our illustrative curves are primarily to aid discussion of different potential pathways. We do not attach any assessment of feasibility to any of them at this stage. To ensure there is no misunderstanding, we have amended the document. We feel this is possibly best in the discussion, and write: "*At this stage, we do not associate any particular parameter combinations (or ranges) with their feasibility of fulfilment by society*"

10) P2L14-15: Recent publications provide an overview of various methods of exploring differences between warming levels of 1.5 and 2◦C (James et al, Wiley Interdisciplinary Reviews: Climate Change, 2017). It would be useful to situate the approach proposed here in the context of these various methods.

James *et al*. (2017) is an important paper in the debate, and sorry we missed it. We now write in our manuscript: "*In the comprehensive review of methods to identify regional differences associated with alternative global warming targets, James et al. (2017) note pattern-scaling as a key technique. The accuracy of this interpolation system has been recently reviewed in detail by Tebaldi and Arblaster (2014) and with enhancements proposed by Herger et al. (2015). In the other approaches of James et al. (2017), the central issue remains as how to interpret existing simulations, that even for identical forcings, project a range of different future final warming levels.*"

11) P6L15ff: This section is unclearly written. Please consider rewriting it providing a bit background to how the suggested activities could be implemented.

We have adjusted this manuscript both in response to requests above, and with a new paragraph. The "Applications" section now has three paragraphs. The first builds on the references above and discussion of scaling. The second is now tidier, describing how our curves may encourage calculation of any related emissions profiles to fulfil them. Then, based on this comment, we now provide a new additional paragraph that describes how application of these curves may allow direct research project inter-comparison. The revised section is repeated in full below:

"*Our profiles enable a common framework for discussion of warming trajectories that stabilise to pre-defined temperature limits. Regional climate change corresponding to these global temperatures can be estimated from interpolation of ESM projections (e.g. by pattern-scaling, Huntingford and Cox, 2000). Such scaling techniques can be linked to impacts models (e.g., Huntingford et al., 2010). In the comprehensive review of methods to identify regional differences associated with alternative global warming targets, James et al. (2017) note pattern-scaling as a key technique. The accuracy of this interpolation system has been recently reviewed in detail by Tebaldi and Arblaster (2014) and with enhancements proposed by Herger et al. (2015). In the other approaches of James et al. (2017), the central issue remains as how to interpret existing simulations, that even for identical forcings, project a range of different future warming levels.*

Emissions profiles can be calculated to fulfil the ESM-dependent radiative forcings associated with any prescribed global temperature stabilisation profile. These can include different mixtures of individual greenhouse gas emissions, whilst accounting for any perturbed land-atmosphere and ocean-atmosphere gas exchanges. The sum of the radiation changes for altered individual atmospheric greenhouse gas combinations must equal the ESM-dependent radiative forcing. Although our analytical forms are generic and can be calculated for any prescribed final stabilised temperature ΔT_{Lim}*, the emphasis here is placed on the 1.5°C or 2.0°C targets. This is due to their strong current discussion in policy circles regarding "clean energy" (e.g. Obama, 2017).*

To understand the significance between stabilizing global warming at either 1.5°C or 2.0°C is a complex and multi-dimensional problem. There are implications for regional climate changes, impacts and for "allowable" emissions and including the range of potential mixes between emitted greenhouse gases. These factors will also depend on the time evolution of global warming towards *such warming thresholds. Each of these issues requires study, and ideally in a way that enables findings to be compared in a common framework. The application of these curves is to work towards such a framework, by offering a set of possible future warming pathways for utility in research initiatives, and that can be readily defined through a limited set of parameters*."

12) P2&6: More recent papers have shown limitations of pattern scaling (e.g. Tebaldi and Arblaster, Clim. Ch., 2016). It would be good to also discuss these more recently identified limitations in the context of the proposed approach.

The main component of our paper is to present a set of analytical curves for global temperature. This can be linked to pattern scaling, and we welcome the opportunity to address the merits and issues with the latter. We think it best to do this via the literature, both the suggested paper and also a more recent one by Herger et al (2015). We now write in the manuscript: "*The accuracy of this interpolation system has been recently reviewed in detail by Tebaldi and Arblaster (2014) and with enhancements proposed by Herger et al (2015)*."

Technical corrections:

1) P7L8-9: This sentences seems incomplete. More open to scrutiny and discussion compared to what?

This sentence was poorly worded. We have rewritten it, and enhanced the sentence that follows it, so they sit properly together. The manuscript now says "*Their relative simplicity makes them transparent, and open to discussion. If common temperature scenarios are adopted by a range of studies (by selection of μ_0, μ_1 and ΔT_{Lim} values), this may allow easier comparison of either the impacts of, or emission to achieve, 1.5^{o}C or 2.0^{o}C warming stabilisation*."

Please find below the proposed new SI, and in response to request by Reviewer #2, point 1.

Supplementary Information for Huntingford et al (2017) "**Flexible parameter-sparse global temperature time-profiles that stabilise at 1.5ºC and 2.0 ºC**". Earth System Dynamics doi:10.5194/esd-2017-17

Table S1 is the fitting of parameters in our analytical curves to simulations presented in the IPCC scenario database (https://tntcat.iiasa.ac.at/AR5DB/) and for the marker scenarios in the Shared Socioeconomic Pathways (SSP) database (https://tntcat.iiasa.ac.at/SspDb/). Both websites accessed May 2017. The constraint placed on selecting any particular simulation for fitting our curves against is that: (i) projected temperatures do not exceed three degrees above pre-industrial temperature levels and (ii) that there is evidence of transition to temperature stabilisation. The latter is by only considering temperature profiles where the absolute difference between warming level in year 2090 and 2100 is less than 0.1ºC.

For each warming profile and in both databases, temperature projections are supplied for year 2005, 2010 and then each decade until 2090, 2100. Warming in year 2015, ΔT_0, is calculated as the mean of temperature in 2010 and 2020. Contemporary warming gradient, β (˚C yr^{-1}) is then calculated based on the difference between ΔT_0 and temperature in year 2005. The fitting of three parameters for the curves to future time periods i.e. μ_0 (yr^{-1}), μ_1 (yr^{-2}) and ΔT_{lim} (˚C) are against nine temperature values, decadal 2020 to 2100 inclusive. With just nine values to constrain three parameters, we additionally provide bounds on parameters to avoid potentially unrealistic future projections beyond year 2100. Specifically we set $-0.02 \leq \mu_0 \leq 0.08$ (yr^{-1}), $0.0 \leq \mu_1 \leq 0.0008$ (yr^{-2}) and $0.0 \leq \Delta T_{lim} \leq 4.0$ (˚C). Optimisation is performed simply, by finding the three parameters with lowest RSME between associated curve and the nine data points for each scenario. Each parameter is sampled by 100 equal intervals, in three nested loops. Hence even smaller RMSE values might be found, by initialising optimisation software with starting values in Table S1 below. This would help avoid the risk of finding only local minima if using arbitrary initial conditions in optimisation packages.

