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AN OPEN LETTER

“The better this technology becomes – the more carbon it can prevent from entering the atmosphere – the less these assets need to be kept in the ground, and vice versa.”

IPCC Chairman Hoesung Lee on CCS and fossil fuels

To: James Skea, Ph.D. Imperial College London and Priyadarshi Shukla, Ph.D. Ahmedabad University, Co-chairs of IPCC Working Group III Sixth Assessment Report.

From: Simon Robertson, Ph.D. University of New South Wales, Lead Author Chapter 3/Contributing Author Chapter 10 of IPCC Working Group III Sixth Assessment Report.

Dear Jim and Shukla,

Re. An essay into scientific integrity of the IPCC and IAMs in the AR6 - matters of legitimate public interest

I hope this note finds you both well and in good health.

You'll be pleased to learn that the fly fishing trip was productive. The local piscine inhabitants, all sporting their regal spawning colours, were gently returned to their watery abode so that they may enjoy some slap and tickle in the riffles during the closed season. It was wonderfully restful being immersed in such a peaceful environ; far removed, even if for a few days, from the endless shell game that increasingly characterises the debased nature of the modern human condition. As Associate Justice John D. Voelker, an avid fly fisherman, under his *nom de plume* of Robert Travers, wrote in a "Testament of a Fisherman" - "...my fishing is at once an endless source of delight and an act of small rebellion; because trout do not lie or cheat and cannot be bought or bribed or impressed by power, but respond only to quietude and humility and endless patience...".

I was enthused to hear from you, Jim, about your and fellow IPCC colleagues', namely Priyadarshi Shukla, Alaa Al Khourdajie and David McCollum, publicly funded "companion piece" to mine (<https://doi.org/10.1002/wcc.679>), to borrow your turn of phrase as expressed to me of 12 April 2021, also to appear in WIREs Climate Change titled - "*Intergovernmental Panel on Climate Change: Transparency and integrated assessment modeling*" (<https://doi.org/10.1002/wcc.727>). The more opinions expressed in the scientific literature, the greater benefit to science given its intrinsic dynamism as it is only through the contest between differing perspectives that society has the greatest prospect of arriving at the truth. Any attempt at the subversion of academic interrogation is not only contrary to the development and maintenance of a robust and rigorous academia but is, in the fullness of time, to the detriment of societal progression characterised by its relentless pursuit and application of knowledge. This is problematic for all disciplines as such subversion transmogrifies the system from a system occupied by scientists to that of a system defined by ideologues driven by advancing agendas of self-interest rather than for the advancement of scientific knowledge. You may be interested to learn that I also have a couple of works in progress, both being follow-ups to my WIREs opinion piece. As with my WIREs Climate Change opinion piece, my motivation for publication is in accordance with the open invitation that you, Jim, made in the CarbonBrief 11 July 2016 of - "*The appeal for people who sort of critique the IPCC for not considering other approaches is please produce papers, write books for us to assess, because if it goes through peer review and you do it, we will assess it and that's the challenge.*" I welcomed your challenge and succeeded with the acceptance of my opinion piece by the peer review journal of WIREs Climate Change, only to discover post publication that the "rules of the game" had "conveniently" been changed to accommodate the IPCC-IAMC contingent's real agenda for the AR6. As you were kind enough to share with me your working title to your "companion piece" to my WIREs article, allow me to reciprocate the favour with the disclosure of mine - **Trust, Transparency and Integrity: An essay concerning the moral precepts governing Working Group III of the Intergovernmental Panel on Climate Change's engagement with integrated assessment models.**

Disappointingly, although hardly surprising given your past form, rather than engage in a meaningful manner with this long-established problem of integrated assessment model (IAM) opacity, the very same problem having been so clearly acknowledged by the IPCC in its published proceedings to the commencement of the Sixth Assessment Report (AR6); you both have, through your recently published extraneous "companion piece" to mine, under the auspices of the IPCC, belied the serious deficiency in addressing this foundational

issue through an ensemble of sophistic arguments for defence and self-serving purposes that has once again actively perpetuated this quarter of a century long problem. Please do not make the mistake of interpreting my criticisms to your eristic WIREs Climate Change article as being captious as such objections are indeed quite the opposite as I will expound upon hereinafter. Regardless of the IPCC's contentious rationale behind the formation of the Integrated Assessment Modelling Consortium (IAMC) predicated on the Panel's proclamation that it does not participate in "research production", the IPCC's decision to author a defence and advocacy piece on behalf of the professed "independent" IAM research community is highly suggestive that the separation of powers between the IPCC and the IAMC is entirely symbolic. A possible diagnosis in providing an explanation for such authorship is that the IAMC is the amputated research arm of the IPCC complete with the post-operative complication of the psychological disturbance of phantom limb phenomenon. This vexed issue as to the lack of an actual separation of powers can be further demonstrated by the fact that both of you, Jim and Shukla, having duly appointed roles at the IAMC on the IAMC Advisory Council and the IAMC Scientific Working Group on Scenarios (co-chaired by Keywan Riahi and Detlef van Vuuren) respectively, in addition to David McCollum being a sub-chair to the IAMC Scientific Working Group on Data Protocols and Management and a member of the IAMC Scientific Working Group on Financial Analysis; and that this presents a very real potential for creating a conflict of interest with respect to the erosion of the Panel's autonomy, particularly when the consortium's rubric is the promotion of integrated assessment modelling which in fact in itself would appear to be vastly at odds to the proclaimed neutrality of the IPCC. Such a critical assessment of the IPCC-IAMC relationship is consistent with that opined in the scientific literature by the broader climate change research community (see for example, Cointe et al. 2019. Organising policy-relevant knowledge for climate action: Integrated assessment modelling, the IPCC, and the emergence of a collective expertise on socioeconomic emission scenarios).

The IPCC has been, and continues to be, a significant contributor to this twenty-five year long problem through its enabling of the IAM research community's substandard research practices resulting in the lack of transparency through a tacit approval that arises from the Panel's heavy reliance upon IAMs in the Assessment Reports for the purpose of creating media sensationalism in concert with IAMs acting as an apparatus for gaining authority in terms of political and financial ascendancy. For the IPCC to advocate the continued use of IAMs for environmental and public policy "guidance" with the full knowledge that such models fail to provide essential input data accompanied by appropriate documentation is simply a fraudulent act of scientific posturing given the models' failure to comply with the requirements of open science. Such an act of the IPCC is altogether inconsistent with the notions of "openness" and "transparency" as publicly promoted by the Panel in its processes and procedures particularly for IAMs in the AR6 as declared in the AR6 scoping document. I should add that this grave issue of absent scenario input data and documentation was raised by me, as a Chapter 3 Lead Author (LA), to the Co-ordinating Lead Authors (CLAs) of Chapter 3 Keywan Riahi and Roberto Schaeffer on the 28 April 2019, some weeks after the first Lead Author Meeting (LAM1). This issue was subsequently brought to the attention of the both of you on multiple occasions throughout the AR6 draft cycle and was latter discussed, in generalised terms, in my WIREs Climate Change opinion piece. As you both are well aware, scenario data (i.e. inputs) were not made available for analysis to appointed Chapter 3 non-IAM LAs for the entire AR6 draft cycle. Without such data it is impossible to fulfil your ill-considered aspiration for the AR6, as declared in your IPCC AR6 WGIII co-chair candidacy application, of: "...establishing stronger links between the insights obtained from high-level integrated assessment modelling and sectoral chapters which provide insights on the concrete steps required to mitigate climate change", with this having been reiterated in your WIREs Climate Change article (see for example pp.4-5 - "4 | PREPARATIONS FOR THE IPCC 6TH ASSESSMENT CYCLE)." This hapless decision of yours, as Working Group III (WGIII) co-chairs, to prolong the obfuscation was foreseen by me with this having being determined in my prescient WIREs Climate Change opinion piece. In doing so, you both through your usual offering of intentionally ambiguous and misleading statements are directly implicated in the continued deception of not only the policymakers but also the public. Such an act is contrary to the IPCC's published charter. **The consequence of your decision is that your obfuscation has now been recorded for posterity in the annals of scientific literature. With the public reading of this open letter, your hidden agenda of ersatz transparency will become apparent to all.**

Furthermore, your in-article defence of and advocacy for the IPCC's continued engagement with opaque IAMs for the AR6 seems totally incompatible with your reported personal "dislike" of IAMs, with such knowledge having been garnered from numerous discussions I have had with multiple WGIII Bureau members regarding this matter. As reported by Climate Home News 12 January 2021, your offered sole defence of the utility of IAMs was that, "*Our audience are governments. Their big question is how you connect all this human activity with actual impacts on the climate. It's very difficult to make that leap without actually modelling it.*" However, given the absence of transparency in IAM mitigation scenarios, a fact

conceded by the IPCC, then it is absolutely impossible to “*connect all this human activity with actual impacts on the climate*” based upon an IAM, as claimed by you, Jim, when governments are only being provided with the consequential climate impact of human activity but are none the wiser of the nuanced mitigation measures deployed in the ensemble of mitigation scenarios as determined by the modellers that are denoted by the non-disclosed input data which is further obscured by the internal logic of the model, represented only by the published model output. Indeed, an inspection of the governments’ review comments submitted for the Second Order Draft (SOD) confirms that the policymakers are not at all satisfied with the paucity of IAM transparency presented in the AR6. Conceivably, your demonstrated deception may extend beyond that of the policymaker and the public to include members of the WGIII Bureau. Likewise, the deceptive subsection “5.2.2. *Author selection*” in your WIREs Climate Change article is highly offensive given its complete dishonesty in light of what has actually occurred in Chapter 3, as will be enumerated in detail below, especially with your active participation as co-chairs in this persistent obfuscation. You even conceded, in writing, in the middle of the AR6 draft cycle, with this being prior to the authorship of your WIREs Climate Change article, that the inclusion of non-IAM LAs in Chapter 3 had been a failure. I have witnessed, most worryingly, Chapter 3’s CLA and LAs from the IAM research community interfere with submitted draft text written by non-IAM LAs, including myself, with the intention of “mitigating” the reported criticisms and limitations of IAMs thereby corrupting the original and non-biased narrative that was to be presented for the consideration of policymakers. An external desire for such openness and honesty in the reporting of criticisms and limitations of IAMs had been noted in the SOD review of Chapter 3 with extensive comments being made by policymakers from the governments of Germany, Australia, France, the United Kingdom and the United States of America, in addition to like review comments submitted by many independent expert reviewers. I even called out this interference at the time of authoring together with the self-protectionist and self-preservationist tone the text had subsequently developed with no response being received from the IAM authors in Chapter 3 responsible for such “creative writing”. On the 30th March 2021, I brought to the attention of you both, to the WGIII Bureau and to the IPCC chairman this duplicitous act with this corrupted section of the draft being flagged by the Government of the United States of America in the SOD review and I quote the government comment - “*This entire section has a rather defensive tone in support of IAMs which may not build confidence in IAMs for a non-technical reader.*” No response was received by me from any member of the IPCC in respect to this disturbing matter. This “defensive tone” as identified by the Government of the United States of America is entirely attributable to the duplicitous conduct of those from the IAM research community party in the doctoring of the text and I find such conduct from “scholars” to be totally abhorrent. For you both to then offer “*author selection*” as an example as one of the “[*actions taken during AR6*]” so as “...to enhance the transparency of modeling and scenarios in the WG III AR6 report” with you both knowing full well that this was not to be the case at the time of authoring is an indefensible act of subterfuge and is indicative of your inability as WGIII co-chairs to report on the accuracy of events. Not surprisingly, this inability of yours to accurately report on events concerning the AR6 drafting cycle extends to include, as will be demonstrated below, your inability to ensure the accurate reporting on the state of scientific knowledge concerning IAMs in the AR6 with this being attributable to your suspect governance as co-chairs of WGIII worsened by your conflicting association with the IAMC.

Speaking of reactionary responses to my WIREs Climate Change opinion piece, I was bemused by Keppo (a member of the IAMC) and colleagues’ (with a number of co-authors also from the IAMC)(Keppo et al. 2021). Exploring the possibility space: Taking stock of the diverse capabilities and gaps in integrated assessment models, p.14) assertion that, IAM teams “...work closely with governments but are not directly controlled by them. Most are either academic units or in arms-length institutions that are granted intellectual freedom. This helps to balance the credibility dimension and the salience dimension”, in spite of the authors (p.14) conceding in the preceding paragraph that, “...those in positions of political power influence which possibilities are mapped by the modellers...” Regardless of this ill-considered, delusory and contradictory assertion, the authors appear to have conveniently failed to properly consider the increasingly perverse and pervasive power nexus that exists either explicitly, or more likely implicitly, between governments, industries and representative bodies that masquerade as “independent” think tanks and/or institutes and the machinations that, as a consequence, eventuate. In other words, political lobbying in the form of “funding” and “donations” and the caustic and deleterious knock-on effects upon the transparency and integrity of science as it interfaces with public policy (e.g., the fossil fuel industry - see for example, Franta (2021). Weaponizing economics: Big Oil, economic consultants, and climate policy delay). Likewise, and perhaps even more concerning due to an absence of inherent democracy and the presence of surreptitious cronyism, is that this phenomenon is also at risk of occurring with the unforeseen erosion of the purported “intellectual freedom” of “academic units” as a consequence of the increasing trend of the private sector, with its inherent association to the finance sector, in the funding of university R&D endeavours with the violation being one in which economic priority assumes primacy over scientific freedom. In the creation of the funding effect as the

result of academic-industry reciprocity comes the risk of such a bias to insidiously impact upon other bias types, chiefly being, confirmation and academic. As Krimsky (2005. The Funding Effect in Science and its Implications for the Judiciary, p.43) observed, “*Academic-industry and nonprofit-for-profit collaborations have led to the development of revised institutional norms that accommodate new organizational relationships. Among the most pronounced changes, which have been documented in a number of research studies, are that secrecy has replaced openness, privatization of knowledge has replaced communitarian values, and the commodification of discovery has replaced the norm that university-generated knowledge is a free good that is part of the intellectual commons.*”

In light of the above discussion, may I suggest that Keppo et al. acquaint themselves with the “formalisation” of the RCP2.6 in that subsequent to the published IMAGE 2.6 W/m² scenario of van Vuuren et al., (2006), the IAMC, requested by and reporting to the IPCC (2009. FUTURE IPCC ACTIVITIES – NEW SCENARIOS Report of 2.6 Versus 2.9 Watts/m² RCP Evaluation Panel John Weyant, Christian Azar, Mikiko Kainuma, Jiang Kejun, Nebojsa Nakicenovic, P.R. Shukla, Emilio La Rovere and Gary Yohe), solicited modelling teams to (*ibid.*, pp.4-5) “...employ their standard assumptions and include biomass and CCS, but avoid non-traditional assumptions like geo-engineering, and dramatic dietary changes or severe economic collapse” as a means of establishing the “robustness” of the IMAGE 2.6 scenario. Rather coincidentally, the EC made like enquiries of the PBL and the IIASA regarding the Commission’s very specific desire for a new pathway with a lower radiative forcing target reduced by an exact, and coincidentally, 0.3 W/m² to that of the RCP2.9, with the IPCC report stating (*ibid.*, p.5) that, “[d]uring the course of the deliberations of the Panel, the European Commission asked the two European RCP-ready IAMs – IMAGE and MESSAGE - to produce, if possible, 2.6 w/m² scenarios with which they were comfortable. As expected, these scenario [*sic*] do include a moderate amount of overshooting of the 2.6 w/m² radiative forcing target during the middle of the century, but they are able to get back under the target by the end of the century primarily through the use of bio-energy with carbon capture and sequestration (BECS) [*sic*], a net negative greenhouse gas emitting technology.” This example of the RCP2.6 illustrates considerable vectors for the introduction of confirmation, funding and/or academic biases in, as well as political and/or industry influence on, IAM scenario design; vectors that have been, on the one hand dismissed by Keppo et al. (2019) but on the other hand, peculiarly acknowledged by them with the authors worryingly suggesting a possible resultant (*ibid.* p.14) “*power bias of scenarios*” and accordingly, a deficiency in the legitimacy of analysis as provided by IAMs.

The potential creation for such insidious reciprocity is illustrated by Imperial College London’s emeritus professor Gringarten, chair of petroleum engineering, with his following statement, as reported in The Guardian 22 October 2013 - “*From Anglo American to Total, researchers at Imperial have worked with some of the largest names in the industry. Many of them even used to work for those same companies before moving into academic research. My advice to companies? Visit us! Come and see us and talk to us about your needs, we’re in the best position to try to solve problems.*” I note that this page is no longer available on Imperial College London’s website, now only returning a 404 error. Underscoring this strong “industry link” as reported by The Guardian in the same article, is that Imperial College London “...had received more research funding from fossil fuel companies than any other UK institution (£17.3 million from Shell and BP alone)...As well as research funding, Imperial received donations, sponsorship and consultancy deals with BP, Total, Shell, Schlumberger, Statoil, EDF, Anglo American, Aramco, ConocoPhillips, Exxon, Texaco, British Gas and npower.” On 12 Dec 2021, The Guardian reported that Imperial College London had received £54 million since 2017 with £39 million of the sum being from Shell. According to Imperial College London, the funds received, as reported by The Guardian, were for research into “...energy transition, lowering carbon emissions in extraction and in carbon mitigation measures”.

Other noteworthy within “*arms-length*” industry partnerships with Imperial College London include - the INFUSE: Interface with the Future - Underpinning Science to Support the Energy transition project in which in Imperial College London, Diamond Light Source, and Shell received in 2021 £4.2 million in research funding from the Engineering and Physical Sciences Research Council (EPSRC); the Shell University Technology Centre (UTC) for Fuels and Lubricants located within the Department of Mechanical Engineering with Shell stating that in order to achieve their “net-zero energy business” target, “...Shell will need technology solutions and innovations in multiple areas and believes that successful partnerships, such as this with Imperial, are key to success.”; the Qatar Carbonates and Carbon Storage Research Centre (QCCSRC), the result of a 10-year, \$70 million strategic collaboration between Imperial College London, Qatar Petroleum, Shell and the Qatar Science and Technology Park, part of Qatar Foundation with Imperial College London’s Geoffrey Maitland stating that, “*We are very excited about building on our existing strong collaboration with Shell to work with them and our new partners in Qatar to address the challenge of making a step-change in our understanding of the complex, high capacity carbonate reservoirs of the region,*

enabling them to be used to store vast quantities of carbon dioxide and ensuring its long-term retention underground.” The QCCSRC concluded that, *“We look forward to continuing to work closely with our partners from Qatar and Shell on research to make this CCS vision a practical reality.”*; and BP with Rebecca Wilson, Head of Corporate Partnerships for the Faculty of Natural Sciences, Imperial College London stating, *“Imperial see BP as one of its main industry partners in terms of total research funding, recruitment and a key source of support, advice and insight in the development and application of future technologies... We look forward to progressing our strong and influential relationship.”*

In an Op-Ed, titled *“Climate research funded by fossil fuel profits discredits universities and hurts the planet”*, by Ilana Cohen and Michael E. Mann, published in the Los Angeles Times on 3 April 2022, the authors assert that, *“By funding academic research, especially around climate change, the fossil fuel industry diverts attention from these activities and their devastating consequences. University research partnerships allow these companies to misrepresent themselves as supporting the energy transition while actually doing what they can to slow it down....Fossil fuel money also threatens academic independence. When funding comes from corporations with a fundamental conflict of interest, skewed research outcomes follow.”* Cohen and Mann conclude that, *“Defenders of industry-academic partnerships might counter that at least some research proposals from fossil fuel companies are offered in good faith, and cash-strapped academia needs whatever funding it can get. But the industry cannot claim good faith in funding green research at schools while putting just a fraction of its own investments into renewable energy. And compromised research programs that prop up climate delay and denial are worse for the credibility of universities, and the security of our planet, than no programs at all. Our universities can’t responsibly tackle the climate crisis unless and until they stop taking fossil fuel money for climate and energy-related research. Universities need to lead. This is their moment to choose between a just and sustainable world, or profit-driven fossil-fueled devastation.”* Reaffirming Cohen and Mann’s call, the authors cite that, *“Last month, more than 500 leading academics, climate experts and university affiliates called for an end to the fossil fuel industry funding university climate research. The reason: Faced with the climate crisis, the academic community must play a leading role in developing a renewable-energy future. Brokering financial partnerships with polluters prevents universities from fulfilling that goal and conducting conflict-free research.”*

As a professor from Imperial College London and as an IPCC working group co-chair, I noted that you, Jim, kindly lent your *“external voice”* regarding Shell’s mitigation scenarios to its rather paradoxically titled *“Sustainability Report 2019 - DELIVERING ENERGY RESPONSIBLY”* with you stating in the report that (p.39), *“This unequalled degree of transparency really helps us hone in on what matters, and can underpin the dialogue across sectors that is urgently needed. Our team was very pleased by Shell’s willingness to interpret and explain their scenario work.”* I gather that this accolade of yours, Jim, is in keeping with Imperial College London’s *“longstanding and fruitful partnership”* with Shell, as communicated to The Guardian.