By fitting three parameters to just nine data points, in some instances a range of parameters can have similar RMSE. This could lead to divergent curve shapes beyond year 2100.

Table S1: Fitted curve parameters for all scenarios in the IPCC databased, and for marker scenarios in the Shared Socioeconomic Pathways (SSP) database. Presented is modelling centre group name, the scenario name, fitted initial conditions β and ΔT_0, the three fitted parameter for the curves μ_0, μ_1 and ΔT_{lim}. Final column is RMSE for the parameter set μ_0, μ_1 and ΔT_{lim} presented.

Group Name	Scenario Name	β (˚C yr^{-1})	ΔT_0 (˚C)	μ_0 (yr^{-1})	μ_1 (yr^{-2})	ΔT_{lim} (˚C)	RMSE
GCAM 2.0	AME 2.6 W/m2 OS	0.0214	1.02	0.003	0.000728	1.8	0.0189
GCAM 2.0	AME 3.7 W/m2 NTE	0.0211	1.017	0.051	0	2.32	0.0212
GCAM 2.0	AME CO2 price $10 (5% p.a.)	0.0209	1.015	0.004	0.000368	2.36	0.0158
GCAM 2.0	AME CO2 price $30 (5% p.a.)	0.0214	1.0205	0.002	0.000752	1.76	0.0204
GCAM 2.0	AME CO2 price $50 (5% p.a.)	0.0221	1.0275	0.001	0.000584	1.48	0.0282
GCAM 3.0	AMPERE2-450-Conv-HST	0.0183	0.9935	0.07	0.000072	2.16	0.0167
GCAM 3.0	AMPERE2-450-Conv-LST	0.0187	0.9975	0.064	0	2.2	0.014
GCAM 3.0	AMPERE2-450-Conv-OPT	0.0193	1.0035	0.059	0	2.2	0.011
GCAM 3.0	AMPERE2-450-EERE-HST	0.0185	0.9945	0.053	0.00064	2.12	0.0133
GCAM 3.0	AMPERE2-450-EERE-LST	0.0188	0.9985	0.059	0.0004	2.12	0.0089
GCAM 3.0	AMPERE2-450-EERE-OPT	0.0194	1.0045	0.058	0.000208	2.12	0.0079
GCAM 3.0	AMPERE2-450-LimBio-HST	0.0185	0.9945	0.072	0.000024	2.16	0.0149
GCAM 3.0	AMPERE2-450-LimBio-LST	0.0188	0.9985	0.068	0.000008	2.16	0.012
GCAM 3.0	AMPERE2-450-LimBio-OPT	0.0194	1.004	0.059	0	2.2	0.0118
GCAM 3.0	AMPERE2-450-NoCCS-HST	0.0185	0.9945	0.062	0.000432	2.12	0.0149
GCAM 3.0	AMPERE2-450-NoCCS-LST	0.0188	0.9985	0.065	0.000248	2.12	0.009
GCAM 3.0	AMPERE2-450-NoCCS-OPT	0.0195	1.005	0.058	0.000272	2.12	0.0068
GCAM 3.0	AMPERE2-550-Conv-OPT	0.0187	0.9975	0.043	0.00012	2.68	0.0027
GCAM 3.0	AMPERE2-550-EERE-OPT	0.0187	0.9975	-0.001	0.00036	2.56	0.0067
GCAM 3.0	AMPERE2-550-FullTech-HST	0.0185	0.9945	-0.014	0.000272	1.84	0.0129
GCAM 3.0	AMPERE2-550-FullTech-LST	0.0188	0.9985	-0.014	0.00024	1.64	0.0147
GCAM 3.0	AMPERE2-550-FullTech-OPT	0.0186	0.9955	-0.014	0.000264	1.8	0.0108
GCAM 3.0	AMPERE2-550-LimBio-OPT	0.0188	0.998	0.044	0.000104	2.68	0.004
GCAM 3.0	AMPERE2-550-LimSW-OPT	0.0184	0.9945	-0.013	0.000272	1.96	0.011
GCAM 3.0	AMPERE2-550-LowEI-OPT	0.0186	0.9955	-0.011	0.000248	2	0.0102
GCAM 3.0	AMPERE2-550-NoCCS-OPT	0.0188	0.9985	0	0.00044	2.56	0.0056
GCAM 3.0	AMPERE2-550-NucOff-OPT	0.0186	0.9955	-0.015	0.000264	1.72	0.0102
GCAM 3.0	AMPERE3-550	0.0185	1.0115	-0.014	0.000272	1.88	0.0113
GCAM 3.0	AMPERE3-CF550	0.0186	0.994	-0.013	0.000272	1.96	0.0102
GCAM 3.0	EMF27-450-Conv	0.0167	0.9775	0.009	0.000008	0.4	0.0076
GCAM 3.0	EMF27-450-EERE	0.0168	0.9785	0.005	0.000032	0.16	0.018
GCAM 3.0	EMF27-450-FullTech	0.0162	0.972	-0.008	0.000168	0.72	0.0098
GCAM 3.0	EMF27-450-LimBio	0.0166	0.9765	0.009	0.000032	0.92	0.0065
GCAM 3.0	EMF27-450-NoCCS	0.017	0.98	0.006	0.000024	0.12	0.0136
GCAM 3.0	EMF27-550-Conv	0.0161	0.9715	0.026	0.000208	1.92	0.014
GCAM 3.0	EMF27-550-EERE	0.0163	0.9735	-0.001	0.000064	0.88	0.0148
GCAM 3.0	EMF27-550-FullTech	0.0162	0.9725	0.031	0.000184	1.92	0.0122
GCAM 3.0	EMF27-550-LimBio	0.0162	0.9725	0.03	0.000192	1.92	0.0137
GCAM 3.0	EMF27-550-LimSW	0.0161	0.9715	0.028	0.0002	1.92	0.0124

GCAM 3.0	EMF27-550-LowEI	0.0164	0.974	0.007	0.000216	1.92	0.0113
GCAM 3.0	EMF27-550-NoCCS	0.0163	0.9735	0.004	0.000112	1.76	0.013
GCAM 3.0	EMF27-550-NucOff	0.0162	0.9725	0.02	0.00024	1.92	0.0125
GCAM 3.0	EMF27-G8-FullTech	0.0185	0.9945	0.056	0.000024	2.16	0.012
GCAM 3.0	ROSE 450 DEF	0.0223	1.0335	0.001	0.000688	2.04	0.0106
GCAM 3.0	ROSE 450 FS Gr	0.0227	1.038	0.048	0.000752	2.04	0.0107
GCAM 3.0	ROSE 450 HI Coal	0.0221	1.0325	0.002	0.000736	2.04	0.0092
GCAM 3.0	ROSE 450 HI Fos	0.022	1.031	0.002	0.000696	2.04	0.0095
GCAM 3.0	ROSE 450 HI Gas	0.0223	1.0335	0.002	0.000728	2.04	0.0105
GCAM 3.0	ROSE 450 HI Pop	0.0221	1.0315	0.077	0	2	0.0121
GCAM 3.0	ROSE 450 LO Fos	0.0227	1.0375	0.002	0.000664	2.04	0.0081
GCAM 3.0	ROSE 450 LO Oil	0.0221	1.0325	0.002	0.000728	2.04	0.0092
GCAM 3.0	ROSE 450 SL Gr	0.0219	1.0295	-0.001	0.000672	2.04	0.0092
GCAM 3.0	ROSE 550 DEF	0.0219	1.0295	0.058	0	2.44	0.0177
GCAM 3.0	ROSE 550 FS Gr	0.0221	1.0315	0.059	0	2.44	0.0156
GCAM 3.0	ROSE 550 HI Coal	0.0218	1.0275	0.057	0	2.44	0.0195
GCAM 3.0	ROSE 550 HI Fos	0.0216	1.026	0.057	0	2.44	0.018
GCAM 3.0	ROSE 550 HI Gas	0.0219	1.0295	0.058	0	2.44	0.0177
GCAM 3.0	ROSE 550 HI Pop	0.021	1.02	0.054	0	2.44	0.0231
GCAM 3.0	ROSE 550 LO Fos	0.0222	1.033	0.057	0	2.44	0.0183
GCAM 3.0	ROSE 550 LO Oil	0.0218	1.0275	0.057	0	2.44	0.0192
GCAM 3.0	ROSE 550 SL Gr	0.0217	1.027	0.056	0	2.44	0.0213
GCAM 3.0	ROSE WEAK-2020 DEF	0.021	1.02	0.056	0.000752	2.08	0.0135
GCAM 3.0	ROSE WEAK-2030 DEF	0.0209	1.0195	-0.004	0.0008	2.04	0.0207
GCAM 3.1	LIMITS-450	0.0182	0.9925	-0.005	0.000112	0.16	0.0118
GCAM 3.1	LIMITS-500	0.018	0.99	-0.015	0.000152	0.16	0.0117
GCAM 3.1	LIMITS-RefPol-450	0.0177	0.9865	-0.005	0.000448	1.52	0.0282
GCAM 3.1	LIMITS-RefPol-450-EE	0.0177	0.9865	-0.005	0.000448	1.52	0.0282
GCAM 3.1	LIMITS-RefPol-450-PC	0.0177	0.9865	-0.005	0.000448	1.52	0.0282
GCAM 3.1	LIMITS-RefPol-500	0.0177	0.9865	-0.003	0.00044	1.72	0.0247
GCAM 3.1	LIMITS-RefPol2030-500	0.0177	0.986	-0.007	0.000632	1.8	0.0236
GCAM 3.1	LIMITS-StrPol-450	0.0177	0.9875	-0.003	0.000368	1.48	0.0222
GCAM 3.1	LIMITS-StrPol-500	0.0177	0.9875	-0.003	0.000312	1.6	0.0189
IMAGE 2.4	AME 2.6 W/m2 OS	0.0142	0.9515	-0.007	0.00056	1.48	0.013
IMAGE 2.4	AME 3.7 W/m2 NTE	0.0139	0.948	0.035	0.000208	2.16	0.0101
IMAGE 2.4	AME CO2 price $10 (5% p.a.)	0.0141	0.9505	0.032	0.000232	2.24	0.0099
IMAGE 2.4	AME CO2 price $30 (5% p.a.)	0.0146	0.9555	0.064	0.000056	1.84	0.006
IMAGE 2.4	AME CO2 price $50 (5% p.a.)	0.0148	0.957	0.059	0.000368	1.72	0.0046
IMAGE 2.4	AMPERE2-450-FullTech-OPT	0.0161	0.97	-0.003	0.000656	1.72	0.0173
IMAGE 2.4	AMPERE2-450-LimSW-OPT	0.0161	0.97	-0.004	0.000632	1.72	0.0179
IMAGE 2.4	AMPERE2-450-LowEI-HST	0.0159	0.968	-0.01	0.00064	1.72	0.0177
IMAGE 2.4	AMPERE2-450-LowEI-LST	0.0159	0.968	-0.009	0.00064	1.72	0.0154
IMAGE 2.4	AMPERE2-450-LowEI-OPT	0.0162	0.9715	-0.006	0.00056	1.72	0.0147
IMAGE 2.4	AMPERE2-450-NucOff-OPT	0.016	0.9695	0	0.0008	1.72	0.0139
IMAGE 2.4	AMPERE2-550-FullTech-HST	0.0154	0.963	0	0.000552	2.24	0.0131
IMAGE 2.4	AMPERE2-550-FullTech-LST	0.0158	0.9675	0.047	0.00012	2.28	0.0086
IMAGE 2.4	AMPERE2-550-FullTech-OPT	0.0155	0.964	0.043	0.000248	2.28	0.0088
IMAGE 2.4	AMPERE3-450	0.0162	1.0315	-0.002	0.000744	1.8	0.0167
IMAGE 2.4	AMPERE3-450P-CE	0.016	0.9485	-0.004	0.000616	1.96	0.0152