In the introduction to the same sustainability report, Shell CEO Ben van Beurden stated that (p.5), *“Being responsible is also about behaving ethically. Our employees must show absolute integrity every day. They must meet the ethical standards that Shell, and society, expects.”* However, such a warm and fuzzy declaration from the CEO appears completely incompatible with its corporate misbehaviour. Are the ethical standards and integrity that Shell CEO van Beurden speaks of best demonstrated by its recent purchasing of Russian crude at a *“bargain price”* that heralded the end to a self-imposed embargo on Russian oil by the international energy industry in response to Russia’s unlawful assault on Ukraine with Putin’s blatant commission of war crimes? On 6 March 2022, the Wall Street Journal reported that the London-listed Shell had bought, on the 4 March, 100,000 metric tons of Russian crude from Trafigura Group Pte. Ltd. at the widest discount on record of \$28.50 per barrel on account of the Group having earlier failed to receive a bid for its cargo at the then higher asking price. Evidently, if the price is right, Shell’s *“ethical standards”* and *“absolute integrity”*, with such being aligned to society’s ethical standards, are conveniently overlooked. Money before morality. Profits before people. As the Ukrainian Foreign Minister Dmytro Kuleba asked of Shell on Twitter, *“Doesn’t Russian oil smell Ukrainian blood for you?”* Or rather are the ethical standards and integrity that Shell CEO van Beurden speaks of better demonstrated by Shell’s disruption to climate change mitigation? As reported by Kenner and Heede (2021. [White knights, or horsemen of the apocalypse? Prospects for Big Oil to align emissions with a 1.5C pathway](#)), Shell’s phases of disruption to climate change policy have included lobbying expenditure in the United States equating to \$151 million (1998-2019), corporate political donations in the United States of \$3 million (1998-2019) and has funded climate change denial and publicly questioned climate science. As Howarth, Chief Executive of ShareAction remarked concerning InfluenceMap’s 2019 report, *“InfluenceMap’s research confirms a widely held suspicion that Big Oil’s sustainability reports and shiny climate statements are all rhetoric and no action. These companies have mastered the art of corporate doublespeak - by boasting about their climate credentials while quietly*

using their lobbying firepower to sabotage the implementation of sensible climate policy and pouring millions into groups that engage in dirty lobbying on their behalf.” Consistent with the “*all rhetoric and no action*” sentiment of Howarth, Li and colleagues’ analysis concluded that the transition to clean energy business models of Shell, ExxonMobil, BP and Chevron is not materialising and therefore accusations of greenwashing appear supportable due to the misalignment between discourse, actions and investment behaviour of these oil and gas majors (Li et al. 2020. The clean energy claims of BP, Chevron, ExxonMobil and Shell: A mismatch between discourse, actions and investments).

Interestingly, I noted that you, Jim, were succeeded as President of the Energy Institute UK by one Malcolm Brinded, with 38-year long career at Shell, he having performed roles including Executive Director for Upstream International, Executive Director for Global Exploration and Production as well as past chairman of the Shell Foundation; with you providing Brinded a glowing, verging on sycophantish, induction speech. Prior to your presidency from 2015 to 2017, I also noticed that you, Jim, were Vice-President for the period 2013-2015. Further, I noted that Brinded had previously been a member, with you, on the Energy Institute council since 2013.

Regarding the Energy Institute UK, as detailed in your AR6 WGIII co-chair candidacy application, you stated that the Energy Institute “*..is the professional body for individuals working across the energy industry. It provides accreditation for engineers, organises training and develops technical standards.*” This sounds innocuous enough. However, according to the Energy Institute’s website **the merging of the Institute of Petroleum with the Institute of Energy in 2003 resulted in the Energy Institute UK becoming “...the largest lobbying force in parliament and intends to improve the image of the energy sector.”** The directory of membership at the Energy Institute UK includes the likes of ExxonMobil, Saudi Aramco, Shell Exploration and Production, BP and Chevron Corporation. Then we have the quote immediately below taken from the Energy Institute UK blog entry of May 2 2017 written by you, Jim, the then president, “*Likewise in oil and gas, climate change has become a mainstream, existential issue. The Energy Institute’s recent International Petroleum Week, attended by IPCC chair Dr Hoesung Lee and UNFCCC executive secretary Patricia Espinosa, saw meaningful dialogue about the industry’s role in defining pathways to decarbonisation and bringing on the technologies such as carbon capture that will make it possible.*” Curiously, it is this exact technology of Carbon Capture and Storage (CCS) including variants such a Bioenergy with Carbon Capture and Storage (BECCS), with these being the *deus ex machina* of the fossil fuel industry, that are the very same technologies “legitimised” by IAMs and as “advocated” by you, Jim, and the IPCC chairman Hoesung Lee during the AR6 draft cycle in public interviews. I noted that your interest, Jim, in the oil industry dates back to the early 1990’s with a rather thought-provoking publication of Skea (1992). Environmental issues facing the oil industry. Energy Policy. pp.950-958. More recently, you, Jim, remarked in the BBC podcast “No Hot Air” on the 17 October 2021 regarding the IEA’s recent scenarios and its unambiguous stance advocating for the complete cessation of oil exploration, that, “*In that scenario there is no further development of oil fields globally at all*”, with you further responding, “*If you were to pursue the much more flexible ‘well below 2C’ formula there probably would be space for new oil fields but nevertheless a lot of oil fields that have been proved up would still need to stay in the ground globally*”.

I also noted that Hoesung Lee had been employed by a fossil fuel major, namely Exxon Company USA, and had acted on several company boards with significant fossil fuel interests such as Hyundai Corporation and the Korean Petroleum Development Corporation. InfluenceMap’s November 2021 report, titled Corporate Climate Policy Footprint: The 50 Most Influential Companies and Industry Associations Blocking Climate Policy Action Globally, ranked ExxonMobil and Hyundai as number 1 and number 25, respectively, as most negatively influential global companies on Paris-aligned climate policy.

In an interview with the World Energy Focus reported 16 November 2015, Hoesung Lee responded to the following question: **Can the oil, gas and coal sectors be part of a solution to the climate problem?** with, “*Industry in general, and the energy sector in particular, need to be part of the solution to climate change. For example, we need more investment in carbon capture and storage technology. As Working Group III of the Fifth Assessment pointed out, it will be very difficult to reach zero carbon emissions without it. And this is clearly an area where energy companies have a vested interest in ensuring that the technology is further developed and implemented.*” I assume that Lee’s comment of, “*As Working Group III of the Fifth Assessment pointed out, it will be very difficult to reach zero carbon emissions without it*”, is in reference to the mitigation scenarios provided by IAMs, with these being the very opaque IAM scenarios that received trenchant criticisms when the AR5 was published with respect to their lack of transparency.

An absolutely identical sentiment was espoused by you, Jim, on the 11 July 2016 in the CarbonBrief. In the Carbon Brief interview, the question of WGIII venturing into the bias realm of “picking technology winners” was broached, with you responding, “*There’s no risk of us ever saying that...*” However, earlier in the interview you stated that, “*And all the work that IPCC showed from the fifth assessment cycle [AR5], has basically demonstrated that carbon capture and storage – the ability to get carbon out of the atmosphere – is going to be critical in terms of meeting future targets set at the international level. So, CCS is absolutely critical.*” Identical to that of Lee’s, your assessment of the absolute necessity and thus advocacy for CCS is based simply upon the ensemble of quixotic IAMs mitigation scenarios that featured in the AR5. The widespread, trenchant criticisms received post-publication of the AR5 in terms of technological feasibility, sustainability and alleged indispensability founded upon a shared economic paradigm have now reappeared in numerous comments submitted by expert reviewers and governments during the AR6 draft review process (see, for example, Chapter 3 FOD and SOD review comments).

Similarly, on the 23 September 2021, during discussions on the portrayal of the suite of carbon dioxide removal (CDR) technologies at the closing plenary to the Light Stocktake Meeting for the AR6, you responded, with contextual inference of CCS, to those vocal scientists concerned about the tone of the messaging with words to the effect of - *I thought that the need for CDR was established in the Special Report 1.5C.* However, this statement of yours is very much an untruth in terms of the portrayed dominant CDR technology type of CCS. As Glen Peters posited on Twitter in response to Marta Victoria on the 18 February 2022 concerning questionable IAM assumptions, - “*Scenario outputs justify statements like “we need CCS”. Would we even talk about BECCS if it was never put in an IAM?*” **For example, restricted to integrated assessment modelling, the LED scenario which first appeared in the Special Report 1.5C (SR1.5 - referred to as P1 in the SPM), now presented as an IMP labelled as LD scenario in the AR6, suggests otherwise in terms of the need for CCS with this scenario having been purposefully designed to exclude CCS, including its CDR variant of BECCS, with a preference for energy demand reduction, a higher market share of renewables, accelerated transition away from fossil fuels, dematerialisation and material efficiency improvements, improved representation of innovation diffusion in conjunction with a moderate level of afforestation for the purpose of residual CO2 emissions sequestration in order to meet the 1.5C target by 2100. This scenario that opts for a silver buckshot approach rather than a silver bullet approach demonstrates, unequivocally, the dispensability of the “indispensable” technology of CCS, be it fossil-related or bioenergy-related for the purpose of “negative” emissions. The fact that there are a higher number of IAM mitigation pathways, by design, which deploy CCS does not indicate an improved degree of robustness in scenario “findings” nor does it establish a “need”, as according to you or chairman Lee, particularly when alternative pathways such as the LD scenario proves that this assertion as to the requirement for this technology as being false. The mere frequency of CCS deployment in IAM mitigation scenarios does not remotely suggest technological necessity or legitimacy, regardless of yours, Jim, and chairman Lee’s conjectural claims suggesting otherwise and is most likely attributable to bounded cross-institutional assumptions stemming from shared cognitive routines influenced, directly or indirectly, by political and/or industry affiliations in order to achieve a preferred analytic outcome (see for example, the range of actors involved in the “formalisation” of the infamous RCP2.6). The selective portrayal of technologies in AR6 IAM scenarios determined by the modellers such as the dominant technology of CCS, be it fossil CCS or BECCS, is further underscored by the reality that even when accounting for “research lag”, relatively few IAM scenarios in the AR6 model the alternative CDR technology type of Direct Air Capture with Carbon Storage (DACCS). Therefore, is this representation of a specific technology type, that is to say CCS, a “need” of society in the future, or a “want” of the modellers and their affiliates?**

Later in the interview with the World Energy Focus, Hoesung Lee was asked if CCS could prevent existing fossil fuel reserves from becoming stranded assets, with Lee responding with the following, “***Yes, the degree to which they become stranded assets depends on the degree to which we can develop carbon capture and storage technologies. The better this technology becomes – the more carbon it can prevent from entering the atmosphere – the less these assets need to be kept in the ground, and vice versa.***” It is beyond comprehension that such an irresponsible, technocentric, finite resource exploitative statement advocating for the continued combustion of fossil fuels justified on the conditional premise of the development and deployment of speculative, large-scale, high-risk, fossil fuel industry-backed CCS, described by Lee as having “enormous value”, would issue from the mouth of the very person charged to lead the IPCC. **Perhaps under Lee’s chairmanship, the IPCC initialism may well stand for - Institute for Petroleum and Carbon Capture.** Such an outrageous, anthropocentric statement from Lee would indicate, most worryingly, that the IPCC chairman is not familiar with the overarching precautionary principle

of sustainable development. Similar curious statements concerning CCS and fossil fuel combustion from the IPCC can be found at the time of the Fifth Assessment Report with then IPCC chairman Rajendra Pachauri remarking, “*With CCS it is entirely possible for fossil fuels to continue to be used on a large scale*”, as reported by Damian Carrington in The Guardian 3 November 2014. Moreover, this statement of Lee’s appears conflicting with his assertions made in a CarbonBrief Interview of 15 September 2015 regarding the freedom to express a personal opinion during his term as IPCC chair, where he stated that, “*So, any thinking of presenting a personal view while holding the hat of IPCC chair is out of the screen. So, there should not be any personal view from the IPCC chair. No matter what the IPCC chair says, everyone will interpret that as the view of the IPCC.*” The incompatibility of this statement to that of the preceding statement of Lee’s concerning the continued combustion of fossil fuels in concert with CCS would characterise the former statement as being an expressed “personal view” due to the fact that such messaging has never been explicitly stated in any IPCC publication, although it may be argued that overtones of such messaging are present in the now derided IAM mitigation scenarios which appeared in the AR5 and the SR1.5 with their over-reliance on the large-scale deployment of the chimera technology of BECCS; **with the primary, non-technical distinction in terms of sequestration between fossil CCS and BECCS being temporal, that is to say, the point of engineering intervention in the carbon cycle.** Anderson and Peters (2016). The trouble with negative emissions - Reliance on negative-emission concepts locks in humankind’s carbon addiction, p.183) ask and conclude - “*Why, then, is BECCS used so prolifically in emission scenarios? The answer is simple. Integrated assessment models often assume perfect knowledge of future technologies and give less weight to future costs. In effect, they assume that the discounted cost of BECCS in future decades is less than the cost of deep mitigation today. In postponing the need for rapid and immediate mitigation, BECCS licences the ongoing combustion of fossil fuels while ostensibly fulfilling the Paris commitments.*” This final sentence of Anderson and Peters’ is most salient to this present discussion. In an article of April 4 2022, published in The New Republic, Genevieve Guenther, with like concern to that of Anderson and Peters, argues that IAMs which “*...assume we can deploy large-scale carbon capture are leading us into a trap, distracting from the urgent need to reduce fossil fuels.*” As proof of this political ecology “trap”, the author provides by way of example, “[a] 2021 Congressional Research Service report on climate scenario modeling’ which ‘*...advises that the IPCC’s mitigation scenarios may “provide a foundation for Members of Congress who are considering climate change mitigation proposals,” because they are “specifically designed to find technology deployments that meet specified climate or emissions constraints, typically in a lowest-cost manner.*” Guenther counsels that, “*...policymakers do not always see IAMs as hypothetical explorations. Instead, they tend to see them as maps to the future.*”

Some research scholars advocating CCS mitigation advance unsound and contradictory statements such as the following from Riahi et al. (2004). Prospects for carbon capture and sequestration technologies assuming their technological learning, p.1310) with the research having been funded by the US Department of Energy - “*There are a variety of possibilities to reduce carbon emissions, ranging from the enhancement of energy efficiency to the replacement of fossil-based energy production by zero-carbon technologies. Most of the currently vital mitigation technologies, however, are more costly and technologically inferior in some ways compared to the older and more “mature” fossil alternatives. Thus, there is an increasing interest among experts and policy makers in “add-on” environmental strategies to combine state-of-the-art fossil technologies with advanced technologies that capture carbon for subsequent sequestration. Such strategies, if successfully implemented, could enable the continuous use of fossil energy at low (or almost zero) emissions.*” The authors appear to erroneously conflate the nascent “add-on” technology of CCS for the purpose of mitigation to that of “mature”, “state-of-the-art fossil technologies” and in doing so, CCS, in the eyes of the authors, ceases to be a “*...more costly and technologically inferior in some ways*” when “*compared to the older and more “mature” fossil alternatives*”. This unsound action of the authors makes the basis for their argument in conducting the research somewhat perplexing and untenable. Riahi et al. (2004, p.1314) found with “*technological learning*” being applied to CCS in MESSAGE-MACRO that this technology diffused “*...pervasively into the energy markets, accomplishing the continuous use of fossil fuels at relatively modest costs and low carbon emissions.*” Informed by their modelling exercise with the nominated discount rate of 5%, the authors (p. 1316) conclude, on a purely theoretical footing, “*...that carbon capture and sequestration is one of the obvious priority candidates for long-term technology policies and enhanced R&D efforts to hedge against the risk associated with high environmental impacts of climate change.*” While the authors acknowledge the environmental risks associated with climate change as a means of providing justification for their recommendation of enhanced CCS R&D, the authors naively fail to give full and proper consideration to the environmental risks, including climate change, associated with CCS (see for example, Koornneef et al. (2012). The environmental impact and risk assessment of CO₂ capture, transport and storage - An evaluation of the knowledge base). Opposing Riahi and colleagues’ entirely theoretical basis for CCS advocacy in terms of its utility with this having been coded into their reductionist model, in addition to a

further eighteen years of R&D into CCS since the authors' publication; empirical evidence would suggest that CCS presents inherent risks that resist mitigation efforts regardless of engineering solution safeguards (see for example, the performance of CCS at the Chevron operated Gorgon LNG project, Western Australia partnered by ExxonMobil, Shell, Osaka Gas, Tokyo Gas and Jera). Identical to that of Lee's advocacy for CCS, Riahi and colleagues' US Department of Energy funded research, in all respects fail, either intentionally or unintentionally, to apply the precautionary principle when making such policy recommendations concerning CCS. Complementing the precautionary principal, Lee and Riahi would be well served to apply sustainability criteria to this technology and consider the social dimension of carbon dioxide removal technologies (CDR) where Cox et al. (2020. Public perceptions of carbon dioxide removal in the United States and the United Kingdom, p.3) found that public perceptions *"...of the role of science in combating climate change were an important factor underlying attitudes to CDR. The survey item "CDR technologies are being driven more by profit than the public interest" had the highest proportion of "strongly agree" in both countries, demonstrating that CDR encounters strong risk perceptions relating to scepticism about scientific motives. Workshop participants were often ambivalent, talking highly of scientific progress yet sceptical that innovation under real-world conditions will mitigate against unforeseen harms."*

Perhaps rather fortuitously, the aforementioned companies that Hoesung Lee had previously been associated with of the ExxonMobil (formerly Exxon Company USA), the Hyundai Corporation and the Korea National Oil Corporation (formerly Korean Petroleum Development Corporation), all strongly advocate the requirement for CCS technologies for climate change mitigation and have invested heavily in its development including some that hold patents in this technology. As reported in the Maritime Executive 26 May 2021, Yang Soo-young, president of Korea Petroleum Corporation, stated that, *"Oil companies are actively engaged in the era of decarbonization around the world. In particular, oil companies with expertise in deep underground strata are playing a leading role in the CCS business. As Korea National Oil Corporation promotes floating offshore wind power and CCS projects using the Donghae Gas Field, which will be terminated in 2022, it can reduce demolition costs, reduce investment costs, and actively participate in the decarbonization policy."* While Hyundai Heavy Industries (HHI), as reported in The Maritime Fairtrade 6 October 2021, *"...has announced it is going to build an offshore storage plant to capture carbon dioxide. Carbon capture and storage (CCS) is said to be an essential technology at offshore construction and manufacturing sites to achieve the carbon neutrality goal, which has also been pledged by the South Korean government to [sic] accomplish by 2050. As part of such efforts to achieve the national goal, HHI, their affiliate Korea Shipbuilding & Offshore Engineering (KSOE), and government-run company Korea National Oil Corp. (KNOC) designed a plan to construct a CCS plant in the East Sea."* The genesis of CCS technologies is of particular interest in this instance, in that, it was originally conceived for the purpose of enhanced oil recovery. As stated by Kenner and Heede (2021, p.4) BP, Chevron, ExxonMobil, and Shell's *"... commitments to reduce emissions have relied on carbon offsetting and carbon capture and storage (CCS) [50,78]. This is not the same as a reduction in extraction or exploration; indeed, in some cases the CCS projects in place are to support more oil extraction known as enhanced oil recovery"* with these companies having *"...all stated they expect to be pumping oil and gas out of the ground beyond 2050"* (*ibid.* p.9). As a matter of fact, Yonhap News Agency on the 3 March 2021 reported that Hyundai Heavy Industries Holdings Co. signed a deal with Saudi Aramco to cooperate on a hydrogen project. The deal brokered will have Hyundai Oilbank Co. importing LPG from Saudi Aramco to produce blue hydrogen with the CO₂ captured and stored during the production process being returned to Saudi Aramco for the purpose of extracting crude oil from exhausted oil fields. As you both well know, Saudi Aramco has contributed to past IPCC publications including the WGIII report of the AR6 and has affiliations with Imperial College London.

Further, affiliations between the IAM research community and the fossil fuel industry are evident, for example, in the Joint Global Change Research Institute, consisting of Pacific Northwest National Laboratory and the University of Maryland, with its Global Energy Technology Strategy Program being sponsored by Chevron and ExxonMobil. Such an affiliation is consistent with rumours circulating amongst WGIII authors of the AR6 regarding an IAM-fossil fuel industry nexus. It is also worth noting that Hoesung Lee is also a member of the International Advisory Board of the Pacific Northwest National Laboratory. In like manner, the Stanford Energy Modelling Forum has the affiliated members of the American Petroleum Institute, Aramco Services Company, BP, Chevron, ExxonMobil, and Schlumberger, with John Weyant being the director of the Stanford Energy Modelling Forum, as well as being a founder and chairman of the Scientific Steering Committee for the IAMC. Interestingly, the American Petroleum Institute's use of "independent" economic models from Charles River Associates to delay and discredit climate change mitigation policy has been examined in detail (see Franta 2021. Weaponizing economics: Big Oil, economic consultants, and climate policy delay). ExxonMobil is listed as a member of the American Petroleum Institute, with former ExxonMobil and Exxon CEO and chairman Lee Raymond having acted as chairman of the American Petroleum Institute

for two terms. Franta (ibid. p.16) concludes - *“For decades, the fossil fuel industry has hired economic consultants to help weaken and delay US and international climate policy. Among them, the economic consultants of Charles River Associates played a key role, helping to undermine carbon pricing, international climate agreements, and other climate policies from the early 1990s onward. The work of these economists was often portrayed to the public as independent, when in fact it was funded by the fossil fuel industry, and their models were incomplete and biased in favor of continued fossil fuel use. Yet their conclusions often passed without challenge and eventually came to represent a significant part of conventional economic wisdom.”* According to the same InfluenceMap 2021 report, the American Petroleum Institute was ranked number 1 of the most negatively influential industry associations on Paris-aligned climate policy. Additional affiliation between the IAM research community and the fossil fuel industry is apparent in scientific journal authorship patterns, in that members of the IAMC have co-authored studies with the petroleum industry such as ExxonMobil (e.g. Haroon Kheshgi). I also note that the 2019 Stanford Energy Modeling Forum Snowmass Workshop included representation from the IPCC WGIII (i.e. Jim Skea), members of the IAMC (including a number of AR6 Chapter 3 authors) and ExxonMobil in Haroon Kheshgi and Nazeer Bhore. Sponsorship for the 2019 Stanford Energy Modeling Forum Snowmass Workshop workshop included ExxonMobil. May I remind you both that InfluenceMap’s November 2021 report ranked ExxonMobil as number 1 for the most negatively influential global company on Paris-aligned climate policy.