IMAGE 2.4	AMPERE3-450P-EU	0.0158	0.96	-0.006	0.000568	2.08	0.0153
IMAGE 2.4	AMPERE3-550	0.016	0.923	0.044	0.0002	2.24	0.0135
IMAGE 2.4	AMPERE3-CF450	0.0161	0.953	-0.001	0.000752	1.72	0.0179
IMAGE 2.4	AMPERE3-CF550	0.0156	1.004	0.044	0.000232	2.32	0.009
IMAGE 2.4	EMF27-450-FullTech	0.0166	0.9755	-0.005	0.000608	1.64	0.0172
IMAGE 2.4	EMF27-450-LimSW	0.0166	0.9755	-0.004	0.000664	1.68	0.0169
IMAGE 2.4	EMF27-450-LowEI	0.0168	0.977	-0.004	0.000624	1.72	0.018
IMAGE 2.4	EMF27-450-NucOff	0.0166	0.9755	-0.003	0.000712	1.64	0.0167
IMAGE 2.4	EMF27-550-Conv	0.0162	0.971	0.054	0	2.2	0.0106
IMAGE 2.4	EMF27-550-EERE	0.0167	0.976	0.054	0	2.2	0.0129
IMAGE 2.4	EMF27-550-FullTech	0.0163	0.972	0.058	0	2.2	0.0077
IMAGE 2.4	EMF27-550-LimBio	0.0162	0.9715	0.053	0	2.2	0.0123
IMAGE 2.4	EMF27-550-LimSW	0.0162	0.971	0.057	0.000008	2.2	0.0078
IMAGE 2.4	EMF27-550-LowEI	0.0167	0.976	0.057	0	2.16	0.0117
IMAGE 2.4	EMF27-550-NoCCS	0.0166	0.9755	0.053	0	2.16	0.0164
IMAGE 2.4	EMF27-550-NucOff	0.0162	0.971	0.059	0	2.16	0.0112
IMAGE 2.4	EMF27-G8-FullTech	0.0164	0.9735	0.079	0	1.8	0.0094
IMAGE 2.4	LIMITS-450	0.0161	0.9705	-0.003	0.00064	1.72	0.0188
IMAGE 2.4	LIMITS-500	0.0158	0.9675	-0.006	0.00044	1.96	0.0153
IMAGE 2.4	LIMITS-RefPol-450	0.0162	0.9715	-0.004	0.0008	1.76	0.0218
IMAGE 2.4	LIMITS-RefPol-450-EE	0.0162	0.9715	-0.005	0.000784	1.76	0.0216
IMAGE 2.4	LIMITS-RefPol-450-PC	0.0162	0.9715	-0.004	0.0008	1.76	0.0218
IMAGE 2.4	LIMITS-RefPol-500	0.0162	0.9715	0.039	0.000608	2.04	0.0154
IMAGE 2.4	LIMITS-RefPol2030-500	0.0162	0.971	-0.007	0.000504	1.96	0.0103
IMAGE 2.4	LIMITS-StrPol-450	0.0162	0.971	-0.004	0.000632	1.76	0.0183
IMAGE 2.4	LIMITS-StrPol-500	0.0162	0.9715	0.035	0.000552	2.04	0.0164
MERGE-ETL_2011	AMPERE2-450-Conv-OPT	0.0149	0.9965	-0.019	0.000128	0.16	0.01
MERGE-ETL_2011	AMPERE2-450-EERE-OPT	0.0151	0.946	-0.003	0.000096	0.56	0.0076
MERGE-ETL_2011	AMPERE2-450-FullTech-HST	0.0167	0.9195	-0.008	0.000552	1.56	0.0115
MERGE-ETL_2011	AMPERE2-450-FullTech-LST	0.0162	0.934	-0.007	0.000368	1.48	0.0071
MERGE-ETL_2011	AMPERE2-450-FullTech-OPT	0.0159	0.9785	-0.008	0.000248	1.24	0.0051
MERGE-ETL_2011	AMPERE2-450-LimBio-OPT	0.0154	0.926	-0.006	0.000192	1.08	0.0069
MERGE-ETL_2011	AMPERE2-450-LimSW-HST	0.0167	0.952	-0.008	0.000552	1.6	0.0118
MERGE-ETL_2011	AMPERE2-450-LimSW-LST	0.0161	0.9735	-0.005	0.000376	1.56	0.0077
MERGE-ETL_2011	AMPERE2-450-LimSW-OPT	0.0151	0.9115	-0.017	0.000144	0.16	0.0079
MERGE-ETL_2011	AMPERE2-450-LowEI-HST	0.0168	0.9755	-0.009	0.000528	1.6	0.0101
MERGE-ETL_2011	AMPERE2-450-LowEI-LST	0.0163	0.9275	-0.008	0.000368	1.44	0.0051
MERGE-ETL_2011	AMPERE2-450-LowEI-OPT	0.0158	0.981	-0.008	0.000216	1.12	0.0065
MERGE-ETL_2011	AMPERE2-450-NoCCS-OPT	0.015	0.947	-0.003	0.000104	0.68	0.0078
MERGE-ETL_2011	AMPERE2-450-NucOff-LST	0.0161	0.955	-0.007	0.000384	1.52	0.006
MERGE-ETL_2011	AMPERE2-450-NucOff-OPT	0.0159	0.995	-0.008	0.000256	1.28	0.0062

MERGE-ETL_2011	AMPERE2-550-Conv-OPT	0.0161	1.042	0	0.000272	2.12	0.0061
MERGE-ETL_2011	AMPERE2-550-EERE-OPT	0.0163	0.991	-0.006	0.000224	1.76	0.0067
MERGE-ETL_2011	AMPERE2-550-FullTech-HST	0.0168	0.964	-0.008	0.000328	1.92	0.0039
MERGE-ETL_2011	AMPERE2-550-FullTech-LST	0.0162	0.9545	-0.011	0.000232	1.48	0.0098
MERGE-ETL_2011	AMPERE2-550-FullTech-OPT	0.0168	1.055	-0.011	0.00028	1.72	0.0071
MERGE-ETL_2011	AMPERE2-550-LimBio-OPT	0.0166	1.001	-0.007	0.000296	1.92	0.0067
MERGE-ETL_2011	AMPERE2-550-LimSW-OPT	0.0164	1.0295	-0.004	0.000264	2	0.0065
MERGE-ETL_2011	AMPERE2-550-LowEI-OPT	0.0166	0.925	-0.01	0.000248	1.56	0.0062
MERGE-ETL_2011	AMPERE2-550-NoCCS-OPT	0.0161	0.9295	-0.006	0.000216	1.68	0.0069
MERGE-ETL_2011	AMPERE2-550-NucOff-OPT	0.0169	0.9905	-0.009	0.000352	1.92	0.0055
MERGE-ETL_2011	AMPERE3-450	0.0157	0.9575	-0.008	0.000232	1.16	0.0074
MERGE-ETL_2011	AMPERE3-450P-CE	0.0166	1.0245	-0.009	0.000432	1.8	0.0071
MERGE-ETL_2011	AMPERE3-450P-EU	0.017	1.02	-0.01	0.00048	1.88	0.0079
MERGE-ETL_2011	AMPERE3-550	0.0166	1.001	-0.011	0.000272	1.64	0.0071
MERGE-ETL_2011	AMPERE3-550P-EU	0.017	0.988	-0.009	0.000376	2.04	0.0048
MERGE-ETL_2011	AMPERE3-CF450	0.0157	0.9925	-0.008	0.000256	1.28	0.0062
MERGE-ETL_2011	AMPERE3-CF450P-EU	0.0181	0.9275	-0.011	0.000576	2	0.0103
MERGE-ETL_2011	AMPERE3-CF550	0.0168	0.954	-0.01	0.000296	1.72	0.0084
MERGE_AME	AME 3.7 W/m2 NTE	0.0172	0.9825	0.021	0.000024	2.88	0.0176
MERGE_AME	AME CO2 price $30 (5% p.a.)	0.0169	0.9795	-0.004	0.000032	0	0.0212
MERGE_AME	AME CO2 price $50 (5% p.a.)	0.0169	0.979	-0.006	0.000056	0.2	0.0185
MERGE_EMF27	EMF27-450-Conv	0.02	1.01	0.08	0.000304	1.68	0.0117
MERGE_EMF27	EMF27-450-FullTech	0.0198	1.0085	-0.004	0.00048	1.68	0.008
MERGE_EMF27	EMF27-450-LimBio	0.02	1.0095	0.007	0.000784	1.64	0.0121
MERGE_EMF27	EMF27-450-LimSW	0.0198	1.0085	-0.003	0.000456	1.68	0.0081
MERGE_EMF27	EMF27-450-LowEI	0.0197	1.007	-0.002	0.000456	1.68	0.0084
MERGE_EMF27	EMF27-450-NucOff	0.0198	1.0085	-0.003	0.000448	1.68	0.0086
MERGE_EMF27	EMF27-550-Conv	0.0196	1.006	0.053	0	2.08	0.0177
MERGE_EMF27	EMF27-550-EERE	0.0195	1.005	0.048	0	2.12	0.013
MERGE_EMF27	EMF27-550-FullTech	0.0198	1.0085	0.053	0	2.08	0.0193
MERGE_EMF27	EMF27-550-LimBio	0.0198	1.0085	0.053	0	2.08	0.0183
MERGE_EMF27	EMF27-550-LimSW	0.0196	1.006	0.053	0	2.08	0.0184
MERGE_EMF27	EMF27-550-LimTech	0.0198	1.0085	0.054	0.000008	2.08	0.0178
MERGE_EMF27	EMF27-550-LowEI	0.0197	1.007	0.052	0	2.08	0.0189
MERGE_EMF27	EMF27-550-NoCCS	0.0196	1.006	0.049	0	2.12	0.0154
MERGE_EMF27	EMF27-550-NucOff	0.0196	1.006	0.053	0	2.08	0.019
MERGE_EMF27	EMF27-G8-EERE	0.0194	1.0045	0.043	0	2	0.0202
MERGE_EMF27	EMF27-G8-FullTech	0.0194	1.0045	0.043	0	2.12	0.0237
MESSAGE V.2	RCP 8.5_MIT_2.6W	0.0205	1.016	0.001	0.000168	1.48	0.0092
MESSAGE V.2	RCP 8.5_MIT_4.5W	0.0216	1.0255	0.021	0.000232	3	0.0091