Moreover, direct affiliations between the IPCC and the fossil fuel industry are also evident, for example, with ExxonMobil’s CCS expert and former IPCC Lead Author Haroon Kheshgi’s presentation at the Stanford Energy Modeling Forum Snowmass Workshop July 22 2016, the very same workshop you both presented at, with Kheshgi lauding that ExxonMobil has had 30 plus years of IPCC participation and that *“...over 15 years, our scientists have been participating directly in the preparation of IPCC reports, which are an important contribution to climate science.”* When Kheshgi refers to ExxonMobil’s 30 plus years of IPCC participation is he referencing the company’s successful clandestine campaign, with diplomats in Washington having provided confirmation that the U.S. had indeed pursued an aggressive offensive (see memo dated 6 February 2001 from ExxonMobil’s Randol to Howard of The White House Council on Environmental Quality - ***“Issue: Can Watson be replaced now at the request of the U.S.?”***), of proposing a strategy to the Bush administration to remove the then IPCC chairman Robert Watson and for the installation of “industry sympathetic” Rajendra Pachauri? Rather perversely, this is same company that has employed numerous strategies to delay its business disruption such as, lobbying expenditure in the United States to the sum of \$275 million (1998-2019), corporate political donations in the United States to the sum of \$20 million (1998-2019) and has, like Shell, funded climate change denial and publicly questioned climate science (Kenner and Heede, 2021). May I remind you, once again, of InfluenceMap’s November 2021 report ranking ExxonMobil as number 1 for the most negatively influential global company on Paris-aligned climate policy.

I also noted on Kheshgi’s closing slide to his Stanford Energy Modeling Forum presentation a reference to an IPIECA 2006 report summary titled, *“Increasing the Pace of Technology Innovation and Application: Enabling Climate Change Solutions”*, for which he chaired the Workshop Task Force. Other notable speakers at this IPIECA event included luminaries such as James Edmonds (Pacific Northwest National Labs), John Weyant (Stanford University), Arthur Lee (Chevron), Pradeep Dadhich (TERI), Brian Fisher (ABARE), David Hone (Shell) and Bill Thompson (BP). On CCS, IPIECA (ibid. p.10) states that, *“[c]arbon dioxide capture and geological storage has the potential to address a significant proportion of the world’s fossil energy CO2 emission allowing fossil fuels to continue contribute to the global energy mix in an environmentally sustainable manner.”* If either of you are interested in reading the report summary, it is available at www.world-petroleum.org. As advertised by IPIECA, that is to say, the International Petroleum Industry Environmental Conservation Association, it *“...is an observer organization and provides technical input when requested on the reports produced by the IPCC, such as the Fifth Assessment Report (AR5) and the Special Report on Carbon Capture and Storage. The secretariat and member company representatives also attend IPCC meetings as observers.”* IPIECA declares that the association’s establishment was at the request of the United Nations Environmental Programme (UNEP) for the purpose *“...to develop a shared industry response to environmental and social issues”*, and that for more than 45 years, *“...Ipieca has been working with its members to advance the global oil and gas industry’s environmental and social performance.”* I note the IPIECA members include BP, Chevron, ConocoPhillips, ENI, Equinor, ExxonMobil, Inpex, OMV, Petroleum Development Oman, PTTEP, Repsol, Schlumberger, Shell, Total and Wintershall. Celebrating 45 years of IPEICA, BP CEO Bernard Looney provided the following testimonial - *“BP’s association with IPIECA spans 45 years. That’s over 4 decades of bringing our industry together to develop and share good practices to manage environmental and social challenges. The world faces many pressing issues currently, and our industry has a part to play. IPIECA’s role will be to continue to harness these efforts and those of civil society.*

So long as we choose the path of collaboration and innovation, both our industry and the world have a great future ahead – one that will help solve the dual challenge of more energy with less emissions.”

The aforementioned oil and gas majors’ funding of climate change denial and publicly questioning climate science is best illustrated by the disconcerting fact that both Shell and Exxon, later ExxonMobil, were members of the now defunct Global Climate Coalition, an alliance formed in 1989 of fossil fuel and other anti-climate policy interests, with Exxon being a founding member in addition to being a founding member of the coalition’s board of directors. According to InfluenceMap’s 2019 report, the five largest publicly-traded oil and gas majors (ExxonMobil, Shell, Chevron, BP and Total) have, since the Paris Agreement, invested in excess of \$1Bn of shareholders funds on deceptive climate-related marketing and lobbying.

Equally concerning, the Global CCS Institute in an insight dated 8 April 2021 stated that, *“In addition to peer-reviewed scientific, technical and socio-economic literature, the IPCC recognizes that other sources...may also provide crucial information for IPCC Reports. This is how the annual Global Status of CCS reports and other specific reports by the Global CCS Institute feed into the process preparing the Sixth Assessment Report.”* This type of non-peer reviewed, “lobbying” literature sourced from industry and/or NGOs has been controversial for the IPCC with its past Assessment Reports, and was a focus of the InterAcademy Council’s (IAC) 2010 report into the IPCC’s processes and procedures. As declared by the Global CCS Institute its members include multinationals such as Shell, ExxonMobil, BP, Horizon Oil, Japan Oil Engineering, Japan Oil, Gas and Metals National Corporation, JX Nippon Oil and Gas Exploration, Mitsubishi, Occidental Petroleum Corporation and Schlumberger. An article by Inside Climate News of 12 January 2022 concerning the American Petroleum Institute’s recent lobbying activities noted that U.S. President Biden’s infrastructure bill included in excess of \$12 billion in funding for carbon capture and removal, with an expectation that much of the money would be directed to oil and gas companies. Further to the issue of CCS, your attendance, Jim, at the Global CCS Institute’s 2018 “Accelerating CCUS” conference as a featured speaker from the IPCC Working Group III was “duly” noted and I quote from your conference interview as featured on the Global CCS Institute’s website, dated 15 February 2019, *“...and I think that’s the message, you know, you know, CCS and other kinds of carbon dioxide removal technologies have to be a part of the picture if you are going to take the Paris, kind of, long-term temperature goals seriously.”* When carefully considering your crafted words, you of all people, Jim, ought to know that this statement of yours is not at all true when using the IPCC’s ultimate mitigation feasibility yardstick, that is to say IAMs (*cf.* the IMP LD scenario, as previously discussed above) and as clearly stated in Grubler et al. (2018. A low energy demand scenario for meeting the 1.5 °C target and sustainable development goals without negative emission technologies, p. 520), *“Carbon capture and storage (CCS) for fossil or bioenergy is explicitly excluded in LED (Supplementary Note 11).”* But as you well know Jim, a “grand orator” has to play to his/her/they audience, but no harm done; what’s a bit of misinformation among friends. Once again, as Glen Peters rightly observed of IAMs: *‘Scenario outputs justify statements like “we need CCS”.’*

The above described informal network may also partly provide an additional cogent explanation as to why IAMs even for the AR6 employ “**debated**” discount rates, as described in the Annex I (p.14) of the WGIII AR6 FGD in the sense that such rates are *“...judgement based on hidden and/or explicit values”* despite that fact that an expert review deemed such rates as being too high (see Chapter 1 p.40 of the WGIII FGD (version marked Nov 10) also Chapter 1 p.45 Accepted Version), including an absence of sensitivity analysis of said (as readily acknowledged in Annex III of the FGD p.56), in the production of mitigation scenarios and in doing so, favour delayed action and the deployment of technologies such as CCS in the later half of the century. Such intellectual ossification may be explained by way of confirmation, academic and funding biases present in the modelling practices (see discussion above). This pathway typology is of course consistent with the self-preservationist narrative peddled by the fossil fuel industry and follows the new playbook of the industry’s “discourses of climate delay” denoted, in this instance, by “technological optimism” and “fossil fuel solutionism” as examined by Lamb et al. (2020. Discourses of climate delay). Provocatively, strong elements of “technological optimism” and “fossil fuel solutionism” are evident in both yours, Jim, and the IPCC chairman Hoesung Lee’s aforementioned inappropriate “advocacy” for CCS technologies made during the AR6 drafting cycle. I have previously alluded to this most concerning ethical issue in my WIREs Climate Change opinion piece. **With technological credence having been provided by purported “objective” IAMs and the *soi-disant* “neutral” IPCC (*cf.* IPCC chairman Lee’s above folly regarding the continued combustion of fossil fuels in conjunction with CCS), it is critically important to recognise the Pandora’s box disposition of CCS technologies particularly under certain politico-economic settings.**

Is this the calibre of science that IPCC chairman Hoesung Lee refers to on July 23 2021 at the Approval Session for the Working Group I contribution to the AR6? - *“In the pandemic, the public has seen first-hand*

the critical role of science... And recognizing the fundamental threat from climate change, the public is likely to have a high expectation for science to tackle the climate change challenge." This misapprehension by Lee is further heightened in his follow-up remark that, *"I urge our government delegates to lead by example to conclude this report according to the highest scientific standards in a comprehensive, objective, open and transparent manner."* I presume that Lee is not suggesting that WGIII's demonstrated absence of scientific standards pertaining to IAMs is consistent with the aforementioned qualities of **"comprehensive"**, **"objective"**, **"open"** and **"transparent"**? It is derisible for the IPCC to call on government delegates *"to lead by example"* pursuant to *"the highest scientific standards in a comprehensive, objective, open and transparent manner"* when the IPCC chairman himself, Hoesung Lee, and the IPCC-IAMC contingent have consciously operated in a limited, subjective, closed and opaque manner during the preparation of the AR6 and thereby have arrogantly failed to abide by any scientific standard whatsoever. Ironically, the IPCC chairman Lee's call on government delegates *"to lead by example"* according to the *"highest scientific standards"* is correct given the IPCC's total failure to adhere to his above expressed standards throughout the AR6 with respect to IAMs and associated mitigation scenarios.

Moreover, perhaps the above described informal network of the IPCC, the IAMC and the fossil fuel industry may provide some acuity into the Climate Home News' headlining statement of 12th January 2021 - **"why the UN climate science story names no villains."** As Brulle quipped on the 19 November 2020 via Twitter in terms of the dearth of reporting in IPCC publications on organised efforts to obstruct climate action as a barrier to mitigation, *"Sort of like trying to tell the story of Star Wars, but omitting Darth Vader."* This statement of Brulle's holds true for the AR6 SPM "ACCEPTED VERSION" with its exorcised edits. Reported by the BBC on 21 October 2021, regarding the issues of "fossil fuels" and "impartial science" as flagged in an analysis of a leaked draft of the AR6 SOD including concomitant reviewer comments, a spokesperson for the IPCC responded, *"Our processes are designed to guard against lobbying - from all quarters."* Does this statement from the IPCC include the potential for an IAM to become a "Trojan horse" exploited, surreptitiously, by behind-the-scene lobbyists?

Are the governments of the world, including those represented at the IPCC, aware of the institutional alignments that exist between select IPCC appointees, the IAMC and various fossil fuel companies including, indirectly, state actors? Are the governments of the world, including those represented at the IPCC, aware of the potential implications of such formal and informal triangular relations upon the alleged "objectivity" of IAM outputs that are utilised in guiding the formulation of global and national climate change mitigation policies? Concerning the policy consequence of an IAM functioning as a "Trojan horse", I remarked in my WIREs Climate Change article (p.5) that, *"...this has the significant potential to impact upon the transparency of the knowledge possessed of the various member parties that will inform the United Nations Framework Convention on Climate Change (UNFCCC) negotiations, which underpin the subsequent global and national commitments on anthropogenic greenhouse gas emissions reduction including the commensurate mitigation action to be adopted."* This close level of cooperation between the aforementioned entities represents a potential material conflict of interest, particularly with the continued obfuscation of IAM scenario data (i.e., input). Purvis (2021. Modelling global futures: a comparison of 'Limits to Growth' and the use of Integrated Assessment Models within the climate literature, p.7) opines that a *"...lack of transparency is highly problematic for models which play such key importance in the development of international mitigation strategy."* **As a measure of partially addressing this potential for material conflict of interest, IAM scenario "input" data for all submitted scenarios MUST be published openly, MUST be made readily available to all enquirers and MUST be stored centrally in a database that allows ease of access with the data infrastructure maintained by an independent party. Such an act of integrity would earnestly fulfil the IPCC's proclaimed desire for IAM transparency as opposed to the Panel's and the IAMC's dishonest and insincere actions to date regarding efforts to bring about IAM transparency as outlined in your WIREs Climate Change article and as typified by the IPCC and IAMC joint article of Huppmann et al. (2018. A new scenario resource for integrated 1.5C research) with its intellectually offensive, academic doublespeak especially when the authors' unscrupulously reference the FAIR principles of scientific data and analysis; the very issue as discussed in my WIREs Climate Change opinion piece and as will be further discussed below. If such scenario input data are not forthcoming, then the resultant scenario output MUST be held to be unethical and thus MUST NOT, under any circumstance, be utilised for climate change mitigation policy guidance.**

Calling attention to the politicised roles of technocrats, Engelen et al. (2012, Misrule of experts? The financial crisis as elite debacle, p. 379) assert that institutionally, a triangular relation between the finance sector, the technocracy and elected politicians risks seemingly independent technocrats and politicians becoming "hostages" of the financial sector. Therefore, the condition resulting from such triangular relations is not a

technical issue but rather a democratic issue concerning the control of our economic and social futures in terms of crises prevention (*ibid.*). On the 19 February 2022, Kevin Anderson, responding to Glen Peters via Twitter, made the following salient observation - *"I see an emergent alliance between the IAM community & the dominant political model. It's assumed the latter cannot be questioned so the former has to add increasingly exotic nonsense to get the science & the politics to match; but they no-longer do, & we run scared of saying so."* Accordant with Anderson's astute remark, Purvis (2021. p.9) strongly contends that *"... models which integrate socioeconomic aspects of any form are not apolitical and should not be presented as such."* Similarly, McLaren and Markusson (2020. The co-evolution of technological promises, modelling, policies and climate change targets, p.5) explicate the conviction that, *"[t]he technological promises have conditioned, and been conditioned by, the contemporary models, policies and politics, each element thus influencing the subsequent evolution of the others, and vice-versa. In this process the 'evolutionary fitness' of each technological promise is less a product of its (potential) climate impact than a measure of how well it can be modelled, and how well it matches the extant framings of climate policy. Each technological promise has subsequently become embedded in the models despite limited material delivery at the global scale, in each case transitioning from being an innovative option that promised to enable a cheaper pathway to meet climate targets, to being an unavoidable component of climate action as other contributions were delayed. Critically, in this process, each technological promise has enabled a continued politics of prevarication and inadequate action, by raising expectations of more effective policy options becoming available in the future, in turn justifying existing limited and gradualist policy choices, and thus diminishing the perceived urgency of deploying costly and unpopular, but better understood and tested options for policy in the short term."* I too noted this troubling issue in Robertson (2020. pp. 3-4) citing the following scholars' concerns that, *"[t]he increasing demand for pathways from political institutions and therefore their political significance, requires a re-evaluation as to the modes of assessment processes and that such processes must actively acknowledge their political contexts and implications in a systematic way (Beck & Mahony, 2018)...Pursuing models that produce more precise quantified approximations of a desired output is not a scientific program but is rather a political program (Saltelli, 2016)."* Inevitably, IAM exposure to political forces, so clearly expressed by the above scholars with congruous sentiment, constitute a perilous infringement of the IPCC's much touted "apolitical" remit.

As climate finance analyst Cem Gundogan accurately observed on October 12 2020 in respect to my WIRES Climate Change opinion piece, *"Definitely one of the most interesting and critical articles I have read this year and I really wonder what responses will it attract while the finance world frantically tries to utilise IAMs & scenarios to manage climate risks as well as align portfolios with the Paris Agreement."* Confirmatory of Gundogan's observation of IAMs serving the finance sector is the IAMC's decision to recently form the new Scientific Working Group on Financial Analysis. This new IAMC Scientific Working Group recognised the wide range of potential users of scenarios, the very scenarios as those reported by the IPCC, for climate-related financial analysis with these users including *"...banks, insurers, asset managers, regulators, companies and other stakeholders, and government"*, as stated on the IAMC site. This targeted application of IAMs dangerously runs the risk of morphing already opaque, biased, nominal "exploratory" scenarios into performative pathways determined by return on investment potential thereby generating the hazard of transition pathway dependency as a result of lock-in tendencies due to investment inertia and the longevity of infrastructure systems. Such risks constitute compelling evidence as to why IAM scenario transparency is of utmost importance as a matter of ethics and for that reason why all scenario input data and accompanying documentation must be released into the public domain. Tellingly, in a presentation given by the co-chairs of the IAMC Scientific Working Group on Financial Analysis, James Edmonds (Pacific Northwest National Laboratory) and Elmar Kriegler (Potsdam Institute for Climate Impact Research) at the 12th IAMC Meeting, Tsukuba Japan 2-4 December 2019, included a discussion point that explicitly acknowledged the opacity issue of IAM scenarios stating that, *"...improved documentation of underlying methodologies (transparency of assumptions, etc.)"* is required as a means of improving *"accessibility of scenario data"* to the *"finance community."* It should be noted that both Edmonds and Kriegler are serving LAs for the IPCC WGIII AR6 in Chapter 1 and Chapter 3, respectively. Moreover, the formation of the new IAMC Scientific Working Group on Financial Analysis further jeopardises the purported *"neutral, policy-relevant but not policy-prescriptive"* reports as prepared by the IPCC due to the highly probable infiltration of vested interests in IAM scenario design, with these being the same scenarios that feature in its Assessment Reports. This issue of the IPCC's reports problematic trading on the credo of *"neutral, policy-relevant but not policy-prescriptive"* is further intensified by the fact that according to your own calculations, Jim, as reported in Climate Home News 12 January 2021, IAMs constitute up to 6% of the report contents, approximately 25% of the summary for policymakers and the best part of the press coverage.

Regarding asset managers, I note that you, Jim, were a Non-Executive Director for BlackRock New Energy Investment Trust between 2009-2014. I also note that BlackRock has a significant financial interest in the oil industry including in majors such as Shell, ExxonMobil, BP, Chevron, and Saudi Aramco.

As will be expounded upon, the disconcerting and immoral current situation of the IPCC's creation is that of opaque and reductionist IAMs which do not conform to the governing principles of open science being constructed by a parochial research community, closely affiliated with the IPCC and associated with the fossil fuel industry, characterised by substandard research practices with a passive-aggressive hostility towards criticism and a resistance to external scrutiny with these malbehaviours being silently endorsed by the complicity of the IPCC, are influencing not only government policy but more worryingly, global investment strategies.