MESSAGE V.3	AME 2.6 W/m2 OS	0.0218	1.028	0.001	0.000416	1.84	0.0137
MESSAGE V.3	AME 3.7 W/m2 NTE	0.0216	1.026	0.056	0.000016	2.4	0.0037
MESSAGE V.3	AME CO2 price $10 (5% p.a.)	0.0216	1.026	0.004	0.000432	2.44	0.0097
MESSAGE V.3	AME CO2 price $30 (5% p.a.)	0.0218	1.028	0.001	0.000432	1.88	0.0133
MESSAGE V.3	AME CO2 price $50 (5% p.a.)	0.022	1.03	0.002	0.000376	1.68	0.0159
MESSAGE V.3	GEA Efficiency_450_Illustrative	0.0217	1.0275	0	0.000376	1.76	0.0161
MESSAGE V.3	GEA Efficiency_450_adv.transp_full	0.0217	1.027	0	0.000432	1.8	0.0152
MESSAGE V.3	GEA Efficiency_450_adv.transp_limbe	0.0217	1.0275	0.003	0.000536	1.8	0.015
MESSAGE V.3	GEA Efficiency_450_adv.transp_limbe_limir	0.0219	1.029	0.077	0.000176	1.8	0.0154
MESSAGE V.3	GEA Efficiency_450_adv.transp_limir	0.0217	1.0275	0.003	0.00044	1.8	0.0173
MESSAGE V.3	GEA Efficiency_450_adv.transp_nbecs	0.0218	1.028	0.006	0.000664	1.8	0.013
MESSAGE V.3	GEA Efficiency_450_adv.transp_nbecs_nsink_limbe	0.0221	1.0315	0.08	0.000008	1.76	0.0116
MESSAGE V.3	GEA Efficiency_450_adv.transp_noccs	0.0219	1.029	0.065	0.000576	1.8	0.0121
MESSAGE V.3	GEA Efficiency_450_adv.transp_noccs_nonuc	0.022	1.03	0.08	0.000096	1.8	0.0121
MESSAGE V.3	GEA Efficiency_450_adv.transp_nsink	0.0218	1.028	0.006	0.000592	1.8	0.0147
MESSAGE V.3	GEA Efficiency_450_conv.transp_full	0.0217	1.0275	0.001	0.000456	1.8	0.0157
MESSAGE V.3	GEA Efficiency_450_conv.transp_limbe	0.0218	1.028	0.065	0.000496	1.84	0.0142
MESSAGE V.3	GEA Efficiency_450_conv.transp_limbe_limir	0.0221	1.0315	0.08	0.000016	1.76	0.0105
MESSAGE V.3	GEA Efficiency_450_conv.transp_limir	0.0218	1.028	0.005	0.000504	1.8	0.0174
MESSAGE V.3	GEA Efficiency_450_conv.transp_nbecs	0.0218	1.028	0.078	0.000312	1.8	0.01
MESSAGE V.3	GEA Efficiency_450_conv.transp_nbecs_nsink_limbe	0.0224	1.0335	0.08	0.000064	1.72	0.0178
MESSAGE V.3	GEA Efficiency_450_conv.transp_noccs	0.022	1.03	0.08	0.000088	1.8	0.0132
MESSAGE V.3	GEA Efficiency_450_conv.transp_noccs_nonuc	0.0221	1.0315	0.08	0.00012	1.76	0.011
MESSAGE V.3	GEA Efficiency_450_conv.transp_nonuc	0.0218	1.028	0.002	0.000448	1.8	0.0164
MESSAGE V.3	GEA Efficiency_450_conv.transp_nsink	0.0218	1.028	0.076	0.000208	1.84	0.0107
MESSAGE V.3	GEA Mix_450_Illustrative	0.0218	1.0285	0.003	0.000496	1.8	0.0171
MESSAGE V.3	GEA Mix_450_adv.transp_full	0.0218	1.028	-0.001	0.000456	1.8	0.0157
MESSAGE V.3	GEA Mix_450_adv.transp_limbe	0.0218	1.028	0.001	0.00048	1.76	0.016
MESSAGE V.3	GEA Mix_450_adv.transp_limir	0.022	1.0295	0.007	0.000464	1.8	0.0182
MESSAGE V.3	GEA Mix_450_adv.transp_nbecs	0.0218	1.0285	0.009	0.0008	1.8	0.0141
MESSAGE V.3	GEA Mix_450_adv.transp_noccs	0.0221	1.0315	0.08	0.00012	1.8	0.0149
MESSAGE V.3	GEA Mix_450_adv.transp_nonuc	0.0218	1.028	0.001	0.00044	1.8	0.0177
MESSAGE V.3	GEA Mix_450_adv.transp_nsink	0.0219	1.029	0.005	0.000536	1.8	0.0167
MESSAGE V.3	GEA Mix_450_conv.transp_limbe	0.022	1.03	0.075	0.000304	1.8	0.0134
MESSAGE V.3	GEA Mix_450_conv.transp_limir	0.0221	1.0315	0.062	0.000376	1.8	0.0164
MESSAGE V.3	GEA Mix_450_conv.transp_nbecs	0.022	1.0305	0.08	0.000184	1.76	0.0109
MESSAGE V.3	GEA Mix_450_conv.transp_nonuc	0.022	1.0295	0.069	0.000344	1.84	0.0185
MESSAGE V.3	GEA Mix_450_conv.transp_nsink	0.022	1.0305	0.077	0	1.84	0.0138
MESSAGE V.3	GEA Supply_450_Illustrative	0.022	1.0295	0.001	0.000376	1.76	0.0201
MESSAGE V.3	GEA Supply_450_adv.transp_limbe	0.022	1.03	0.003	0.000392	1.76	0.0195
MESSAGE V.3	GEA Supply_450_adv.transp_limir	0.0222	1.032	0.005	0.000256	1.72	0.0194
MESSAGE V.3	GEA Supply_450_adv.transp_nbecs	0.0221	1.0315	0.078	0.000216	1.8	0.017
MESSAGE V.3	GEA Supply_450_adv.transp_nonuc	0.022	1.03	0.003	0.000288	1.72	0.0215
MESSAGE V.3	GEA Supply_450_adv.transp_nsink	0.0221	1.0315	0.006	0.000384	1.8	0.0198
MESSAGE V.3	GEA Supply_450_conv.transp_full	0.022	1.03	0.006	0.00048	1.8	0.02
MESSAGE V.3	GEA Supply_450_conv.transp_nonuc	0.0221	1.0315	0.075	0.00004	1.84	0.0197
MESSAGE V.4	AMPERE2-450-Conv-OPT	0.0209	0.9815	0.009	0.000576	1.92	0.0074
MESSAGE V.4	AMPERE2-450-EERE-OPT	0.0206	1.009	0.006	0.000536	1.88	0.0065

MESSAGE V.4	AMPERE2-450-FullTech-HST	0.0196	0.9655	-0.009	0.000528	1.84	0.0108
MESSAGE V.4	AMPERE2-450-FullTech-LST	0.0202	1.0285	-0.004	0.000504	1.96	0.0087
MESSAGE V.4	AMPERE2-450-FullTech-OPT	0.0204	1.059	-0.003	0.000496	2	0.0078
MESSAGE V.4	AMPERE2-450-LimBio-LST	0.0201	0.9655	-0.001	0.000736	1.88	0.0083
MESSAGE V.4	AMPERE2-450-LimBio-OPT	0.0207	0.991	0.005	0.000568	1.92	0.0073
MESSAGE V.4	AMPERE2-450-LimSW-HST	0.0194	0.986	-0.008	0.000568	1.92	0.0112
MESSAGE V.4	AMPERE2-450-LimSW-LST	0.0201	0.9255	-0.004	0.000536	1.88	0.0069
MESSAGE V.4	AMPERE2-450-LimSW-OPT	0.0205	0.991	-0.002	0.000488	1.96	0.0066
MESSAGE V.4	AMPERE2-450-LowEI-HST	0.0201	1.0135	-0.009	0.000416	1.8	0.0099
MESSAGE V.4	AMPERE2-450-LowEI-LST	0.02	0.998	-0.006	0.000408	1.8	0.0053
MESSAGE V.4	AMPERE2-450-LowEI-OPT	0.0201	1.0245	-0.005	0.000392	1.84	0.0049
MESSAGE V.4	AMPERE2-450-NoCCS-OPT	0.0211	1.0115	0.07	0.000072	1.92	0.0087
MESSAGE V.4	AMPERE2-450-NucOff-HST	0.0196	0.9325	-0.008	0.000544	1.84	0.011
MESSAGE V.4	AMPERE2-450-NucOff-LST	0.0202	0.989	-0.004	0.000496	1.92	0.0078
MESSAGE V.4	AMPERE2-450-NucOff-OPT	0.0204	1.049	-0.003	0.000512	2	0.007
MESSAGE V.4	AMPERE2-550-Conv-OPT	0.02	1.0095	0.043	0.000128	2.56	0.0053
MESSAGE V.4	AMPERE2-550-EERE-OPT	0.0201	0.9815	0.038	0.000232	2.36	0.0047
MESSAGE V.4	AMPERE2-550-FullTech-HST	0.0196	1.0445	0	0.000416	2.52	0.0053
MESSAGE V.4	AMPERE2-550-FullTech-LST	0.0202	1.0075	0.007	0.0004	2.52	0.0055
MESSAGE V.4	AMPERE2-550-FullTech-OPT	0.0197	0.9285	0	0.000408	2.4	0.0056
MESSAGE V.4	AMPERE2-550-LimBio-OPT	0.0197	0.9815	0.041	0.000216	2.48	0.0062
MESSAGE V.4	AMPERE2-550-LimSW-OPT	0.0196	1.0505	0	0.000384	2.56	0.0063
MESSAGE V.4	AMPERE2-550-LowEI-OPT	0.0201	1.0665	-0.004	0.000224	2.2	0.0088
MESSAGE V.4	AMPERE2-550-NoCCS-OPT	0.02	1.028	0.042	0.000256	2.4	0.009
MESSAGE V.4	AMPERE2-550-NucOff-OPT	0.0196	1.005	0	0.0004	2.48	0.0061
MESSAGE V.4	AMPERE3-450	0.0204	1.007	-0.002	0.000504	1.96	0.0064
MESSAGE V.4	AMPERE3-450P-EU	0.0199	1.059	-0.003	0.000472	2.36	0.0126
MESSAGE V.4	AMPERE3-550	0.0198	0.9695	-0.001	0.000344	2.4	0.0062
MESSAGE V.4	AMPERE3-CF450	0.0204	0.9935	-0.004	0.000488	1.92	0.0075
MESSAGE V.4	AMPERE3-CF550	0.0196	1.066	0.002	0.00044	2.56	0.0055
MESSAGE V.4	EMF27-450-EERE	0.021	1.02	0.003	0.000432	1.72	0.0087
MESSAGE V.4	EMF27-450-FullTech	0.0205	1.015	-0.005	0.000424	1.72	0.009
MESSAGE V.4	EMF27-450-LimBio	0.0212	1.022	0.003	0.000464	1.72	0.0116
MESSAGE V.4	EMF27-450-LimSW	0.0205	1.0155	-0.003	0.000408	1.72	0.0091
MESSAGE V.4	EMF27-450-LowEI	0.0201	1.011	-0.007	0.000336	1.6	0.0065
MESSAGE V.4	EMF27-450-NucOff	0.0205	1.015	-0.004	0.000392	1.72	0.0096
MESSAGE V.4	EMF27-550-Conv	0.0204	1.0145	0.055	0	2.2	0.013
MESSAGE V.4	EMF27-550-EERE	0.0202	1.0115	0.055	0	2.16	0.0156
MESSAGE V.4	EMF27-550-FullTech	0.0206	1.016	0.051	0	2.2	0.0194
MESSAGE V.4	EMF27-550-LimBio	0.0206	1.016	0.056	0.000016	2.16	0.016
MESSAGE V.4	EMF27-550-LimSW	0.0205	1.0155	0.053	0	2.2	0.0174
MESSAGE V.4	EMF27-550-LowEI	0.0203	1.013	0.055	0	2.16	0.0172
MESSAGE V.4	EMF27-550-NoCCS	0.0206	1.0165	0.056	0	2.16	0.0162
MESSAGE V.4	EMF27-550-NucOff	0.0206	1.016	0.052	0	2.2	0.0188
MESSAGE V.4	LIMITS-450	0.0206	1.0165	-0.004	0.0004	1.64	0.0103
MESSAGE V.4	LIMITS-500	0.0204	1.0135	-0.004	0.000408	1.88	0.0069
MESSAGE V.4	LIMITS-RefPol-450	0.0202	1.012	-0.006	0.00056	1.72	0.016
MESSAGE V.4	LIMITS-RefPol-450-EE	0.0202	1.012	-0.006	0.00056	1.72	0.0159
MESSAGE V.4	LIMITS-RefPol-450-PC	0.0202	1.012	-0.006	0.00056	1.72	0.0163