The indisputable fact is that opaque IAMs are providing a myriad of external stakeholders, most likely without their knowledge, with a myopic, value-laden snapshot of long-term futures due to their particular portrayal of the alleged utility of select "modelled" technologies and thus by default are policy prescriptive. IAMs are certainly not technology agnostic with limited, if not, absent representation of innovation and especially with an over-reliance upon supply-side measures due to the models' incapacity to capture nuanced demand-side measures; and therein lies the problem for the IPCC with its proclaimed mantra of "policy relevant but not policy prescriptive". This very issue was flagged in my WIREs Climate Change publication. Substantiated by *a posteriori* analyses, there is an alarmingly growing gulf between "real-world feasibility" and that of "IAM feasibility" with this being supported by recent, and continued, accelerated alterations to both the stationary energy systems and the transportation systems. As Rosen (2021, Why the shared socioeconomic pathway framework has not been useful for improving climate change mitigation policy analysis, p.3) posited, "*And when modelers state in many published papers, as they have, that certain IAMs cannot achieve a low temperature target such as a maximum increase of 1.5C, as if they are claiming that because their models cannot output such a scenario that the world actually could not achieve such a target, is deceptive.*" The implications of such deception in terms of "values in disguise", *inter alia*, are: 1) policymakers develop false expectations; 2) climate policy is formulated on the basis of high-risk conceptual and/or emerging technologies being realised; 3) the envisaged scale of negative emissions technologies for the required CO2 drawdown borders on the fanciful (Lenzi et al. 2018. Weigh the ethics of plans to mop up carbon dioxide); and 4) an IAM, with the potential to become a symbolic apparatus for gaining authority, being employed as a "Trojan horse" for the promotion of undeclared interests and values (Robertson. 2020. Transparency, trust, and integrated assessment models: An ethical consideration for the Intergovernmental Panel on Climate Change). This deception has the effect of impeding the exploration of the potential solution space due to ideological and methodological constraints having been imposed by the modellers which in turn shuts down alternative policy discourse. Such constraints and impedance are however not readily acknowledged as they are concealed by rhetoric that sustains the flawed notion of model neutrality and objectivity. This notion, in concert with the modellers' intellectual imposition, provides concealment for multiple biases, be they exogenous or endogenous to the modelling endeavour together with the axiom of - the numbers never lie. As Saltelli and colleagues' warn, "*The technique is never neutral*" (Saltelli et al. 2020. The technique is never neutral. How methodological choices condition the generation of narratives for sustainability). **Instead of many roads leading to Rome, the navigation suggested by the modellers will be limited only to the roads that they have paved in "their" own imaginations. As these roads suggested by the modellers have yet to be traversed, it would be prudent to approach them with caution as many may not be navigable due to unforeseen roadblocks that lie ahead, or worse still, miss their intended destination entirely. These roads, the product of the modellers' imagination, may not lead to Rome but rather to ruin for both humanity and the environment.**

In addition to the policymaker, and perhaps more importantly, the public must be made acutely aware of this discontinuity between the real-world and the modelled IAM-world and hence the unrealistic realism of IAMs. This awareness raising must also communicate the disutility of IAMs for informing climate change mitigation policy including the implications of such upon policy effectiveness and that in fact they, the public, are only being presented with an imbalanced representation of mitigation options dominated by supply-side measures according to the IPCC-IAMC contingent and thus presenting a bias narrative as to how the future may unfold. These insular and narrow economic imaginaries provided by a clique of modellers bound by shared cognitive routines, as legitimised by and disseminated via the IPCC, have notable impact on the scope of climate change mitigation discourse as a consequence of their disproportionate epistemic power with this having been unjustifiably and most undeservingly afforded to them by the Panel. **This has the adverse effect of potentially generating scientifically devoid, "loaded" lock-ins of "winning" technologies, in conformity with those promoted by IAM mitigation pathways, that have been instigated by concerns**

of return on investment potential and/or least-cost options rather than an environmentally and socially just outcome. It would appear that “environmental green” has altered its shade, imperceptibly, to that of “dollar green”. Paradoxically, it is the fixation upon this new shade of green that has created the environmental predicament that society now finds itself in, with such colour blindness having the potential to act as a catalyst for a bleak, self-fulfilling prophecy accordant with our past environmental crimes but under the “righteous” green moniker of “eco”. For that reason, government policy that has been affected by “scientifically-based” IAM-derived “advice” received from investment firms that have had the “ear” of elected politicians, with such firms having been influenced by unilateral or bilateral relations with IAM research groups (e.g., the IAMC’s Scientific Working Group on Financial Analysis), is a cause for significant concern as it undermines the transparent processes that distinguish democratic governance and consequently risks threatening the resilience of the receiving environment. As Omenn (2006, PRESIDENTIAL ADDRESS - Grand Challenges and Great Opportunities in Science, Technology, and Public Policy, p.1696) asserts, *“Science works best in a culture that welcomes challenges to prevailing ideas and nurtures the potential of all of its people. Scientific ways of thinking and of re-evaluating one’s views in light of new evidence help strengthen a democracy.”* Not surprisingly, the consequence of the IAM research community’s anomie is that their research product, as utilised by the IPCC, fails on every count to comply with the Mertonian norms of science. It follows then that the science promoted by the IPCC based upon IAMs would also be deemed to be noncompliant with such norms of science and accordingly in contradiction to the ethos of science.

Additional improprieties stemming from the IPCC’s engagement with and promotion of purported neutral, scientific IAMs for climate policy guidance can also be witnessed in the numerous “announcements” made in interviews given by senior members of the IPCC, notably the chairman Hoesung Lee and you, Jim, during the AR6 drafting cycle as to the pivotal role of certain technologies “popularised” by IAMs, notably CCS. The IPCC website states that, *“Working Group III supports the IPCC’s solution-oriented approach but does not advocate any specific mitigation options.”* According to the Oxford English Dictionary, such “announcements” would be, by definition, regarded as acts of advocacy, thereby making those responsible for such “announcements” in heinous breach of the IPCC’s declared remit; the exact remit that you, Jim, operationalised for defence purposes including the ramifications of such advocacy in the interview you gave to Climate Home News, published on the 12th January 2021 - *“We’re not an advocacy organisation, we’re a scientific organisation, it’s not our job to take up arms and take one side or another... That’s the strength of the IPCC. If it oversteps its role, it will weaken its influence”* and *“undermine the scientific statements it makes”*. These culpable actions from senior members of the IPCC will have the effect, as rightly and as somewhat ironically predicted by you, Jim, of weakening the IPCC’s influence by materially undermining the scientific statements it makes as a consequence of its misplaced advocacy rather than adhering to its mandate of reporting on the state of scientific knowledge. This very issue of IPCC leaders’ public statements being criticised for potential noncompliance with its mandate of “policy relevant not policy prescriptive” was noted by the IAC in its 2010 report. The rational line of enquiry as to why such “announcements” are being made would be: **on behalf of whose interests are these announcement being executed?**

As you are well aware I have made myself readily available throughout the entire draft cycle for the AR6 hoping that you and Shukla, the WGIII co-chairs with both of you being involved with the IAMC, and the Bureau would demonstrate some leadership in addressing this urgent and outstanding issue of IAM transparency in the AR6, particularly when this very same problem had occurred in corresponding chapter, Chapter 6, of the Fifth Assessment Report (AR5). I have maintained a catalogue of emails documenting these uneventful occasions dating back to early in the AR6 draft cycle. Despite the sustained efforts on my part, no genuine engagement was received from either of you on this critical issue. Therefore, in response to this deafening silence from you both, I authored and had published a peer reviewed article in WIREs Climate Change documenting this long-standing problem of IAM transparency as it relates to the IPCC and its most probable negative impact upon the reception of the AR6. This publication of mine was in strict accordance with the open invitation made in the interview that you, Jim, gave to the CarbonBrief 11 July 2016 as hereinbefore cited, with this also being consistent with IPCC chairman Hoesung Lee’s public invitation for commentary from those persons critical of the IPCC. It would appear that such open invitations were, in truth, hollow in nature and were for the purpose of affording the IPCC a public relations exercise to placate critics through the fabrication of feigned “openness”. I forwarded a copy of my WIREs Climate Change opinion piece to chairman Lee for his consideration with him acknowledging my concerns as to upholding the integrity of the IPCC. Lee stated to me that, *“[t]he topic is important”* and *“[l]et me think about this over the next few days in confidence and get back to you soon.”* These statements were made on the 3rd November 2020, and despite his acknowledgement of the topic’s importance and his assurance that he would respond, I have yet to hear back from Lee on this “important topic”. Subsequently, I sent Lee numerous follow-up emails, with copies all being carefully retained by me, flagging this “important topic” which also contained

additional recently published peer review articles concerning this topic but these emails of mine, disappointingly and most concerningly, still elicited no reply from the IPCC chairman. Other than an acknowledgement of receipt from Lee and similarly to the chairman's reticence, my WIREs Climate Change publication evoked more deafening silence from the both of you including each and every vice-chair of the WGIII Bureau as to addressing this "important topic", as determined by Lee, during the AR6. The IPCC by its actions and inaction has conspicuously demonstrated that it is truly deaf to criticism. This organisational behaviour may be explained in that such criticism being levelled directly at IAMs, and indirectly at the IPCC's over-reliance on IAMs, can be viewed not only as being a challenge to the epistemology of the IAM methodology but extends to include by default, and perhaps more importantly, a challenge to the autocracy of the IPCC-IAMC contingent that is responsible for the advancement and promotion of such models.

At your behest, I have had most cordial discussions with WGIII vice-chair Andy Reisinger on more than one occasion, with Andy, no doubt acting as your messenger, remarking to me after I informed him of the Chapter 3 CLAs' egregious behaviour in attempting to have me removed from the chapter, "*That looks like I'm doing Keywan's dirty work.*" From the prevalence of Keywan Riahi's guileful involvement in this matter would suggest that Riahi wields a disproportionate degree of influence at the IPCC, with the head of the WGIII Technical Support Unit (TSU) Raphael Slade (Imperial College London) remarking to me during a phone discussion that Riahi's involvement in the Special Report on Global Warming of 1.5C could be best described as being a "*difficult birth*". Curiously, Andy informed me that, you, Jim, are not a "fan" of IAMs with this being consistent with WGIII vice-chair Diana Urge-Vorsatz's remark made to me on the 28th May 2020 that it was you, Jim, who wanted to enact "*...reform after so many decades of IPCC's over-reliance on IAMs.*" During a recent interview with Michael Liebreich, published 24 March 2021, you even described modelling as being an "art" rather than a science. This re-categorisation of yours, Jim, would connote that IAMs are not actually objective tools but are in fact subjective products and thus exposed to and influenced by the modellers' convictions be they personal and/or institutional. Therefore, the innate "artistic license" of the modellers is concealed by the invalid claim to objective science and is further obscured by their inclusion in scientific reports, such as those prepared by the IPCC. Nonetheless, these assertions of WGIII vice-chairs Andy and Diana as to your dislike of IAMs would appear to be diametrically opposed to the sentiments expressed in your and Shukla's presentation given at the Energy Modeling Forum Workshop July 22, 2016 together with more recent comments made by you, Jim, on the 12th January 2021 to Climate Home News and by the both of you in your WIREs Climate Change "companion piece" to my critical article. Based upon WGIII vice-chairs Andy and Diana's revelations juxtaposed with your public declarations would evince that you, Jim, possess all the morphological attributes of an intellectual chameleon. Furthermore, I have also had numerous supportive emails from vice-chair Diana, with her on one occasion remarking to me, in writing, after I had forwarded her a copy of my email sent to you both of the 11 May 2020 - "*Thank you, Simon. I have been banging this drum very often during the LAM3 and since - I hope there will be some improvements...*" However, prior to this supportive statement, Diana made the following concession to me on the 16 April 2020 in respect to the dominance of IAMs in Chapter 3, "*... I insisted (sorry...) that the non-IAM authors also stay in this chapter in order to make it a balanced assessment of both IAM and non IAM literature. So far it is clear this was just wishful thinking*". Such a statement from Diana would suggest that there had been discussions at the WGIII Bureau level concerning the removal of non-IAM authors from Chapter 3. This would indicate an entirely different situation than to the one purported in your subsequent WIREs Climate Change article with regard to "author selection" as an approach adopted by the IPCC to bring about IAM transparency in the AR6. The resultant "wishful thinking" of Diana is undoubtedly the consequence of weak leadership worsened by the megalomaniac disposition of a select group who operate within the IPCC WGIII, that is to say, the IPCC-IAMC contingent. Diana subsequently informed me on the 28 May 2020 that she was fearful of repercussions following her outspoken comments submitted for the First Order Draft (FOD) review of Chapter 3, particularly with the prospect of her comments resulting in a long-term loss of Riahi's trust. This sad comment by Diana appears to be confirmatory of a culture of intimidation and rule-by-fear mentality existing at the IPCC and consistent with the unflattering character assessment of others on Keywan Riahi. However, and disappointingly, Diana appears to have lost her critical voice in the later stages of the draft cycle. From my experience, I concur with the character assessments made by others regarding Keywan Riahi in addition to the confirmation of a corrosive culture of intimidation at the IPCC.

Recently, I made myself available at short notice to accommodate your request to discuss, by phone, the issues raised pertaining to my email of the 30th May 2021 principally addressed to Hoesung Lee, which you unilaterally cancelled at the last minute without the common courtesy of an apology. Don't forget Jim, that it was you who stated, in writing to me on the 10 Feb 2020 (annexed hereto), that the "*...Bureau picked the author team for this chapter with the aim of lifting transparency*", with these very words of yours confirming the fact that IAMs and their mitigation pathways were plagued by opacity. Indeed, and known to

you both, this very problem as to the lack of transparency of IAMs was flagged in the published IPCC AR6 Scoping Document and was also identified by governments the world over in their trenchant criticisms of the AR5 post publication, now with this having occurred with identical criticisms being made of the AR6 drafts, in particular the SOD. This statement of yours seeking to lift transparency in Chapter 3 represents a clear admission by you that there exists a major problem facing the AR6 concerning IAMs. Moreover, your response of the 10 Feb 2020 acknowledged the inconvenient truth of the matter that I was not the only non-IAM LA from Chapter 3 who has raised like concerns as to the behaviour of the chapter's IAM cohort and I quote - "Thanks, we've heard. And not just from you". No further response was ever received by me to this email chain. Nevertheless, to date, you have done nothing whatsoever to remedy the problem so definitively acknowledged by you, despite your false vindicating arguments offered in your WIREs Climate Change article. I enquired from each of you on a number occasions regarding how you envisaged your notion as to IAM transparency was to be realised given that it was your proposal for the AR6. Unfortunately and perhaps most tellingly, I never received the decency of a response from either of you to my repeated requests. **I repeat; not once did I receive a response to my repeated requests regarding how you both, as WGIII co-chairs, envisaged your grandiose notion as to IAM transparency was to be realised for the AR6.** Your remarkable silence on this critical and unaddressed matter further highlights the inarguable insincerity of your WIREs Climate Change article. The maintenance of the status quo so as to shore up the rational power structure of the ruling oligarchy of "intelligentsia" under the guise of flaccid "soft diplomacy" is to merely create the illusion of being seen to be doing something, with this something being nothing. The state of ostensible transparency in Chapter 3 reminds me of the marketing campaign for the classic non-alcoholic kola tonic of Claytons. What we have in Chapter 3, in the pejorative sense, is "Claytons transparency"; in other words, borrowing from its sales slogan - *the transparency you have when you're not having transparency.*

Disguised by this lack of IAM transparency, which some might say is all too convenient, is the existence of "reporting errors", so-called by one IAM researcher, that are present within apparently "peer reviewed" IAM scenarios. For example, PIK's IAM REMIND-MAgPIE's EMF-33 family with an ~10 Gt CO₂ blackhole in year 2100 as published in the SR1.5 as I discovered during my preliminary analysis for the FOD which was confirmed by the modelling team responsible. I have subsequently been informed that such errors are now appearing in the AR6 database snapshots with like errors only becoming apparent when one begins to disaggregate the pathways. The existence of such errors in the AR6 "vetted" scenario database was confirmed by open admissions made by IAM practitioners acting as LAs from Chapter 3 and the ensuing discussions had during chapter meetings in the weeks just prior to the submission of the Final Government Distribution. Aggregation hides a multitude of sins. As one LA remarked to me, "*How many more errors are there in the pathways contained in the database?*", with this very same question being posed by me to the IAM practitioners of the chapter regarding my discovery of the errors contained in the previously IPCC published REMIND-MAgPIE's EMF-33 family. This is far from being a good look for the IPCC in terms of creating a sense of quality assurance, the compliance with expectations of open science and the associated confidence that follows. Such "reporting errors" slipping through post production analyses performed by the respective IAM teams, followed by the peer review process and then by the IPCC publication process is demonstrative of professional and institutional incompetence and further underscores the mandatory requirement for absolute transparency in IAM scenarios. What an alarming situation of the IPCC-IAMC contingent's creation. If policymakers were to become aware of the prior existence of such material errors contained in the IPCC SR1.5 and now the WGIII AR6 IAM scenario database and the potential for like errors to persist yet remain undetected due to the concealment afforded by aggregation, with the IPCC passively endorsing such lax standards, then the confidence in such research output for the purpose of climate change policy guidance must be eroded to the point of there being no confidence. IAM scenarios without robustness will inevitably produce climate change policy guidance without robustness. Whilst the employed euphemistic term of "reporting error" has the distinctively offensive and odorous nose of intellectual bullshit in spite of its subjection to semantic sanitisation.

Regarding IAM scenario input data transparency, we then have the defensive platitude of, - *we can't disclose the data because it requires expert knowledge to understand it*, as operationalised in the puff piece of Keppo et al. (2021) and as parroted more recently by Chapter 3 CLA Keywan Riahi from the International Institute for Applied Systems Analysis (IIASA) during a LAM4 Chapter 3 meeting; the very same meeting that you both made an appearance at. Interestingly, a similar placating defence was actioned infamously by the self-declared credible and trustworthy economists and traders who, collectively, were instrumental in bringing about the global financial crisis, with like hubristic and hollow words having been uttered *ad nauseam* leading up to the collapse. Again, such a defence concerning input data non-disclosure only serves to negate your unsubstantiated and erroneous claims made in your WIREs Climate Change article. Another flagrant untruth.

This matter on whether or when data are to be disclosed is *not* a decision to be determined by the IAM research community, nor is it a matter for the IPCC, and such a weak defence offered to justify this gatekeeping is tiresome, fatuous, dishonest and unscholarly. In order to curtail the possibility of conjecture, it is important to differentiate between model transparency and input data transparency in that, as you cite in your WIREs article by way of example, (p.7), IIASA's open-source MESSAGE IAM "...requires domain knowledge". However, I trust that you both are not erroneously conflating model "domain knowledge" with the knowledge required to comprehend model input data, given that model "domain knowledge" is not prerequisite when assessing the validity of model scenario input data. Revealingly, I noted in your WIREs Climate Change article (pp.6-7) under the subsection of "6.2 Actions taken" that you **did not** include a subheading for open-source input data, rather relying on a "sleight of hand" with the inconspicuous misdirection of listing, "6.2.1 Documentation", "6.2.2 Open-source models", "6.2.3 Model intercomparison projects" and "6.2.4 Scientific papers", as efforts to ensure IAM transparency in the AR6. **In summary, the present situation is one of absolute absurdity in that integrated assessment modellers are more than willing to open publish the model code which apparently requires "domain knowledge" in order to comprehend its logic but are unwilling to open publish scenario input data on the grounds of requiring "domain knowledge" in order to comprehend its logic. I repeat, the present situation is one of absolute absurdity in that integrated assessment modellers are more than willing to open publish the model code which apparently requires "domain knowledge" in order to comprehend its logic but are unwilling to open publish scenario input data on the grounds of requiring "domain knowledge" in order to comprehend its logic. As this farcical and unsound logic is so central to the IPCC-IAMC contingent's disgraceful deceit in the continued unethical obfuscation of IAM transparency for the AR6, I will repeat for emphasis and clarity: the present situation created by the imbecilic actions of the IPCC-IAMC contingent is one of absolute absurdity in that integrated assessment modellers are more than willing to open publish the model code which apparently requires "domain knowledge" in order to comprehend its logic but are unwilling to open publish scenario input data on the grounds of requiring "domain knowledge" in order to comprehend its logic!** For that reason, when Keppo et al., Keywan Riahi, as well as the both of you offer up such a sophistic and redundant argument so as to show cause for the IPCC-IAMC contingent's continued non-disclosure of IAM scenario input data is incongruous, untenable and unscientific in addition to it being highly offensive to the intellect of the policymakers, of the scientific community and of the public. Perhaps as WGIII co-chairs with significant involvement with the IAMC, you both could enlighten me as to the scientific insanity of having open-source models together with scenario output, while at the same instant, scenario input data remain under lock and key? For the IPCC-IAMC contingent to advance such fatuity amounts to an act of intellectual fraud that is beyond belief and is worthy of nothing less than the strongest condemnation from all stakeholders. Scenario outputs without the provision of the scenario inputs relegates the outputs meaningless to the policymakers since the inputs are proxies for the enacted mitigation policies. What's more, the resultant situation is categorically a case of expecting stakeholders to assess a cause-and-effect relationship based upon the effect but without knowing the cause which fundamentally makes the establishment of causal relationships impossible. Allow me to remind you, Jim, again of your nonsensical defence of IAM utility for the AR6, as reported by Climate Home News 12 January 2021 - "*Our audience are governments. Their big question is how you connect all this human activity with actual impacts on the climate. It's very difficult to make that leap without actually modelling it.*" Notwithstanding "*actually modelling it*", would you, Jim, be witless enough to attempt to explain how can governments possibly "*make that leap*" in connecting "*all this human activity with actual impacts on the climate*" when they are completely ignorant as to the granularity of human activity being modelled with such activity represented, endogenously or exogenously, by the plethora of scenario inputs? Policymakers in each country that feature in the regional breakdown of global IAMs are thus without specific situational awareness as to the policies that they, as differing nations, must devise in order to meet the Paris commitment. This very issue of global IAM scenario specificity I will further elaborate on hereafter in the context of national mitigation policy hindrance. Moreover, in what appears to be an act of intellectual desperation, with this being consistent with the overall content of your WIREs Climate Change article, you both and your co-authors then assert (p.7), that "[t]he IAM community has successfully and consistently published in the top-ranked scientific journals, regularly subjecting their work to peer review from both modelers and non-modelers. This indicates that transparency standards are institutionally embedded in scientific publishing practices, and are not simply the result of obfuscation by specific interests." As any honest scientist knows this specious statement of yours regarding the inferred guarantee of the scientific soundness of a published study that has been subjected to the "blind" peer review process is invalid for multiple well-known and well-documented reasons. The infallibility of the fallible peer review: but don't tell the public. Therefore, these sophistical statements of yours as to the demonstration of meeting so-called "*transparency standards*" for IAM studies when accepted for publication in a peer review journal and that this, by default, further demonstrates an absence of "*obfuscation by specific interests*", I regard as being

wilfully misleading particularly when you have improperly intimated that “*transparency standards*” which “... *are institutionally embedded in scientific publishing practices*” appropriately correspond to transparency of research practices of the modelling teams constituting the IAMC. Contrasting this assertion of yours, Purvis (2021, pp.8-9) argues that “*notably the bulk of IAMs*” have managed to “*sidestep entirely*” the level of critique other well-documented models have received which indicates “...*the playing field is not level for models which sit within and without hegemonic tradition.*” This lack of a level playing field irrationally granted to IAMs and exploited by integrated assessment modellers is indeed reflected in Nature Climate Change’s 2015 journal editorial, titled “*IAM helpful or not?*”, where the editors maintain that (p.81) only when “... *underlying assumptions as well as model inputs are made explicit...can experts probe the robustness and meaningfulness of their outputs*”. This is confirmatory of the fact that the peer review process for IAMs is not nearly as robustness as the IAM community and the IPCC would have policymakers and the public believe. Furthermore, what data have you both used to differentiate between “modellers” and “non-modellers” peer reviewing IAM studies as asserted in your argument? What is the magnitude of this classification? What criteria have you applied in order to categorise a “non-modeller” from that of a “modeller”? Is a “modeller” limited only to integrated assessment modelling? How are you privy to such data? Which peer reviewed scientific journals supplied data that enabled you to submit such a statement? No source was provided as to the data used to support such an unattested statement.

You both then assert in your WIREs Climate Change article, without any form of substantiation, that (p.4), “*[f]ull transparency would require published documentation of all assumptions, but this is patchy in practice.*” Since neither the IAMC or the IPCC has never “*published documentation of all assumptions*”, what logic have you exercised in arriving at the unsupported conclusion that such an endeavour “...*is patchy in practice*”? It is completely illogical for you both to make such an assertion given that you have never executed such a practice and thus it is an absolute untruth for you both to claim such an outcome of practice as being “patchy” although it does provide an opportune act of sophism in terms of constructing an excuse for the IPCC’s continued inaction on IAM scenario input data disclosure. You both even concede in the proceeding sentence as to the effect of input assumptions on model output that (p.4), “*[v]arying some may have little impact on results; others may make a big difference.*” What a troubling yet exposing statement of ignorance based upon unattributable uncertainties! During the recent interview with Michael Liebreich, published 24 March 2021, you, Jim, stated the following with regards to the call for scenario submissions to the IPCC AR6 database - “*And we also think that some people may have worried about confidentiality, because some of the issues do involve making assumptions, exposing the assumptions you’ve made about things like prices, the costs of technologies, which some people might find quite sensitive.*” *Ipsa facto*, this reasoning of yours, Jim, as expressed to Liebreich, must logically extend to the assessment of scenario outputs, in that, the IAM scenario runs must also embody a commensurate degree of “sensitivity” due to the innate sensibility of input assumptions as determined by the modellers. It is highly unethical for the IPCC to then expect governments to formulate public policy based upon opaque IAM scenario outputs when the input assumptions have not been disclosed for external scrutiny on the grounds of such data being too “*confidential*” or too “*sensitive*” with such non-disclosure preventing the exposure of the modellers’ underpinning applied cognition concerning scenario parametrisation. **If the scenario input data are not fully declared due to concerns over confidentiality and/or commercial sensitivity, then the resultant scenario output is patently unfit to be utilised by governments in formulating attendant climate change mitigation policy. Secret science must never, under any circumstance, be used to inform public policy.** Interestingly, your unsubstantiated and misleading statement of, “*[f]ull transparency would require published documentation of all assumptions, but this is patchy in practice*”, together with the missing subheading of open-source input data in subsection “6.2 Actions taken”, further demonstrates that there was never any intention from the outset to declare scenario input data for the ensemble of mitigation pathways produced by IAMs for the AR6 and thus the IAM scenarios which appear in the IPCC AR6 can never be adjudged transparent. Notwithstanding your red herring statement of (p.3), “*A key issue is transparency for whom*” as submitted in your WIREs Climate Change article, unfortunately, there is no such species as contextual transparency. Turbid science is opaque science; arguably more so due to its nebulous qualities and the resultant creation of a false sense of transparency for the end user, be they scientists or policymakers. As declared in a 2015 Editorial Commentary for the journal Nature Climate Change as cited in Robertson (2020, p.5), “*If IAMs are to constructively assist in climate change policy, it is critical that not only the equations that constitute the inner-workings of IAMs are disclosed but also the underlying assumptions in addition to model input being explicitly stated so that the soundness and meaningfulness of the output can be assessed by experts (Nature Climate Change, 2015).*” This critical requirement for disclosure of the underlying assumptions in addition to model input being explicitly stated so that the soundness and meaningfulness of the output may be assessed by experts can be illustrated by the identification and exposure by experts external to the scenario modelling runs of outdated PV costs being employed in IAM

scenarios, its impact upon the associated learning curve and thus the installed capacity of PV technology as “solved” for the longitudinal period. Bistline (2021. Roadmaps to net-zero emissions systems: Emerging insights and modeling challenges) discusses the issue, concluding the requirement for updates to input assumptions so as to suitably reflect trends of pronounced cost declines for solar, wind, and electric vehicles. This issue has begun to be addressed with the addition of the Illustrative Mitigation Pathway IMP-Ren in the AR6 (i.e., Luderer et al. 2021. Impact of declining renewable energy costs on electrification in low-emission scenarios). Similarly, and somewhat bizarrely, you, Jim, and colleagues state that, (2021. Outlooks, explorations and normative scenarios: Approaches to global energy futures compared, p.17), “...it may be relevant to assess similarities and differences in terms of model input assumptions. This could include, for example, assumptions about the falling cost of renewable energy as this will impact the level of deployment in scenarios (Bosetti et al., 2015). This approach is more challenging because of the lack of published information and possible sensitivities about disclosure.” As this referred to a paper of yours published in the identical year to that of your WIREs Climate Change “companion piece”, that is to say 2021, such inconsistencies in your added premise signify either an acute bout of academic amnesia or an act of intellectual improbity. Moreover, the falling cost of renewables not only directly affects the installed capacity of such technologies but also indirectly affects the deployment of additional technology types such as CCS. Grant et al. (2021. Cost reductions in renewables can substantially erode the value of carbon capture and storage in mitigation pathways) determine that with cost reductions in renewables in mitigation pathways reduces the value of CCS to policymakers.

In another demonstrated moment of absent lucidity, you both purport in your WIREs Climate Change article that (p.3), “[t]he case for IPCC involvement” with respect to IAM scenarios “... was based on ensuring continuity and consistency in terms of transparency of assumptions.” To a degree, this assertion is valid in that the IPCC has ensured continuity and consistency. However, this continuity and consistency is in terms of its outright neglect as to the transparency of assumptions! According to the checklist as devised by Bergstrom and West, the eminent scholars on quantitative “bullshit”, such vacuous verbal offerings from the IAMC and as adduced by the IPCC, concurrent with the sustained IAM scenario data obfuscation, would qualify this aggregated action of the IPCC-IAMC contingent as being an unequivocal act of bullshit.

Moreover, and despite the IAM research community’s recent trend in undertaking simplistic and inadequate sensitivity analyses in the form of Modelling Intercomparison Projects (MIPs), a situation that has been long-overdue with such scholarly tardiness most likely explained as being a reactionist product to the crescendo of external criticisms motivated by amoral placation rather than being inspired proactively by a *bona fide* desire for openness and transparency by the IAMC; I have had CLA Roberto Schaeffer (Coppe/UFR) and LA Kate Calvin (formerly Pacific Northwest National Laboratory, now NASA), with both being senior members from the IAMC, state to me in writing, that they, the modellers responsible for the production of mitigation scenarios, are uncertain as to why pathways take on particular trajectories when granular enquiries are made of the model output. This unacceptable and indefensible ignorance on the part of the modeller is highly perturbing and should be a cause for significant concern for the IPCC, especially if the policymaker was to become aware of this nescience. Such modeller ignorance is further exacerbated in that “[u]nfortunately, different practices for reporting scenarios in the literature make it difficult to compare results and infer their meaning. Policy analysts, who are often a primary audience for scenario results, then face the challenge of interpreting and evaluating a steady stream of studies based on different models and baseline assumptions. The importance of addressing this and related challenges has led to calls for greater transparency, disclosure, and self-examination by the energy modeling community (for example, Koomey et al. (2003) and Pfenninger (2017))” (Koomey et al. 2019. Inside the Black Box: Understanding key drivers of global emission scenarios, p.268). Koomey et al. (p.279) argue that a decomposition analysis of global emission scenarios ensures: **i)** “sanity” checking of assumptions and results before publication (e.g., “For example, scenarios often rely on heroic assumptions for costs and adoption of new exotic technologies (like biomass CCS) combined with modest projected changes in FE/GWP or renewable energy adoption”), **ii)** aids in expediting valid comparison, and **iii)** promotes transparency, regardless of “complex algorithms” embedded in the models that limit external” scrutiny”, by allowing a “view into the black box” thereby enabling debate as to key issues and uncertainties in mitigation scenarios. Nonetheless, the authors (*ibid.* pp.279-280) conclude that, “the decomposition of key drivers involves examination of high-level, aggregate data. The focus on global trends can obscure important changes at the regional and sectoral levels, as well as technological trends...It is also time for a comprehensive review of the variables included in scenario databases, in light of the data needs for the decomposition methods outlined in this article. Certain key information for most models, like the split between fossil, biomass, and industrial process CCS impacts, and the split between fossil energy and industrial process carbon dioxide emissions, still require additional digging or assumptions to create these decompositions.” Keepin and Wynne (1984. Technical analysis of IIASA Energy scenarios, p.693)

opine that given the uncertainties of extensive longitudinal modelling, sensitivity analysis is “*an indispensable tool*” which allows for the exploration of “*how projected results change in response to perturbations in input assumptions.*” As correctly asserted by the authors (*ibid.*, p.623), “*[t]his can help to identify major trends, key policy variables, and vulnerabilities, which is a principal motivation for modelling (rather than attempting to forecast).* *Moreover, careful sensitivity testing is essential when formulating robust conclusions from an analysis.*”

In defiance of the broader scientific community’s call for a downward revision of the employed dominant discount rate, the continued use of contentious rates in the order of 5-6%, as reported by the IAMC, for the IAM mitigation scenarios presented in the AR6 (although the vagueness of the range of rates employed by IAMs for the AR6 is underscored by Annex III of the ACCEPTED VERSION (p.56), “*Most models have a discount rate of 3-5%, though the range of alternatives is larger*” and Chapter 3 of the ACCEPTED VERSION (p.15) “*Lower discount rates <4% (than used in IAMs)...*”) is further worsened by the following alarming admission stated in Annex III: Scenarios and Modelling Methods (p.56) of the Final Government Distribution (FGD), with this being of particular relevance to process-based IAMs as featured in the AR6 - “***While most models report discount rates in documentation, there is arguably too little sensitivity analysis of how the discount rate effects [sic] modelled outcomes.***” As rightly declared in Annex I: Glossary of the FGD (p.14) - “***The choice of discount rate(s) is debated as it is a judgement based on hidden and/or explicit values.***” ***It will be interesting to note if any policymaker accidentally stumbles upon this critical and most concerning admission with it having been consigned to the darkness of Annex III and if so, what such a new-found awareness will have upon the policymaker’s confidence in IAM mitigation scenarios for climate change policy guidance.*** As noted by Emmerling et al. (2019. The role of the discount rate for emission pathways and negative emissions, p.5), “*...moving from 5% to 2% reduces the budget overshoot (and hence negative emissions) by about one half. An appropriate choice of the discount rate would therefore automatically limit the role of these technologies, and suggest a different low carbon transition strategy which is more ambitious in its early stages and avoids deeply negative carbon intensities.*” ***In other words; lowering the discount rate will consequentially change the technologies required, change the timing of deployment, and thus change the mitigation narrative. Change the mitigation narrative; change the policies. Change the policies; change the flow of finance. Change the flow of finance; alter the status quo of vested interests, most particularly those with fossil fuel exposure be it direct and indirect. In light of the debate concerning the choice of discount rate being determined by either ethical considerations or by empirical information (i.e., market interest rates) (see Goulder and Williams (2012). The choice of discount rate for climate change policy evaluation) and the lack of sensitivity analysis in the AR6 as to how the discount rate affects modelled outcomes renders the usefulness of the IAM mitigation scenarios presented in the AR6 for policy guidance to be almost non-existent.***

Echoing the sentiment of Goulder and Williams (2012), Chapter 1 of the WGIII FGD (version marked Nov 10) (p.40) (see also Chapter 1 p.45 Accepted Version) states that, “*[t]he role of time-discounting, in weighting future climate change impacts against today’s costs of mitigating emissions, has been long recognised (Weitzman 1994, 2001; Nordhaus 2007; Dasgupta 2008; Stern 2007). Its importance is underlined in analytical Integrated Assessment Models (IAMs) (Golosov et al. 2014; van der Ploeg and Rezai 2019; van den Bijgaart et al. 2016); also Annex C. Economic literature suggests applying risk-free, public, and long-term interest rates when evaluating overall climate strategy (Arrow et al. 2013; Groom and Hepburn 2017; Weitzman 2001; Dasgupta 2008). Expert elicitations indicate values around 2% (majority) to 3% (Drupp et al. 2018). This is lower than in many of the studies reviewed in earlier IPCC Assessments, and many IAM studies since, and by increasing the weight accorded to the future would increase current ‘optimal effort’. The U.S. Interagency Working Group on the Social Cost of Carbon used 3% as its central value (IAWG 2016; Li and Pizer 2018; Adler et al. 2017). Individual projects may require specific risk adjustments.*” The heavily literature supported assertions contained in this reproduced passage taken from Chapter 1 of the WGIII FGD, no less, further undermines the appropriateness of the ensemble of AR6 IAM scenarios for climate change policy guidance that apply a discount rate above that of ~2-3%. Moreover, it is worth noting the amendments made to this passage by between the SOD and FGD revision by the Chapter 1 author team and the impact that such have upon the legitimacy of the IAM scenarios presented in Chapter 3 of the WGIII AR6, paying particularly attention to the following damning addition to the FGD of “***...and many IAM studies since...***” as well as the qualification of experts favouring a discount rate of 2% as opposed to 3% in the cited study of Drupp et al. (2018) - “*The role of time-discounting, in weighting future climate change impacts against today’s costs of mitigating emissions, has been long recognised (Weitzman 1994, 2001; Nordhaus 2007; Dasgupta 2008; Stern 2007a). Its importance is underlined in analytical Integrated Assessment Models (IAMs) (Golosov et al. 2014; van der Ploeg and Rezai 2019; van den Bijgaart et al. 2016). Economic*

literature suggests applying risk-free, public, and long-term interest rates when evaluating climate change (Weitzman 2001; Dasgupta 2008; Arrow et al. 2013; Groom and Hepburn 2017). Expert elicitations indicate values around 2-3% (Drupp et al. 2018), lower than in many of the studies reviewed in earlier IPCC Assessments, hence increasing the weight accorded to the future. The U.S. Interagency Working Group on the Social Cost of Carbon used 3% as its central value (IAWG 2016; Li and Pizer 2018; Adler et al. 2017)” (Chapter 1 SOD, p.46).

Notwithstanding the continued use of contentious discount rates of 5-6% in AR6 IAM scenarios, the additional failure in accessing, systematically, the sensitivity of the rate employed by the IAMs on the modelled outcomes of the scenarios that feature in Chapter 3 of the WGIII, stated unambiguously no less in Annex III, is also inconsistent with the U.S. Department of Energy’s 2021 directive in that the U.S. Office of Management and Budget “...*recommends for public investment and regulatory analyses that two estimates be submitted, one calculated with a real discount rate of 7% and one calculated with a real discount rate of 3%.*” Such a government directive purposefully acknowledges, rather than intentionally ignores, the impact of the assumed discount rate on the analytical interpretation of the result and subsequent policy guidance. However, as the AR6 long-term IAM scenarios have a time horizon radically longer than that traditionally considered by governments in investment and regulatory analysis (i.e., year 2100), it is arguable that a substantially lower discount rate range should be assumed for global climate change mitigation analyses, with this also having been reported in Chapter 1 of the WGIII FGD, as discussed immediately above. Goulder and Williams (2012, p.16-17) assert, “...*that when discounting the distant future, one should use a lower rate – potentially much lower – than the rate one would use for relatively short time horizons. And since the longer the time horizon is, the more important the discount rate becomes, this result can have dramatic consequences.*” Most recently, Riahi et al. (2021. Cost and attainability of meeting stringent climate targets without overshoot, p.1065), even make the concession that, “...*discount rates of less than about 2% would make the perceived cumulative costs of most 1.5 and 2°C scenarios overall less costly without overshoot... Assuming higher discount rates on the other hand would favour relatively delayed mitigation with overshoot.*” However it should be noted that as stipulated in Section 1.2 of the Supplementary Information, the ex-post sensitivity analysis performed by Riahi et al. was limited only to the “EN_NPi2020_1000” and “EN_NPi2020_600” scenarios with the discount rate varying between 1% and 5% (although this range has been incorrectly asserted in the article in that the authors conducted (p.1065) “...*an ex-post-sensitivity analysis, systematically varying the discount rate between 0 and 5%*”) with the model MESSAGEix-GLOBIOM. The relationship between the discount rate and the carbon price when the “Hoteling rule” is applied in IAM mitigation pathways with respect to CDR deployment is also of particular interest, especially its impact upon mitigation policy guidance (see for example, Streffler et al. 2021. Alternative carbon price trajectories can avoid excessive carbon removal). Moreover, Sognaes et al. (2021. A multi-model analysis of long-term emissions and warming implications of current mitigation efforts) found that when compared to the explicit modelling of policies, the dominant approach of employing economy-wide carbon prices as a proxy of policies exaggerated the scale of CCS usage. As Keepin and Wynne (p.694) conclude, “...*rather than attempting to identify objective policy truths, perhaps a more realistic role for policy modelling is to explore origins and consequences of different social and institutional assumptions. Such an approach would embrace (rather than deny) the interpenetration of science and politics in policy analysis.*”

Such ignorance is further exacerbated by the non-existence of supporting detailed documentation for each scenario under consideration for the AR6, with CLA Roberto Schaeffer conceding to me in writing on the 9 January 2020, that the likelihood of such ever becoming available for his institute’s BLUES regional IAM, with its technology representation of ~10,000 types, was remote: “*But for sure we have not found the time yet, and I doubt we will ever find, to really document this well enough for someone outside my research group in the university to really grasp all the details.*” Once again, this concession and the paucity of IAM scenario documentation for the AR6 are inconsistent with the unsubstantiated and erroneous claims made in your WIREs Climate Change article regarding IAM documentation as “*actions taken*” “*to enhance the transparency of modelling and scenarios in the WG III AR6 report.*” You both even acknowledged in the very same article that (p.6), “[o]ften this documentation does not extend to detailed lists of input assumptions.” Following on, you both then assert that (p.7), “*published peer-reviewed papers based on IAMs do not include full lists of input assumptions*” and “[t]his is at least partly because the volume of assumptions for an IAM is unmanageable in the context of scientific publishing practices.” For you both to offer up such an inept excuse is foolish and worthy of scorn given the ease in which supporting data files, regardless of size, can be provided as supplementary material to accompany a peer reviewed scientific publication. Data infrastructure availability constraint is a pathetic and invalid excuse for the continued non-disclosure of scenario data (i.e., inputs). Therefore your additional assertion (p.7) of “...*scientific publishing requires the submission of novel contributions leaving little scope for voluminous methodological material which represents incremental*

progress” is casuistic. Contradicting this position of yours, WGIII vice-chair Diana Urge-Vorsatz remarked to me on the 28 May 2020 that my appeal for the provision of full documentation for the IAM scenarios and the disclosure of all scenario input data for the AR6 “...seems very reasonable...” May I prompt you both to the following discrepant assertion made in the opening to your very same WIREs Climate Change article with respect to the immutable relatedness of transparency and substantive scientific issues (p.2), **“Progress can be made on substantive issues only if debate is well-informed. Transparency about methods and assumptions is an absolute prerequisite in this respect. Transparency does not in itself guarantee scientific closure, but it facilitates debate and provides a clearer evidence base for policymakers.”** This particular discrepant assertion of yours, Jim and Shukla, I will discuss in greater detail below.

These disturbing revelations and admissions are reflective of the burgeoning critiques of IAM scenario opacity by the broader scientific research community published in the peer reviewed literature. It is of little wonder then why IAM pathways with giga-tonne errors have been reported in the SR1.5 and why errors are still appearing in the AR6 database not to mention their manifest inability to purposefully inform policy with this being compounded by pathway trajectory dynamics ignorance. IAM pathway dynamics that are beyond the comprehension of the modellers responsible in conjunction with models that are large enough to cast shadows long enough provide opportune concealment, either intentionally or unintentionally, on all matters of impropriety.