MESSAGE V.4	LIMITS-RefPol-500	0.0202	1.012	-0.005	0.000448	1.88	0.0087
MESSAGE V.4	LIMITS-RefPol2030-500	0.0202	1.0115	-0.008	0.000488	1.88	0.0113
MESSAGE V.4	LIMITS-StrPol-450	0.0203	1.013	-0.005	0.000472	1.68	0.013
MESSAGE V.4	LIMITS-StrPol-500	0.0203	1.013	-0.004	0.000424	1.88	0.0071
REMIND 1.4	ROSE 450 DEF	0.0203	1.012	-0.003	0.0008	1.8	0.0235
REMIND 1.4	ROSE 450 FS Gr	0.0203	1.012	-0.003	0.0008	1.8	0.0233
REMIND 1.4	ROSE 450 FS Gr SL Con	0.0202	1.0115	-0.003	0.0008	1.8	0.0233
REMIND 1.4	ROSE 450 HI Coal	0.0201	1.0095	-0.003	0.0008	1.8	0.0242
REMIND 1.4	ROSE 450 HI Fos	0.0209	1.018	-0.003	0.0008	1.8	0.0244
REMIND 1.4	ROSE 450 HI Pop	0.0203	1.0125	0.079	0.000792	1.8	0.0203
REMIND 1.4	ROSE 450 LO Fos	0.0215	1.0245	-0.001	0.000624	1.76	0.0204
REMIND 1.4	ROSE 450 LO Oil	0.0205	1.014	-0.003	0.0008	1.8	0.0231
REMIND 1.4	ROSE 450 SL Gr	0.0203	1.012	-0.003	0.0008	1.8	0.0239
REMIND 1.4	ROSE 550 DEF	0.0193	1.0025	0.073	0	2.24	0.0138
REMIND 1.4	ROSE 550 FS Gr	0.0193	1.0025	0.074	0	2.24	0.0141
REMIND 1.4	ROSE 550 FS Gr SL Con	0.0193	1.0025	0.073	0	2.24	0.0132
REMIND 1.4	ROSE 550 HI Coal	0.0186	0.9955	0.071	0.000008	2.24	0.0123
REMIND 1.4	ROSE 550 HI Fos	0.0205	1.0145	0.075	0	2.24	0.0172
REMIND 1.4	ROSE 550 HI Gas	0.0198	1.0075	0.074	0	2.24	0.0157
REMIND 1.4	ROSE 550 HI Pop	0.0195	1.004	0.07	0	2.28	0.009
REMIND 1.4	ROSE 550 LO Fos	0.0208	1.017	0.067	0	2.28	0.0103
REMIND 1.4	ROSE 550 LO Oil	0.0195	1.0045	0.075	0.000072	2.2	0.0166
REMIND 1.4	ROSE 550 SL Gr	0.0193	1.002	0.073	0	2.24	0.0126
REMIND 1.4	ROSE WEAK-2020 DEF	0.0177	0.9865	-0.01	0.0008	1.8	0.0269
REMIND 1.4	ROSE WEAK-2030 DEF	0.0177	0.986	-0.014	0.0008	1.8	0.0154
REMIND 1.5	AMPERE2-450-Conv-HST	0.0174	0.9885	-0.009	0.0008	1.8	0.0222
REMIND 1.5	AMPERE2-450-Conv-LST	0.0182	1.002	0.08	0.0008	1.84	0.0082
REMIND 1.5	AMPERE2-450-Conv-OPT	0.0195	0.9935	0.074	0	1.8	0.0296
REMIND 1.5	AMPERE2-450-EERE-OPT	0.0195	0.952	0.078	0	1.76	0.0256
REMIND 1.5	AMPERE2-450-FullTech-HST	0.0174	0.9705	-0.011	0.0008	1.84	0.0141
REMIND 1.5	AMPERE2-450-FullTech-LST	0.0182	0.9875	-0.008	0.0008	1.84	0.0203
REMIND 1.5	AMPERE2-450-FullTech-OPT	0.019	0.9905	0.08	0.00044	1.88	0.016
REMIND 1.5	AMPERE2-450-LimBio-HST	0.0174	0.9685	0.08	0.0008	1.84	0.0216
REMIND 1.5	AMPERE2-450-LimBio-LST	0.0184	0.995	0.08	0.0008	1.84	0.0133
REMIND 1.5	AMPERE2-450-LimBio-OPT	0.0196	1.0825	0.08	0.000008	1.88	0.0223
REMIND 1.5	AMPERE2-450-LimSW-HST	0.0173	0.9445	-0.01	0.0008	1.8	0.0164
REMIND 1.5	AMPERE2-450-LimSW-LST	0.0182	0.991	0.074	0.0008	1.88	0.0156
REMIND 1.5	AMPERE2-450-LimSW-OPT	0.0193	0.9815	0.08	0.000216	1.84	0.0149
REMIND 1.5	AMPERE2-450-LowEI-HST	0.0175	0.949	-0.012	0.0008	1.84	0.0155
REMIND 1.5	AMPERE2-450-LowEI-LST	0.0181	1.0285	-0.008	0.0008	1.92	0.0199
REMIND 1.5	AMPERE2-450-LowEI-OPT	0.0186	0.975	0.068	0.0008	1.88	0.0215
REMIND 1.5	AMPERE2-450-NoCCS-OPT	0.0193	0.9975	0.076	0	1.8	0.026
REMIND 1.5	AMPERE2-450-NucOff-HST	0.0174	0.9405	-0.011	0.000784	1.8	0.0143
REMIND 1.5	AMPERE2-450-NucOff-LST	0.0183	0.936	-0.008	0.0008	1.8	0.0201
REMIND 1.5	AMPERE2-450-NucOff-OPT	0.0191	1.0085	0.07	0.000792	1.88	0.0171
REMIND 1.5	AMPERE2-550-Conv-OPT	0.0187	1.0415	0.057	0	2.28	0.0363
REMIND 1.5	AMPERE2-550-EERE-OPT	0.0186	0.9615	0.06	0	2.28	0.0163
REMIND 1.5	AMPERE2-550-FullTech-HST	0.0175	1.0015	0.049	0.000392	2.32	0.0073
REMIND 1.5	AMPERE2-550-FullTech-LST	0.0182	1.0385	0.062	0.000064	2.36	0.0071