While on the topic of opacity, I have been reliably informed from a number of authoritative sources that all IPCC authors from the IIASA have refused to participate in the independent ethnographic study, approved by the IPCC, that is being conducted to document the AR6 cycle. Inference would suggest that this cohort from the IIASA appears committed to intellectual anonymity with a preference for seeking refuge by remaining hidden in the shadow of their models. With its averred commitment to “openness” and “transparency”, how does the IPCC reconcile this monastical muteness of those from the IIASA? From a public relations perspective, this collective vow of silence from the most heavily represented research institute partaking in WGIII of the AR6 does not imbue a sense of openness and transparency as purported by the IPCC in its processes and procedures, particularly when members, including one senior member of the IIASA, namely Chapter 3 CLA Keywan Riahi, have been instrumental in the misconduct within Chapter 3 of the AR6 WGIII,. The consequences of this collective behaviour is compounded when considering Hughes and Patterson’s observation of the AR5 (2017. *Narrowing the Climate Field: The Symbolic Power of Authors in the IPCC’s Assessment of Mitigation*, p.754) that, “[a]uthors connected either directly to IIASA through employment, or indirectly through coauthoring with IIASA employees, are therefore most likely to be involved in constructing both how climate change mitigation is to be assessed by the IPCC and what that assessment concludes in terms of key IPCC messages for wider social and political dissemination.” Therefore, with respect to Chapter 3 of WGIII AR6, I strongly concur with Hughes and Patterson’s (p.758) analysis of the AR5 that “...depicts a field in which a few institutions are producing the most symbolically powerful forms of climate change mitigation knowledge and expertise. Combined with the self-referencing identified through the citation data, this dominance would suggest that WGIII’s report provides a limited assessment of the overall field of social, political, and economic understandings of climate change mitigation.” This display of reticence from the IIASA cohort during the AR6 also demonstrates the level of sophism that you both, Jim and Shukla, have executed in your WIREs Climate Change article regarding “transparency” of IAMs for the AR6.

Another critical issue that remains unacknowledged in the FGD of Chapter 3, despite my repeated “flagging” it to the CLAs and to the both of you, is the absence of consilience between opaque, aggregated global IAM mitigations pathways and the mandated Chapter 3 topic of socio-technical transitions. This also has implications for linking Chapter 3’s top-down, global IAMs with Chapter 4’s focus on mitigation and development pathways in the near- to mid-term, which is based upon literature particularly at national scale, due to interrelatedness. Prior to discussing the former, allow me to discuss the latter due to logical progression. In response to an email I sent to you both on the 11 May 2020 concerning this issue, you wrote on 16 May, that, “[t]he additional [sic] of a new chapter, Mitigation and development pathways in the near- to mid-term, to address the point you make about national specificity.” However, Jim and Shukla, the addition of Chapter 4 does not remotely address the issue of global IAMs leaving policymakers without awareness on “national specificity”, notwithstanding your unsupported and ill-considered assertion suggesting otherwise. Confirmatory of the incompatibility between Chapter 3 and Chapter 4 is the following statement taken from the Chapter 4 SOD (p.7) where it explicitly stated that, “[t]he national scale selected in this Chapter requires attention as national mitigation pathways cannot be linked directly to global mitigation goals (see Box 4.1).” As a matter of fact, the revision for Chapter 4 of FGD in the now corresponding Box 4.2 (p.35) only confirms and highlights this linking problem where the authors cite my WIREs Climate Change article as well as Rogelj et al. (2021) - “Direct links between an individual actor’s mitigation efforts in the near-term and global

temperature goals in the long-term cannot be inferred; making direct links requires clear distinctions of spatial and temporal scales (Robertson 2021; Rogelj et al. 2021)” As I commented to you both regarding Chapter 4, as well as to the authors of Chapter 3, on the 6 February 2021 following the review release of the SOD - ‘Then we have the following conundrum taken from Chapter 4 (p.7) - “The national scale selected in this Chapter requires attention as national mitigation pathways cannot be linked directly to global mitigation goals (see Box 4.1).” What has happened here? Jim informed me that the purpose of having Chapter 4 in AR6 was to link near- and mid-term up with the long-term of Chapter 3! I specifically flagged this issue with the Keywan and Roberto during the ZOD cycle and once again I was met with stony silence (a not unusual occurrence from the aforementioned). What is the policymaker meant to think if s/he joins these dots of chapter incongruence?’ Interestingly, and most tellingly, no response at all was received from you both, as co-chairs, or from the IAM authors from Chapter 3 concerning this unaddressed problem that stands in the AR6 FGD and in the “ACCEPTED VERSION” of the report. With this in mind, returning to the former issue of socio-technical transitions with an intrinsic concern of spatial and temporal specificity, that is to say in this case, national pathways, a socio-technical framing of global IAM mitigation scenarios is impossible due to the national and/or regional aggregation to a global scale and the corresponding aggregated reductionism of the said scenarios. Again, as I stated to you both in writing on 11 May 2020 -“Due to this preoccupation with quantifiable techno-economics variables, IAMs are disposed to representing real-world complexities as mere abstractions (Geels et al. 2020). It is of some significance to note that the distinguished Professor Pavel Kabat (presently the Chief Scientist and Director of Research of the WMO science), the then director general and chief executive officer of IASA (Feb 2012 - Sep 2018), in his farewell speech of 18 September 2018 made the following observations, ‘...IIASA integrated models, despite being among [sic] the best in the world, are not really able to deal with the major social, institutional, governance, and behavioural changes needed for a global transformation. What sense does it make to produce yet another set of articles and assessments about the world to be kept within 1.5C of global warming instead of 2C, while we have no real clue how the social, economic, political and individual behaviours system will cope with the already very bold 2C degree target? We need to understand the role of social science to achieve our bold environmental ambitions.’ Well prior to Kabat’s observation, Huntington et al. (1982, p.449) opined that, ‘[i]t has often been contended that the primary goal of policy modelling should be the insight quantitative models can provide, not the precise-looking projections - i.e. numbers - they can produce for any given scenario. Students of the energy policy process, in particular, have noted that preoccupation with the plethora of detail quantitative results produced by large-scale computer models has substantially impeded their influence on key policy decisions.’ Some forty years after the making of the above lamentation, Weyant (2017, p.131) opined that, ‘IAMs can provide very useful information, but this information needs to be carefully interpreted and integrated with other quantitative and qualitative inputs in the decision-making process. As astutely observed by one reviewer of this article: “the models can be very useful, but not usually on their own.”’ This conclusion is also consistent with the call for IAMs to be increasingly supplemented with other models and analytical approaches (Gambhir et al. 2019; Turnheim et al. 2015). Gambhir et al. (2019, p.21) advanced that, ‘[a] critical element—and indeed advantage—of combining alternative approaches with IAMs...would be the bringing together of potentially diverse analytical communities from across the physical, engineering and social sciences, so as to achieve a genuinely cross-disciplinary perspective...’. Integrating more culturally founded contributions into the inception and deliberation of climate change scenarios would enhance processes of future-imaginaries beyond climate model outputs (Tyszczuk and Smith 2018). Importantly, improvements to IAM architecture and scenarios should not be misinterpreted as being a more comprehensive and creative inquiry into the visioning of a desirable climate and society, given that IAMs are not the only available tool in assisting with climate governance (Low and Schäfer 2020).”

The above sentences taken from Huntington et al. (1982. Modeling for Insight, not Numbers: the Experience of the Energy Modelling Forum) are succinct in capturing the utility of policy modelling with this being its *raison d’être*. I made this quote known to CLA Schaeffer and the Chapter 3 author group on 13 January 2020. However, Huntington and colleagues’ observation of “[s]tudents of the energy policy process, in particular, have noted that preoccupation with the plethora of detail quantitative results produced by large-scale computer models has substantially impeded their influence on key policy decisions” has not, oddly enough, materialised within the IAM research field due to the IPCC’s iconolatry of IAMs with such glorification having been buttressed by its amputated research arm of the IAMC. Your response of 16 May 2020 attending to my above concern was that the IPCC for the AR6 would “try and address” this issue with, “[t]he addition of a new chapter, Demand, services and social aspects of mitigation, to address the issues raised by Pavel Kabat.” Unfortunately, Jim, the extempore addition of Chapter 5 does not remotely address the fogginess that accompanies the aggregation of global IAM scenarios presented in Chapter 3 especially when demand-side measures are crudely represented in, if not entirely absent from, IAMs, with this significantly distorting methodological limitation having been explicitly stated in Chapter 5 as well as Chapter

3. As a pioneering scholar in the nascent research area of linking quantitative models with socio-technical transition theories/frameworks, I direct you both, for educational purposes, to Hirt and colleagues' review (Hirt et al. 2020. A review of linking models and socio-technical transitions theories for energy and climate solutions). It is worth noting from a socio-technical perspective the assertion of Geels et al. (2020. Socio-technical scenarios as a methodological tool to explore social and political feasibility in low-carbon transitions: Bridging computer models and the multi-level perspective in UK electricity generation (2010–2050), p.1) that the limitation of IAMs is that such models “...**abstract away from real-world complexities of low-carbon transitions, focusing instead on quantifiable techno-economic variables**”. By reason of this fact, I would strongly argue that, if you do not reintroduce these “real-world complexities” back into the analysis, the abstraction remains, rendering the effectiveness of the information derived from the IAM analysis as being simplistic, incomplete and thus misleading for policymakers. However, this reintroduction of complexities cannot occur with global IAM scenarios due to aggregation and still even persists upon regional breakdown of the global scenarios as a result of the continuing lack of spatial and temporal specificity further compounded by an absence of regional harmonisation across the various IAMs. Dyke et al. (2021. Climate scientists: concept of net zero is a dangerous trap) aver that this process of abstraction committed by IAMs unfortunately removes the “...*need for deep critical thinking.*” In summary, despite some countries being represented as regions in their own right in terms of an IAM's spatial dimension (e.g. China, USA), the majority of policymakers at the national level whose countries are amalgamated into regions are entirely unaware of the suite of mitigation policies being enacted “nationally” as determined by the integrated assessment modellers at a regional level with additional concealment arising out of the final aggregation to the global level. For example, in PIK's REMIND IAM, the region ROW (the rest of the world) includes Antarctica, Albania, Andorra, Australia, Belarus, Bosnia and Herzegovina, Bouvet, Canada, Croatia, Guernsey, Heard Island and McDonal Islands, Holy See (Vatican City State), Iceland, Liechtenstein, Macedonia, Republic of Moldova, Monaco, Montenegro, Nauru, New Zealand, Norway, the Republic of South Africa, Saint Martin (French part), Saint Pierre and Miquelon, San Marino, Serbia, South Georgia and the South Sandwich Islands, Svalbard and Jan Mayen, Turkey and Ukraine. The last time I checked, Jim and Shukla, all these countries that constitute the “ROW” region for REMIND have vastly different domestic emissions profiles and vastly different domestic economies which will translate to vastly different national transition policies required for climate change mitigation for each respective country. Moreover, and regardless of spatial dimension variability within the IAMs that feature in the AR6, policymakers' comprehension of the enacted mitigation policies is only worsened by IAMs' techno-economic abstraction which further obscures the essential discernment of the socio-technical nuance of the required transition. An analogue to this idiocy is the cartographical equivalent of a map-maker providing the traveller with a featureless map. Perhaps global IAMs are expecting policymakers to work on the esoteric premise that, if you don't now where you're going, every road will lead your there. You both declare in your WIREs Climate Change article (p.2) that, global IAMs “...*sit alongside other models with a national or sectoral focus (e.g., energy, land use) which provide more granular insights into climate change mitigation.*” Regrettably, Jim and Shukla, “sitting alongside” is of no assistance to policymakers if they are unable to make the required linkages between top-down and bottom-up models due to specificity issues in addition to compounding consilience issues so as to gain knowledge of what, when, whom as it relates to the transition and how this knowledge is to be embodied within concomitant policy.

Then there is the unassailable fact of the total alignment of FOD and SOD reviewer comments with my continued advocacy for IAM transparency, as well as other non-IAM LAs, from within the chapter. Unfortunately, however, such advocacy was actively stifled at ever turn throughout the drafting cycle in a concerted manner by the controlling contingent of IAM researchers, only worsened by your disinclination as WGIII co-chairs to proactively address this most serious and fundamental issue. May I remind you both that I brought these matters to your attention immediately following the LAM1 and thereafter on countless occasions to the present, with all emails documenting such accounts having been retained by me as proof of correspondence. This also holds true for the Chapter 3 CLAs Keywan Riahi and Roberto Schaeffer and the Chapter 3 IAM author group at large. I subsequently informed the CLAs Keywan Riahi and Roberto Schaeffer that if the IAM research community was unwilling to provide missing critical input data and associated documentation for the ensemble of mitigation scenarios then my ability to produce a meaningful analysis for policymakers would be a impossible task. On all accounts, I received no engagement whatsoever regarding my concerns with such seemingly having fallen upon deaf ears, or perhaps more likely, ears prone to bouts of selective hearing. Evidently, I am not alone in my concerns as to the presentation of dubious IAM pathways within the AR6 as reflected by the exhaustive and unfavourable review comments throughout the cycle particularly the governments' comments regarding the SOD in addition to twenty-five years of scientific literature supportive of such criticisms. The general consensus amongst a number of authors engaged in WGIII is that you both have been active participants in this

obfuscation. Therefore, your over-reliance upon your proclaimed limited ability as co-chairs to only “nudge” a chapter is intellectually feeble and risible. In keeping with the Claytons analogy are the proposed recommendations as to the presentation of IAMs in the AR6 as reported by the IPCC Expert Meeting on Mitigation, Sustainability and Climate Stabilisation Scenarios held at Addis Ababa, Ethiopia 26-28th April 2017. I note that the two principal authors responsible for editing the report were none other than - Priyadarshi R. Shukla and Jim Skea. May I again remind you both of the “Key Recommendations” made in that report for research communities (see p.2 of the report, e.g., “*Enhance transparency by being more explicit about assumptions, trade-offs and uncertainties in scenarios*”). Of particular pertinence is the following stated objectives, *inter alia*, from the Scientific Steering Committee (p.2, p.4) - “*To open the “black box” and explain what insights models/scenarios can provide and their limitations*” and “*Identify gaps in knowledge in integrated assessment models.*” It is illuminating to observe that you, Shukla, as Break-Out-Group (BOG) facilitator on the topic of “Model Intercomparison Projects and marker scenarios” noted that (p.10), “*Data transparency should be strongly encouraged. Open access data and open source modelling tools should be encouraged across all modelling communities.*” Moreover, I noted that BOG facilitator, Oyvind Christophersen stated (p.12) that, “*Be open with data. This helps demonstrate transparency and builds trust.*” Such a statement would suggest, logically, that thereby being closed with data must result in the hinderance of transparency and in the erosion of trust. Given what has occurred to date under your heedless watch as co-chairs regarding the continued closed-data of IAM scenarios and an absence of appropriate supporting documentation, it is patent that there has been, and continues to be, absolutely no demonstration whatsoever of “transparency” or “trust” but rather the antonyms of opacity and distrust, respectively. Similarly, these commitments for IAM transparency in the AR6 were reiterated in the succeeding IPCC AR6 Scoping Document. For all of the IPCC’s recapitulation, including your WIREs Climate Change article, it would appear from what has subsequently transpired during the AR6 cycle, that the above statements are simply vacuous verbal “misdirections” which represent unequivocally nothing more than mere lip service.

During my disturbingly toxic experience at the IPCC, I have had to endure the following events, as enumerated in order of occurrence. Such events occurred in response to my ethical pursuit of transparency, integrity and honesty in the accurate reporting of the state of scientific knowledge to both policymakers and to the public -

- 1) A spurious charge of an “informal” breach of an “informal” code of conduct from both of you which was so obviously designed to silence valid and well-supported criticism via your efforts at intimidation. An “informal” breach of an “informal” code of conduct in response to my vocalising concerns after the publication of the FOD review comments as to Chapter 3’s dominance of IAMs and the orchestrated exclusion of other interdisciplinary scholars present in the chapter? What utter noetic nonsense from the both of you! I trust that you now, with the benefit of hindsight, appreciate how foolish and morally bankrupt this situation of your own creation was. The IAM dominance of the chapter was even flagged by WGIII vice-chair Diana with her displeasure of the chapter’s direction being made known in her submitted ZOD expert review comments. In spite of numerous written requests by me for the particulars as to the alleged “informal” misconduct, you both failed to provide any particulars whatsoever; although this is hardly surprising given that none existed in the first place. For you both to cast aspersions on my character for the purpose of silencing my expressed, justified concerns as to the chapter’s development and the degrading treatment of non-IAM authors within the chapter, with such concerns having been made in light of the publication of the FOD review comments, is illustrative of your iniquitous *modus operandi* as WGIII co-chairs. Your brusque response of the 27th May 2020 to my repeated request for the particulars of the alleged breach was an absolute insult, a total denial of the basic principles of natural justice and confirmatory that this false accusation was adopted by you solely for the purpose of intimidation - “*I don’t think there’s much more that we can say at this point.*” I even proffered you both the opportunity to withdraw the “informal” charge made against me, but all I received was supercilious taciturnity with the following imperious words and I quote - “*Shukla and I feel this is going round in circles and do not see the purpose of continuing the current conversation.*” Again more absurdity, with the above proceedings being rather evocative of Kafka’s *The Trial*. What ever happened to due process? Your decision to make this accusation of a breach of conduct on my part an informal “friendly” warning rather than making it formal was due to its spurious basis with your action being designed to silence scientifically-supported criticisms of IAMs instead of my conduct being called into question as alleged. Any formal investigation into the alleged breach of the code would be found to be without basis and that such a false allegation made against me by the both of you would amount to an abuse of your authority as co-chairs. There could not be a clearer case of threatening, intimidatory and miscreant behaviour such as this abuse of power by you both as WGIII co-chairs. Stipulated in the United Nations Secretariat-General Bulletin Section 1.4 (p.2) an “[a]buse of authority is the improper use of a position of influence,

power or authority against another person.” As you both will be familiar, the IPCC’s Code of Conduct states that (p.1), “[p]articipants are expected to conduct themselves with integrity and in a manner that is professional, respectful, tolerant and responsible”. Strangely enough, we now have the following contradictory and concessional statement taken from the Review of the Principles Governing IPCC Work of March 2021 (p.7) - *“Further reference to and the importance of developing and working on implementation of an IPCC Code of Conduct for meetings as well as all of the IPCC’s work, noting an additional concern on duty of care to authors, with an action team to move the initiative forward.”* This statement from the 2021 Review of the Principles Governing IPCC Work is indicative that the current, ineffectual IPCC Code of Conduct is nothing more than a token code and thus as WGIII co-chairs, you both, have absolutely no right to exercise nor abuse this self-appointed “power” in fraudulently finding against my conduct as having “crossed the line” as a LA concerning my email of the 27 March 2020 where I, in response to ~1,440 Chapter 3 FOD review comments with a vast amount being aligned to internal comments made by non-IAM LAs during the preparation of the draft but ignored, expressed my dismay at the chapter’s co-ordination and the exclusion of non-IAM authors from proceedings. You both, Jim and Shukla, have jointly acted *ultra vires*. Moreover, with the both of you having full knowledge of my appalling treatment during the AR6 given your active, unscrupulous involvement in such outrageous maltreatment, which by reason on this fact places you both in breach of the “code”; it is nothing short of being an absolute affront to human decency for the IPCC to express in March 2021 the *“additional concern”* as to its *“duty of care to authors.”* This declaration by the IPCC can only be described as being an act of superficiality for the purpose of creating a semblance of decency when in truth such an act is oppugnant to the principle of social justice as advocated by the IPCC and with this principle being, more broadly, a central tenet of the United Nations with its universal concern for fundamental human rights as declared in the Preamble to its Charter. You, Jim, talk publicly about “just” transitions, however your behaviour in this instance, out of the view of that public, has been utterly unjust in every respect. May I remind you that as recently as the 25 May 2021 on a blog hosted by the Green Alliance in the publication “Insidetrack”, you stated that, *“[t]here are two very good reasons for bringing justice to the heart of the net zero transition. The principle reason is that it is simply the right thing to do.”* By your actions towards me throughout the AR6, you, Jim, have clearly demonstrated that you have no idea as to the concept of “doing the right thing”. This most unfortunate behaviour of yours, Jim, is immensely disappointing and not the behaviour I would reasonably expect from a man who is so active in speaking on the issue of climate change at so many places of Christian worship throughout Scotland;

- 2) Post publication of my WIREs Climate Change opinion piece, an expression of my intellectual and academic freedom, there followed a grievously unethical attempt at my removal from the chapter by CLAs Keywan Riahi and Roberto Schaeffer, no doubt as an act of petulant retribution, with the both of you, Jim and Shukla, party to the correspondence, having been requested by the CLAs that you, as WGIII co-chairs, terminate my involvement on the basis that I was not an IAM practitioner despite this being the very reason, according to you Jim, the Bureau installed non-IAM LAs in the chapter. May I remind you, Jim, that my WIREs Climate Change publication was in strict accordance with the open invitation that you, Jim, made in the CarbonBrief 11 July 2016 of - *“The appeal for people who sort of critique the IPCC for not considering other approaches is please produce papers, write books for us to assess, because if it goes through peer review and you do it, we will assess it and that’s the challenge”* with this also being consonant with IPCC chairman Hoesung Lee’s public invitation for commentary from those persons critical of the IPCC. Furthermore, my appointment as a non-IAM LA to Chapter 3 as an action undertaken by the IPCC for the purpose of bringing about transparency in IAMs for the AR6 was later confirmed publicly by subsection of “5.2.2. Author selection” contained in your WIREs Climate Change “companion piece” to mine. **“Coincidentally”, this insolent and iniquitous attempt at my removal from Chapter 3 by CLAs Keywan Riahi and Roberto Schaeffer occurred a mere 9 days after I had disseminated my WIREs Climate Change opinion piece to the approximately 200 serving authors of WGIII.** To be expelled from a chapter as a means of castigation, with such an act resulting in the paradoxical subversion of the IPCC’s processes and procedures by a coterie from WGIII that publicly advocates the required qualities of “openness” and “transparency”, is without a doubt demonstrative of the IPCC’s deceitfulness and the ruse being perpetrated on society as to the “state of scientific knowledge” according to enigmatic IAMs. Once more, may I remind you both that the IPCC’s basis for including non-IAM LAs in Chapter 3 for the purpose of IAM “transparency” was openly confirmed in your WIREs Climate Change article and thus this attempted act at removal to silence valid and well-supported criticism of IAMs is actually a calculated effort to maintain the status quo concealed by a chorus of cant. That is to say, opacity under the pretence of transparency which in turn preserves the inconspicuous autocratic power structure that pollutes WGIII and contaminates the entire IPCC process and product. Your deafening silence as WGIII co-chairs in response to my absolute rejection of such intimidation, with

the entire Chapter 3 author group having now been copied in on this email correspondence, would infer that you both have played an active participatory role in this nefarious and unethical action. This disgraceful and dishonourable act of the CLAs Keywan Riahi and Roberto Schaeffer, with both your deplorable *sub rosa* involvement, Jim and Shukla, is also in total breach of Paragraph 12 of the IPCC's Conflict of Interest Policy - *"Conflict of interest policies in scientific assessment bodies typically make a distinction between "conflict of interest" and "bias," which refers to a point of view or perspective that is strongly held regarding a particular issue or set of issues. In the case of author and review teams, bias can and should be managed through the selection of a balance of perspectives. For example, it is expected that IPCC author teams will include individuals with different perspectives and affiliations. Those involved in selecting authors will need to strive for an author team composition that reflects a balance of expertise and perspectives, such that IPCC products are comprehensive, objective, and neutral with respect to policy. In selecting these individuals, care must be taken to ensure that biases can be balanced where they exist."* The rationale for compliance with Paragraph 12 is underscored by Paragraph 2 of the IPCC's Conflict of Interest Policy - *"The role of the IPCC demands that it pay special attention to issues of independence and bias in order to maintain the integrity of, and public confidence in, its products and processes."* Indeed, the IPCC Bureau's very appointment of Keywan Riahi and Roberto Schaeffer as the two CLAs of Chapter 3, with both individuals being senior members of the IAMC, created an instantaneous bias within the chapter and is not at all reflective of the author group composition in terms of its disciplinary diversity, with such biased appointments being aggravated by a pronounced servile dynamic between Riahi and Schaeffer with Riahi very much assuming the dominant position. Such appointments are completely inconsistent with the IPCC's own Conflict of Interest Policy directive in addressing the potential for the introduction of biases within and the consequential corrosion of the confidence in and integrity of its Assessment Reports but are consistent with a predetermined, conspiratorial and duplicitous plan for IAM domination and control regarding the content of the chapter whilst allowing the IPCC to propagandistically broadcast its plastic pursuit of IAM transparency, with the both of you having done so in your WIREs Climate Change publication. You of all persons Jim, should have a fulsome knowledge of the IPCC's Conflict of Interest Policy, given your task as acting as rapporteur for the Conflict of Interest Task Group when developing the response to the IAC's review of the IPCC, with this personal achievement having been detailed by you in your IPCC AR6 WGIII co-chair candidacy application. Furthermore, I informed, in writing on the 30 October 2020, IPCC chairman Hoesung Lee of this misconduct. Most disturbingly, no response from the chairman was received on this matter;

- 3) Having failed in the IPCC-IAMC contingent's attempt to remove me from Chapter 3, the IIASA, the institute that employs CLA Keywan Riahi, consciously blocked both my email addresses on its server and created an alternative email chapter group address with an additional prefix so as to exclude me from sending and receiving communications within the chapter group email address through the employment of whitelist/blacklist filtering. This contemptible behaviour of the IIASA also had the effect of excluding my participation in author group meetings as a result of "missing" meeting invitations. The subject chapter group email addresses were created by the IIASA with both accounts being controlled by the IIASA, its servants or agents. Further, such devious, exclusionary tactics of the IIASA also extended to their revocation of privileges for dial-in functionality for virtual meetings, with the IIASA acting as the controlling "meeting host", thereby removing my ability to join via mixed technology due to a WebRTC audio incompatibility issue. Prior to the publication of my WIREs Climate Change opinion piece, no issues has been experienced by me with meeting dial-in functionality. However, after my complete rejection of the CLAs Keywan Riahi and Roberto Schaeffer's egregious attempt, with the both of you being involved, Jim and Shukla, at my removal from Chapter 3 on the 27 October 2020, my Zoom meeting dial-in privileges for Chapter 3 where "coincidentally" **revoked a mere 6 days later**. These **scandalous events of communications interference** were brought, on multiple occasions, to the attention of you, Jim, as well as to the head of the WGIII's TSU, Raphael Slade. On the 5th and 10th November 2020, I emailed the WGIII TSU's IT contact Malek Belkacemi bringing this problem to his attention, with the both of you being copied in on the prompting correspondence of the 10th November. Malek replied on the 11th November with - *"Apologies for the delay, unfortunately our Zoom license doesn't include audio options for phone dial in. I have informed the co-chairs."* This unsubstantiated assertion of Malek's is highly questionable given that his terse statement does not even serve to remotely explain, logically, my and others previous ability to phone dial-in for Chapter 3 meetings; the continuity of my phone dial-in functionality for other WGIII chapter meetings (non-Chapter 3) throughout the AR6 draft cycle; the continuity of phone dial-in functionality for WGIII Lead Author Meetings throughout the AR6 draft cycle; and the subsequent and miraculous return of phone dial-in functionality for Chapter 3 meetings, with this final instance having only occurred after sending Raphael Slade several

emails calling out this gross misconduct of **CLAs Keywan Riahi and Roberto Schaeffer in interfering with chapter communications in addition to the Chapter 3 chapter scientists having been implicated in the calculating behaviour** - Edward Byers, a researcher from the IIASA, and Eduardo Müller Casseres, a doctoral candidate at Coppe/UFR with both of these institutions being the same institutions of CLAs Keywan Riahi and Roberto Schaeffer, respectively. More precisely, Edward Byers is located in the IIASA Integrated Assessment and Climate Change research group led by program director Keywan Riahi and Eduardo Müller Casseres is undertaking his doctoral research at the Centre for Energy and Environmental Economics led by director Roberto Schaeffer and thus both chapter scientists have the potential to be exposed to undue influence due to institutional hegemony. As you both would be aware, Chapter 3's chapter scientists were responsible for organising online chapter meetings and thereby controlled the permission settings for Zoom meetings. When questioned about this revoked Zoom meeting privilege, Eduardo Müller Casseres assured me that he had not done anything with the settings intentionally his end that would result in me being excluded from chapter meetings. However, with the commencement of Lead Author Meeting 4 (LAM4), I confirmed my ability to dial-in by phone for audio to the opening plenary, although "oddly enough", my inability to dial-in to Chapter 3 meetings still persisted. I contacted both Edward Byers and Eduardo Müller Casseres informing them of my "unusual" ability to dial-in for the LAM4 opening plenary. Shortly thereafter, both Edward Byers and Eduardo Müller Casseres "managed" to remarkably restore the Zoom meeting dial-in functionality for Chapter 3 meetings, despite both of them denying repeatedly, month on month, of having an ability to restore such functionality. No explanation was provided by Edward Byers or Eduardo Müller Casseres after having restored phone dial-in functionality for Chapter 3 Zoom meetings! This phenomenon being restricted to Chapter 3 meetings only, and with such functionality having only been restored miraculously after Edward Byers and Eduardo Müller Casseres were "informed" by me on this communications "abnormality" being isolated to Chapter 3 Zoom meetings when compared to all other IPCC online meetings, is indicative of a coordinated act of dishonesty from the chapter scientists, with this act having been sustained up until they were caught out for their untruthfulness and deceit. It is also worth returning to WGIII TSU's IT contact Malek Belkacemi's dubious assertion regarding IPCC Zoom license phone-in audio restrictions. That is to say, according to Malek, the shared accounts on the IPCC Zoom meeting license did not include a dial-in function when in reality the above recounted events, including the "intermittent" dial-in functionality for Chapter 3 meetings, would undeniably suggest otherwise. Is this instance an example of incompetence or additional deception from a TSU member in terms of executing a double act of subterfuge, with Malek perhaps having been pressured by senior members of WGIII's Bureau to construct a supportive yet fictitious narrative, explained by Malek's five day delay in replying, for the purpose of concealing concerted **communications interference within Chapter 3** that has subsequently been proven to be totally inconsistent with events which occurred and thus categorically implausible?;

- 4) Then at your request by email of 20 November 2020 concerning my "...role in the AR6", I had a telephone meeting with WGIII vice-chair Andy Reisinger when he proposed the following illogical *modus vivendi*: "*The IAM-CLAs/LAs are threatened by your presence in the chapter and perhaps if you left the chapter, they would feel less threatened and therefore be more inclined to do what you are wanting*". I assume that this illogical tripe was the scripted product of your "diplomatic" minds and is once again at variance with the false arguments as promoted in your WIREs Climate Change article. Adopting a Machiavellian approach to addressing the issue of IAM transparency, I must say, is a novel approach while at the same time being ill-conceived and extremely revealing. I asked Andy on a number of occasions during our discussion to explain the rationale behind this proposed *modus vivendi*, however, he was unable to answer the posed question other than repeating the nonsense. As no doubt reported by Andy to you, I informed him that I wasn't going anywhere, and until the completion of the AR6, I did not leave the assigned chapter, Chapter 3. This event marked the second unsuccessful, underhand attempt by the IPCC-IAMC contingent at my removal from Chapter 3. More bullying. More intimidation. What is patently apparent is that your email to me of the 10 Feb 2020 where you explicitly confirmed my role in Chapter 3 was one "...of lifting transparency" for IAMs in the AR6 had, miraculously ten months later, ceased to be with you now requesting Andy to execute your idiotic *modus vivendi* so as to assuage the IPCC-IAMC contingent's latest desire, being one for my removal from the chapter due to my unrelenting pursuit of IAM transparency; the very task that the IPCC Bureau charged me with and in particular my call for the disclosure of critical IAM scenario input data together with associated documentation for the AR6. I should reiterate that this call of mine for IAM transparency is supported by twenty-five years of extant scientific literature. It is worth noting that this sharp practice of the IPCC-IAMC contingent had transpired well prior to the publication of your WIREs Climate Change "companion piece" which is, once again, unmistakably demonstrative that the contents of your WIREs article were

intentionally crafted for the purpose of duping the scientific community, the policymakers and the public and is indicative of your overall duplicitousness in your conduct as WGIII co-chairs. This malbehaviour of yours, both in authorship as well as chairing WGIII, is consistent with my assessment of the IPCC-IAMC contingent's orchestration of Clayton's transparency for IAMs in the AR6, that is to say, *the transparency you have when you're not having transparency*. Such condemnable actions of yours as WGIII co-chairs, sanctioned by the IPCC-IAMC contingent, has had a deleterious effect upon IAM transparency due to its retrograde nature which has actively sustained twenty-five years' worth of obfuscation - business-as-usual for IAMs in the IPCC AR6; and finally with the failure of the above incidents of (1), (2) (3) and (4) in respect to their fruition;

- 5) The degree of this deliberate and orchestrated exclusion from Chapter 3 proceedings from within the chapter is further demonstrated by the fact that my first reading of Chapter 3's SOD was only after it had been submitted in its final draft to the WGIII TSU. Chapter 3's SOD was not made available to me for comment prior to its submission to the TSU with my retrieval of the draft only having occurred after the WGIII TSU had uploaded the approved PDF to the central repository of the IPCC WGIII Document Management System. Notwithstanding this fact, CLA Keywan Riahi, on 7 June 2021 in a chapter group email, post-SOD submission, described the chapter's process as being "inclusive" in spite of his earlier email to me dated 27 October 2020, where CLAs Keywan Riahi and Roberto Schaeffer stated to me that, "*We have in the meantime proceeded without you.*" Such a statement is confirmatory of an exclusionary tactic executed on the part of CLAs Keywan Riahi and Roberto Schaeffer and is incongruent with the IAC's recommendation and the IPCC's response for inclusivity of a diverse author group so as to ensure all scientific perspectives, including controversies, were accounted for and reflected in the IPCC's Assessment Reports. This disgraceful and improper tactic of active exclusion from the chapter's development due to my previous criticisms of IAMs, a fact that you both were fully aware of prior to the authoring of your WIREs Climate Change publication, is also totally incongruent the IPCC's initiative of "author selection" in an effort to bring about IAM transparency with this having been untruthfully asserted in your WIREs Climate Change publication. Untruths based upon delusions are rather all too convenient in terms of allowing for the "rewriting" of an inconvenient truth. By withholding the true and present state of scientific knowledge, the IPCC and the IAMC have actively and wilfully misled policymakers and the public. Such a deliberate and orchestrated exclusion from the chapter was also sustained until the submission of the FGD as evident by Riahi's circulation via email to the author group of the "submitted" draft version dated 1 November 2021. However, undeclared additional edits primarily limited to the subsection that addresses IAM limitations, authored by a non-IAM LA, were made to the draft prior to submission to the TSU which then subsequently appeared in the TSU approved FGD of Chapter 3 as well as the ACCEPTED VERSION of the chapter. Given my sound familiarity with my own opinion piece, using an in-text reference to my WIREs Climate Change article as a before-and-after example patently demonstrates Riahi's introduction of bias with the presented text to the policymaker and the public: BEFORE - "*This has led to discussions about transparency, as it is often difficult for scenario users to understand what is driving scenario results (Robertson 2020).*"; AFTER - "*Transparency of underlying data and methods is critical for scenario users to understand what drives different scenario results (Robertson 2020).*" As I am the sole author of this article in question, Riahi's self-protectionist construal of my article is incredulous to say the least particularly when the "before" in-text referral to the article's message had already experienced a noticeable degree of "self-censorship" as self-imposed by the non-IAM LA responsible for the authoring of the subsection. This "edit" of Riahi's expunges elements of scientifically valid, peer review criticism from the view of the policymaker and the public with its misrepresentation of the article being an act of scholarly misconduct on the part of Riahi. Riahi's expunging of IAM criticisms is further exacerbated by the addition of generalist and misleading mitigative follow-up sentences concerning input databases which does not acknowledge the truth of the matter that the IAM scenarios which feature in the AR6 are without complete input data disclosure, a fact that was foreseen by me in Robertson (2020). The IPCC Scientific Steering Committee's call at the Expert Meeting on Mitigation, Sustainability and Climate Stabilisation Scenarios held at Addis Ababa, Ethiopia 26-28th April 2017 (p.2, p.4) "*To open the "black box" and explain what insights models/scenarios can provide and their limitations*" and "*Identify gaps in knowledge in integrated assessment models*" has failed to be realised due to the IPCC-IAMC contingent's egregious and dishonourable conduct throughout the preparation of the AR6. Again, may I remind you both of the statement contained in Annex 1 of Appendix A to the Principles Governing IPCC Work Section 1. Lead Authors - "*Lead Authors are required to record in the Report views which cannot be reconciled with a consensus view but which are nonetheless scientifically or technically valid.*" The importance of including non-consensus issues in the report is emphasised by the annex's description of the Review Editor's function to - "... ensure genuine controversies are reflected in the text of the Report." This explicitly stated "requirement"

from LAs and RE's in the performance of their IPCC duties is also consistent with the IAC's recommendation that, "Lead Authors should explicitly document that a range of scientific viewpoints has been considered, and Coordinating Lead Authors and Review Editors should satisfy themselves that due consideration was given to properly documented alternative views" (2010, p.18).

It is clear that Riahi has failed, in a most deliberate manner, to comply with Annex 1 of Appendix A to the Principles Governing IPCC Work. This final duplicitous act of Riahi's is consistent with WGIII TSU head Raphael Slade's description of Riahi's involvement in the SR1.5 as being a "difficult birth". Riahi has clearly demonstrated that he has the capacity and propensity for such unethical conduct and this view is supported by WGIII vice-chair Andy Reisinger's remark of Riahi's performance of "dirty work" in attempting to have me removed from the chapter. The implication of such malbehaviour is that Chapter 3 contains a censored and distorted representation of the cited literature for the purpose of sanitisation and protectionism concerning IAMs application for policy guidance. Indeed, Riahi has form when it comes to the scholarly misconduct of misrepresenting the words of others motivated by a personal professional gain, best illustrated when he wholly misconstrued an email of mine in the orchestrated attempt in terminating my chapter participation. As carbon copied correspondents, you are both aware that I immediately called out Riahi's unethical behaviour explicitly citing his unscholarly misrepresentation of my words at the time of the incident. No denial or protest in reply was advanced by Riahi. In the case of Riahi's involvement with Chapter 3, his interpretation of the C in CLA is not for co-ordinating but rather a misconstrued notion that it denotes - control, command and censor and is inconsistent with the IPCC's definition of the role in that, "*CLAs take overall responsibility for coordinating chapters of a Report. CLAs also play a leading role in ensuring that any crosscutting scientific or technical issues are addressed in a complete and coherent manner.*" This malbehaviour of Riahi as a CLA is in complete contrast to that which I experienced as contributing author in an other chapter of the AR6 with one of its CLAs commenting to the author group that it was not their job to tell us what to write, as their role was just to co-ordinate the chapter. Riahi's additional "academic" exegesis presented in Chapter 3 of the literature authored by other disciplinary scholars concerning the ethics and utility of IAMs is fantastical and by virtue of this fact, there is a reasonable apprehension of the presence of introduced biases. The IPCC-IAMC contingent gives the impression of suffering from a conveniently and consciously distorted interpretation of levelled criticism to the point of expunging all extrinsic disapproval. Such deliberate misconstruction, remote from reality, ensues from model apotheosisation accompanied by a delusional sense of arrogant impunity.

The negligible contribution that the global IAM mitigation scenarios presented in the AR6 make in providing policymakers with a bewilderingly vague, opaque and canonical understanding of the aggregated expenditure of the global carbon budget across sectors in accordance with stringent temperature thresholds supervene upon the current stagnate state of affairs concerning IAMs as described herein. The corollary of such poor scientific practice and the obsequiousness of the IPCC is that the integrated assessment modellers with their models have come to be nothing more than soothsayers with supercomputers whose palms have been crossed with silver by various "benevolent" funding agents.

If the absence of personal integrity as demonstrated by the abhorrent behaviour and gross misconduct of those of the IPCC-IAMC contingent is an indicator to judge by, then questions must be raised as to whether these are fit and proper persons to be engage in global change modelling. Can the public have any confidence and trust in such "black box" IAMs when they are devised, in part, by such sullied "scientists"?

What an alarming series of shameful concerted events characterised by repugnant, puerile and unprincipled conduct with all the aforementioned documented instances having been designed with the explicit intention of silencing a well-founded critical voice concerning the lack of transparency in IAMs scenarios in the AR6 and the ramifications of such upon ethical policy guidance. These criticisms of mine were well-supported by a quarter of century of extant scientific literature. With each of the above failed attempts at intellectual censorship is an evident increase in the level of institutional desperation for suppression. I am truly appalled that Bureau members of a United Nations affiliate would behave in this unprincipled manner towards a duly appointed colleague of Working Group III who only seeks to uphold the openness and transparency that is universally required by the open science movement; the very same "openness" and "transparency" as falsely purported in your Janus-faced WIREs Climate Change article regarding the WGIII's efforts to bring about IAM transparency in the AR6 and as advocated by the IPCC in terms of these qualities being paramount convictions to its processes and procedures. I am equally appalled that you, Jim, who specifically instructed me, in writing, that my task was to lift transparency in Chapter 3 would act in such a duplicitous and sordid manner. The IAC (2010, p. 18) asserted that, "[h]aving author

teams with diverse viewpoints is the first step toward ensuring that a full range of thoughtful views are considered." Therefore, given the IAC's recommendations, what would Shapiro et al. responsible for the IAC's report into the IPCC's processes and procedures make of the above accounts of such egregious behaviour orchestrated by senior members of the IPCC WGIII and its representatives from the IAMC, in particular Chapter 3 CLAs Keywan Riahi and Roberto Schaeffer, and the extraordinary silence from the IPCC chairman Hoesung Lee determined by his unwillingness to address in the AR6 this long outstanding problem for the IPCC? Similarly, what would the scientific community and governments, given their critical and like comments made in the FOD and SOD review to those being echoed internally within the chapter by non-IAM LAs, make of such unscrupulous events emanating from "trusted" scientists? Worse still, what would the public, in particular the younger generations, make of this total absence of scientific and moral integrity from the IPCC-IAMC contingent and its systematic harassment of an independent LA in an effort to silence an alternative opinion, an opinion supported by twenty-five years of peer review scientific literature? The very fact that the IPCC-IAMC contingent has gone to the lengths that it has over the course of the AR6 draft cycle in orchestrating and participating in the above unscrupulous events marked by unceasing misconduct against a sole author in an effort to obstruct the ethical pursuit of scientific transparency and to prolong mitigation scenario data obfuscation is indicative of a desperate desire to keep shrouded, at all cost, the institutional power that perversely pervades Delphic IAMs.