REMIND 1.5	AMPERE2-550-FullTech-OPT	0.0181	0.989	0.06	0.000104	2.32	0.0063
REMIND 1.5	AMPERE2-550-LimBio-OPT	0.0187	1.0175	0.061	0	2.28	0.0254
REMIND 1.5	AMPERE2-550-LimSW-OPT	0.0182	0.9505	0.063	0	2.24	0.0139
REMIND 1.5	AMPERE2-550-LowEI-OPT	0.0178	1.0525	0.049	0.000288	2.4	0.0122
REMIND 1.5	AMPERE2-550-NoCCS-OPT	0.0187	0.953	0.058	0	2.24	0.0261
REMIND 1.5	AMPERE2-550-NucOff-OPT	0.018	1.001	0.057	0.000184	2.32	0.0066
REMIND 1.5	AMPERE3-450	0.0191	1.048	0.073	0.000648	1.92	0.0157
REMIND 1.5	AMPERE3-450P-CE	0.0182	0.935	-0.007	0.00072	1.92	0.0143
REMIND 1.5	AMPERE3-450P-EU	0.0174	0.997	-0.007	0.0008	2.08	0.0133
REMIND 1.5	AMPERE3-550	0.0182	0.9575	0.06	0.00008	2.28	0.0071
REMIND 1.5	AMPERE3-550P-EU	0.0175	1.0335	0.002	0.000656	2.48	0.0086
REMIND 1.5	AMPERE3-CF450	0.0191	1.027	0.08	0.000416	1.92	0.0194
REMIND 1.5	AMPERE3-CF450P-EU	0.0173	0.9515	-0.01	0.000784	2.04	0.015
REMIND 1.5	AMPERE3-CF550	0.018	1.003	0.061	0.000112	2.32	0.0067
REMIND 1.5	EMF27-450-Conv	0.0197	1.0055	0.003	0.0008	1.56	0.0187
REMIND 1.5	EMF27-450-EERE	0.0195	1.0045	0.008	0.0008	1.52	0.0264
REMIND 1.5	EMF27-450-FullTech	0.02	1.009	-0.007	0.000632	1.6	0.0217
REMIND 1.5	EMF27-450-LimBio	0.0197	1.0055	-0.001	0.0008	1.56	0.0211
REMIND 1.5	EMF27-450-LimSW	0.0199	1.008	-0.006	0.00076	1.6	0.0204
REMIND 1.5	EMF27-450-LowEI	0.0199	1.0085	-0.006	0.000552	1.6	0.0234
REMIND 1.5	EMF27-450-NoCCS	0.0197	1.0055	0.08	0.0008	1.52	0.0261
REMIND 1.5	EMF27-450-NucOff	0.02	1.009	-0.007	0.000616	1.6	0.021
REMIND 1.5	EMF27-550-Conv	0.0208	1.017	0.077	0	2	0.0139
REMIND 1.5	EMF27-550-EERE	0.0207	1.016	0.075	0	2.04	0.0175
REMIND 1.5	EMF27-550-FullTech	0.0205	1.0135	0.074	0	2.04	0.019
REMIND 1.5	EMF27-550-LimBio	0.0207	1.016	0.08	0	2	0.013
REMIND 1.5	EMF27-550-LimSW	0.0205	1.0135	0.074	0	2.04	0.0185
REMIND 1.5	EMF27-550-LimTech	0.0206	1.0155	0.069	0	2.04	0.0138
REMIND 1.5	EMF27-550-LowEI	0.0202	1.0115	0.076	0	2.04	0.0177
REMIND 1.5	EMF27-550-NoCCS	0.0209	1.0175	0.073	0	2.04	0.0173
REMIND 1.5	EMF27-550-NucOff	0.0205	1.0135	0.074	0	2.04	0.0185
REMIND 1.5	EMF27-G8-FullTech	0.0186	0.995	0.064	0	2.32	0.0284
REMIND 1.5	LIMITS-450	0.0196	1.005	-0.006	0.00072	1.6	0.0268
REMIND 1.5	LIMITS-500	0.0191	1	0.08	0.000432	1.88	0.019
REMIND 1.5	LIMITS-RefPol-450	0.0174	0.983	-0.013	0.0008	1.6	0.0315
REMIND 1.5	LIMITS-RefPol-450-EE	0.0174	0.983	-0.013	0.0008	1.6	0.0315
REMIND 1.5	LIMITS-RefPol-450-PC	0.0174	0.983	-0.013	0.0008	1.6	0.0313
REMIND 1.5	LIMITS-RefPol-500	0.0174	0.983	0.075	0.0008	1.88	0.0204
REMIND 1.5	LIMITS-RefPol2030-500	0.0173	0.9825	-0.011	0.0008	1.88	0.0175
REMIND 1.5	LIMITS-StrPol-450	0.0175	0.9835	-0.012	0.0008	1.6	0.0287
REMIND 1.5	LIMITS-StrPol-500	0.0175	0.9835	0.069	0.0008	1.88	0.0191
AIM/CGE	SSP3-34	0.0196	1.1085	0.061	0.000352	2.2	0.0147
AIM/CGE	SSP3-45	0.0196	1.109	0.051	0	2.68	0.0149
GCAM4	SSP4-26	0.0198	1.1115	-0.001	0.000472	1.8	0.0313
GCAM4	SSP4-34	0.0198	1.111	0.055	0.000088	2.24	0.011
GCAM4	SSP4-45	0.0198	1.111	0.043	0.000008	2.64	0.0073
IMAGE	SSP1-26	0.0198	1.111	0	0.000552	1.76	0.0196
IMAGE	SSP1-34	0.02	1.1125	0.04	0.000376	2.24	0.0215
IMAGE	SSP1-45	0.02	1.1125	0.035	0.000016	2.92	0.0182

MESSAGE-GLOBIOM	SSP2-26	0.0202	1.1155	-0.003	0.000608	1.76	0.0158
MESSAGE-GLOBIOM	SSP2-34	0.0203	1.116	0.046	0.000288	2.24	0.0097
MESSAGE-GLOBIOM	SSP2-45	0.0203	1.116	0.037	0	2.88	0.0088
REMIND-MAGPIE	SSP5-34	0.0212	1.1245	-0.004	0.000424	2.2	0.0195
REMIND-MAGPIE	SSP5-45	0.0211	1.124	0.048	0	2.8	0.0071