As a consequence of the above recounted instances is the emergence of the following salient questions for both the policymaker and for the public so as to begin to explain the reasoning for such sustained unscrupulous behaviour - For what reason/s would the IPCC and the IAMC act in such a dishonourable and deceitful manner when the IPCC's remit is to simply report on the state of scientific knowledge in an open and transparent manner? What vested interests are being secretly served by this unconscionable and reprehensible conduct from a contingent of "scientists" embedded in the WGIII of the IPCC who purport to adhere to technology agnosticism?

On the 12th February 2021 you wrote to me the following in an email - *"It is very difficult for the outside world to make sense of a situation where a researcher criticises a chapter for which they are listed as lead author; the net result is inevitably reduced trust in any and all scientific evidence and methods."* This corrupt statement is irreconcilable with the assertions advanced in your WIREs Climate Change article (pp.5-6) as to the inclusion of authors from *"...outside the IAM community...who had been critical of IAMs in the published literature at the time they were selected"* as a step *"...taken to enhance the transparency of modeling and scenarios in the WG III AR6 report."* It is now without question that, you, Jim, and your co-conspirators appointed non-IAM research scientists who had been critical of IAMs prior to their IPCC appointment on the basis of bringing about IAM transparency for the AR6, however, their appointments have been done so on the undeclared condition that they do not voice criticisms of IAMs when performing their duties as LAs in Chapter 3. In essence, according to your stated "syllogism" Jim, IAM critics who have been specially selected by the Bureau on the basis of their past criticisms so as to bring about IAM transparency for the AR6 have been done so on the oxymoronic "unilateral proviso" that they are disallowed to voice peer review founded criticisms in the chapter due to the risk of such vocalisation inevitably reducing the trust in any and all scientific evidence and methods. Your perverted desire for IAMs in the AR6 is one of transparency for appearances sake rather than transparency for the sake of scientific integrity. Put simply, you, as part of the IPCC-IAMC contingent, have collectively premeditated the exploitation of non-IAM research scientists for the contingent's hidden agenda for mock IAM transparency in the AR6. This is another revealing example, Jim, of your cloaked dishonesty as a scholar and your duplicitousness and self-serving approach to the role as a IPCC WGIII co-chair and IAMC associate. Additionally and given your gross distortion and underestimation of the public's understanding of "how science works", with such a jejune and unconvincing misrepresentation being carefully crafted for the sole benefit of the technocracy in a determined effort to exclude civil society from deliberations, allow me to adopt a like framing to that of yours and relate this to the ramifications of the above incidences were they to become public but with supplementary framing taken from the IAC's findings - ***It is very difficult for the outside world to make sense of a situation where a researcher for which they are listed as lead author for the express purpose of lifting transparency; who carries the burden and responsibility of maintaining the public's trust defined by transparency and integrity as prescribed in principles governing IPCC work; has been subjected to such unethical and unrelenting interference and orchestrated intimidation in the performance of their duties by an embedded contingent within the IPCC, with that contingent including the very co-chairs responsible for that lead author's "appointment to" and "task charged" within the chapter; the net result is inevitably the complete mistrust in any and all scientific evidence and methods as considered and advocated by the IPCC.***

According to Diana, it was you, Jim, who decided to place “...so many non-IAM authors in your chapter” so as to break away from the “...decades of the IPCC’s over reliance on IAMs.” Therefore given your convenient distortion and underestimation of the public’s understanding of “how science works” together with the obvious absence of genuineness in your decision to populate Chapter 3 with so many non-IAM authors, as evidenced by your failure to address in any manner whatsoever the issue at hand and your stated aversion to IAM criticisms being made public; this can only be interpreted as amounting to little more than window dressing by exploiting the presence of “disciplinary diversity” in the chapter’s author group composition. This fact is further confirmed by your WIREs Climate Change article subsection of “5.2.2. Author selection” (p.5-6) - *“In making its selection of authors for Chapter 3, the WG III Bureau (IPCC, 2018b) followed the Expert Meeting recommendation to include authors with a wide range of expertise, including those outside the IAM community. These included individuals who had been critical of IAMs in the published literature at the time they were selected, those with expertise in fields such as forestry, land use, and bioenergy where the credibility of IAMs has been questioned, and those with wide perspectives on socioeconomic development.”* A pragmatical examination of the following sentiment of yours, “...to include authors with a wide range of expertise, including those outside the IAM community”, is unclocking as to its truth. To “include” non-IAM authors in the chapter is suggestive of inclusion, that is to say, participation in the proceedings. However, this has not been the case with the IAM contingent’s absolute dominance of the chapter’s direction and subsequent development. The “chapter die” had been cast well before LAM1 held in Edinburgh with the Chapter 3 CLAs Keywan Riahi and Roberto Schaeffer’s forestalling presentation of the chapter content outline which had been declared as having been “pre-prepared” by a “select” group of IAM authors, to the entire chapter group at the outset of the meeting. This observation was shared by other non-IAM LAs of the chapter. Such preemptive action of command-and-control by those responsible was designed to exclude and not to “include” as asserted in your WIREs Climate Change article. Your exploitative action, with this having been leveraged in your WIREs Climate Change article, of “including” non-IAM authors as an action taken to bring about IAM transparency for the AR6 is simply vulgar public relations spin; an intellectual facade. An interdisciplinary activity degraded to multidisciplinary, with the “multi” element being relegated to an impotent, inactive involvement. As mentioned to me by the independent social scientist conducting the ethnographic study of the AR6, the tactic of institutions enfolding themselves with disciplinary diverse experts as a “gesture” towards transparency and openness is well-known and frequently applied. Indeed, this form of quasi-interdisciplinary research has been documented extensively in postgraduate environmental science and management textbooks. On the 11 May 2020, I wrote to the both of you positing that, “...the IPCC’s decision for the inclusion of such authors may be viewed as nothing more than a disingenuous attempt at amelioration without having to confront and address the underlying cause. At best it could be described as an act of ‘window-dressing’. At worst it could be seen as setting up non-IAM Lead Authors as ‘patsies’ to afford the IPCC a convenient ‘excuse’ to meet the criticisms of the chapter that will most surely and justifiably follow.” You both failed to respond to this supposition of mine. At the commencement of the AR6, the non-IAM LAs of Chapter 3 were neither informed, explicitly or implicitly, by the both of you, as co-chairs, nor by the Bureau that our role was to lift transparency of IAMs for the AR6. This “role” was revealed by the both of you on the 10 February 2020 (annexed hereto) to me, and to my knowledge, only to me. When I informed my fellow Chapter 3 non-IAM LAs of “our” role as envisaged by the Bureau, we were perplexed by the absence of co-ordination from the Panel concerning this matter. If the IPCC was sincere about our “transparency role” for IAMs in the AR6, it should have formally addressed Chapter 3 as a whole at LAM1. The Panel’s negligence in failing to inform the chapter author group with respect to its desires for IAMs in the AR6, along with your authoring of subsection “5.2.2 Author selection” in your WIREs Climate Change article is suggestive of an act of window-dressing and/or setting up non-IAM Lead Authors as patsies for Chapter 3. Clearly the IPCC-IAMC contingent’s endgame in “author selection” for Chapter 3 was to hoodwink the policymakers, the scientific community and the public regarding the transparency of IAMs presented in the AR6.

For the IPCC to adopt such a dishonest tactic is deserving of the highest condemnation from the scientific community, government policymakers and the public. As a trained and experienced interdisciplinary scholar in both quantitative and qualitative environmental research, I can assure you that Chapter 3’s proceedings are an exemplar on how not to conduct an interdisciplinary activity. The degradation to the “interdisciplinary” activity in Chapter 3 having been enacted by a select group of IAM CLAs/LAs was an act of desperation so as to maintain its power, its profits and its political influence with this being facilitated by the IPCC’s complicity motivated by a like desire for the maintenance of its power, its profits and its political influence, with both acts having been committed at the ultimate expense of principle, while allowing the IPCC-IAMC contingent the opportunity to claim disciplinary diversity due to the chapter’s author group composition. The WGIII Bureau’s decision to follow the Expert Meeting’s recommendation to include authors with a wide range of expertise in Chapter 3’s author group composition does not equate to transparency, regardless of your

unsubstantiated and asinine claims having been advanced in your WIRES Climate Change article under the artifice of “*actions taken during AR6.*” This exclusionary and exploitative behaviour from the IPCC-IAMC contingent is all too reminiscent of the following interviewees’ appraisal of their virgin experience of the IPCC as documented in Hughes and Patterson (2018. Narrowing the Climate Field: The Symbolic Power of Authors in the IPCC’s Assessment of Mitigation, p.762) - “*For authors new to the process, institutional affiliation and publication record are important for being perceived as a serious author and having one’s perspective represented in the chapter. As one author puts it, it is important to arrive in the group with the right “paraphernalia,” which he identifies as “models, data, publications, networks, etc.” (SLA.7c). While another author suggests that if you are “not from specific very rich countries, or male, or an economist, or ideally all of these, it was very hard to get your word heard or your point to count” (NLA.9c).*” There is evidently a well-documented, pre-existing cultural problem at the IPCC, where objectionable and unbecoming behaviours have become normalised, which has only been worsened under your co-chairing of WGIII for the AR6 as a result of your active misconduct in the obfuscation of the utility of IAMs for policy guidance as well as the harassment of scientists in the performance of the duties as independent authors in their pursuit of transparency and integrity, with these qualities being congruent with the ambit of the IPCC in terms of anticipated conduct. By your explicit actions and demonstrated inaction, each of you have done science a great disservice.

With your deliberately misconstrued and hubristic, technocratic contention as to the “outside world’s” inability to comprehend the incontestable fact that science is forever in a state of flux, allow me to remind you both of Brian Wynne’s salient observation of thirty-seven years ago, particularly now with society’s understanding of “how science works” having since matured significantly beyond that which has been historically claimed as an “elementary” grasp. I strongly urge you both to desist from treating both the policymaker and the public with such contempt. As Wynne (1984, The Institutional Context of Science, Models, and Policy: The IIASA Energy Study, p.288) states - “*There is an increasingly recognized discrepancy between the public language of science and the reality of its normal internal processes (Knorr-Cetina, 1981; Mulkay, 1980). These have been shown to fall short of the idealized images represented in its public ideology of definitive rules of method, logic, discovery and evaluation. In those fields where science is involved in public policy, there has been an increase in the public attention paid to such internal scientific practices. As the products of science as policy inputs have become more contested and less secure, the rational fall-back position of policy has been to insist at least that “due process” has been followed in the generation of scientific claims (Barnes and Edge, 1982; Nelkin, 1979). Therefore the internal processes of science have become a legitimate part of public interest, and formal modeling in policy analysis has become one response to demands for transparency (Gass, 1981).*”

In a critical review of global environmental change research and assessment agendas, Lahsen and Turnhout (2021. How norms, needs, and power in science obstruct transformations towards sustainability, p.2) assert, “*...the inconvenience but necessity of ‘opening up’ science in contexts marked by interlinked concerns to preserve scientific authority and strengthen environmental policy*” with the authors arguing (p.2), “*...that these concerns stoke defensive retreats behind the shields of neutrality and objectivity—responses that are ill-adapted because they suppress transparency, reflexivity, and interventions to equalize power and status between the natural sciences and the environmental social sciences and the humanities, and as such undermine the needed, deeper transformations.*” Lahsen and Turnhout (p.7) state that, “*We recognize that discussing interests and power operating in mainstream global change science is sensitive. Yet, we contend that it is necessary. While counterintuitive due to common, countervailing norms and assumptions, ultimately it is dangerous for scientific authority and for environmental policy to pretend that science is above the play of parochial concerns and influences and able to access and express a singular Truth...It behooves us to ask if suppression of discussion of interests and power structures in science do not work more against than for the desired environmental protections....We argue that the suppression creates a lack of transparency that sustains the unproductive status quo in science. Scientific institutions are adept at expunging ‘uncomfortable knowledge’ (Rayner 2012), evidence that academics also participate in the reproduction and reinforcement of unequal power and privilege distributions through ‘interacting social, economic, cultural, political, discursive, cognitive, technical and wider material phenomena’ (Stirling 2019, p 2).*”

Since the internal processes of science with a societal expectation of the adherence to “due process” are very much now a legitimate part of public interest, with this ironically being supplemented by formal yet opaque modelling as a response to demands for transparency; an external audience to these unscrupulous events would assess this collective conduct as having all the indices of an institutional scandal denoted by an abject failure of scientific practice. The above accounts of systematic harassment, bullying and ostracisation, with now attempted censorship, are traits not conducive to the portrayed image of scientific

integrity that the IPCC seeks to promote and relies upon for its credibility in the public domain. Not only does the above corrode the public's trust in science but with society's heightened awareness of the harmful effects that this type of brazen misconduct may have upon the mental health of individuals within an organisation, with, in some instances, the psychological distress being elevated high enough and sustained long enough that the outcome is one resulting in a fatality; this offence against social mores would result in society at large holding the offender accountable for such conduct with the ultimate repercussion being an absolute distrust in the representative organisation. No person this day and age should be subjected to such egregious behaviour particularly when it emanates from individuals who purport to be learned and especially from members of the upper echelons of a scientific organisation, in this instance, the IPCC. It may be argued that this shameful behaviour is made even worse due to the fact that all scientists participating in the IPCC have selflessly donated their time and expertise without remuneration in the preparation of the Assessment Reports. Such blatant abuse of power is no longer tolerated by civil society as can be now witnessed, in realtime, across social media platforms and the crisis in confidence that follows in the offending institution and the impact of such upon its institutional credibility including its continued viability. This fact is of particular importance for scientific bodies that represent the last bastion of public trust. Trust in science has been earned through the commitment of scientists to the public to uphold the integrity of scientific practice. However, once this trust that has been assiduously built upon by each successive generation of scientists begins to erode, then the privileged societal standing of science will fail at a fundamental level; as if it were a house of cards taking those responsible within to scientific infamy.

In the very same email of the 12th February 2021, you, Jim, also mentioned, most concerningly, the notion of "compromise" as it relates to the reporting of the state of scientific knowledge, borrowing your exact turn of phrase, as communicated to me - "[c]onsensus always requires a bit of give and take." Again, this perverse statement is irreconcilable with your unsubstantiated, and indeed false, assertions advanced in your WIREs Climate Change article. **Moreover, may I remind you both of the statement contained in Annex 1 of Appendix A to the Principles Governing IPCC Work Section 1. Lead Authors - "Lead Authors are required to record in the Report views which cannot be reconciled with a consensus view but which are nonetheless scientifically or technically valid."** **The importance of including non-consensus issues in the report is emphasised by the annex's description of the Review Editor's function to - "... ensure genuine controversies are reflected in the text of the Report."** In order to provide a point of reference for a consequential impact assessment of your unacceptable advocacy of "a bit of give and take" upon the AR6's guidance to policymakers, I will restate the IPCC's declared aim - "...to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of the risk of human-induced climate change, its potential impacts and options for adaptation and mitigation." More specifically, and according to the IPCC website, "Working Group III supports the IPCC's solution-oriented approach but does not advocate any specific mitigation options" and that you both as WGIII co-chairs, in conjunction with the Bureau, "...oversee scientific quality..." Consequently, to "compromise" on the reporting of the state of scientific knowledge is not only discordant with the IPCC's above declaration but is also to the marked detriment of the underpinning ethics of science as well as to the detriment of the effectiveness of environmental decision making and management. To present policymakers with a manipulated curation of scientific knowledge, which is by default subjective and incomplete, is nothing short of being an act of intellectual dishonesty with such appalling interference entering into the realm of "secret science" and/or "censored science" via the concerted concealment of ignorance. Whilst ignorance is not ideal, the pretence of knowing is a far greater evil as it undermines trust. As 13th century English polymath and early proponent of the scientific method, Roger Bacon warned, the concealment of ignorance through acts of apparent knowledge allows for the seeds of corruption to be sown (see Gunderman, *The Conversation*, 1 May 2020). Risbey et al. (1996, *Assessing Integrated Assessment*, p.391) describe such behaviour as it relates to the reporting of IAM results as "... presenting only the fresh linen." **The consequence of your advocacy for "compromise" as to the biased presentation of the state of scientific knowledge to policymakers would have the effect of policymakers unwittingly devising climate change policy that has been formulated on the outcomes of a loaded dice.** The prime questions that logically must follow are: **Who has advocated the use of the dice? Who has loaded the dice? Who is responsible for rolling the dice?** and perhaps most importantly - **Who has "paid" for the dice?** As Carton's subtitle to his chapter "*Carbon unicorns and fossil futures*" (In: Sapinski JP., Buck H., Malm A. (eds) *Has it Come to This? The Pitfalls and Promises of Geoengineering on the Brink*. Rutgers University Press.) asks - **Whose emission reduction pathways is the IPCC performing?** The corrupt use of opaque, biased economic models, the products for sale from "independent" think tanks/consultants, by the oil industry in the U.S. in an effort to create a false impression of alternative "objective, scientific knowledge" so as to counter and/or discredit the scientific orthodoxy regarding anthropogenic induced climatic

perturbation and thereby delaying climate change action has been established, unequivocally, by Franta (2021). Weaponizing economics: Big Oil, economic consultants, and climate policy delay).

Therefore, your contrived argument as to the advocacy of “compromise” on the reporting of the state of scientific knowledge for the purpose of creating and presenting a false sense of internal chapter harmony to the policymaker, as well as to the “outside world”, which in turn allows you to exploit the concept of “scientific consensus” as alluded to in your email of the 12th February 2021, appears to be discrepant with your following counterfactual and sanctimonious sentiments as reported by Climate Home News of the 12th January 2021 - *“We’re not an advocacy organisation, we’re a scientific organisation, it’s not our job to take up arms and take one side or another... That’s the strength of the IPCC. If it oversteps its role, it will weaken its influence”* and *“undermine the scientific statements it makes”*. This statement of yours, Jim, not only underscores that the IPCC must not under any circumstance participate in any form of “**messaging**” but also highlights the long-established principle that there can be no place for compromise in the accurate reporting as to the state of scientific knowledge. The inaccurate reporting as to the state of scientific knowledge is performed perversely in a covert manner with such indiscretion being concealed by the advancement of specious arguments laying claim to “objective” scientific knowledge that leverages upon science’s “social contract” with respect to its commitment to the adherence of “due process.” To “compromise” on the reporting of the state of scientific knowledge so as to exploit the concept of “scientific consensus” with such an action conveniently concealing, what are in actuality, acts of “advocacy”, worryingly opens a two-way door to the risk of misconduct occurring and the possibility of such malfeasance amounting to fraud. The execution of “grandstanding” statements such as yours, Jim, of, *“we’re not an advocacy organisation, we’re a scientific organisation”, “it’s not our job to take up arms and take one side or another”, and “if it oversteps its role, it will weaken its influence and undermine the scientific statements it makes”*, in no way act as assurance for compliance especially when the internal behaviour of the IPCC does not conform in any manner to its public declaration. As Mejlgaard et al. (2020) opine, research integrity is reliant upon moving from *“talk to walk.”* This is most certainly not the case in this instance with the poorly executed sophism, especially on “author selection”, as offered in your WIREs Climate Change article in terms of the purported efforts of the IPCC at bringing about IAM transparency in the AR6, particularly with your full knowledge of and participation in these contemptuous events and the undeniable reality of the IPCC’s continued engagement with opaque IAMs distinguished by its associated aberrant internal behavioural response of orchestrated obfuscation as described hereinbefore. Indeed, the IAC (2010, p.63) asserted that, *“[l]ead authors should explicitly document that the full range of thoughtful scientific views has been considered”* and that *“[r]eview editors should ensure that genuine controversies are reflected in the report and be satisfied that due consideration was given to properly documented alternative views.”* As such, what has transpired with respect to the subversion of Chapter 3’s content by the IPCC-IAMC contingent from the outset, which includes the both you with your duplicitous involvement in this serious transgression, in conjunction with the purposeful exclusion of the intellectual diversity as represented by the interdisciplinary composition of the author group can only be described as being scandalous and brings the IPCC into disrepute. It would appear that the IPCC’s “adoption” of the IAC’s recommendations is at best superficial, prompted by its potential for positive public relations posturing. Research integrity demands that the cultural norm which underpins the institution is one that is defined by a corresponding precept codified in an ethics structure. The absence of such an ethics structure at the IPCC exacerbated by your dishonest leadership can be patently illustrated by your unprincipled behaviour throughout the AR6, such as running a kangaroo court in an attempt to silence valid criticisms, that is to say charging me with a so-called “informal breach” of an “informal code of conduct” without even the provision of the particulars of the alleged offence when requested from you on multiple occasions by me, and the biased and untruthful assertions outlined in your WIREs Climate Change article with this culminating in the covert and corrupt, and thus a subjective curation of scientific knowledge in the AR6 regarding mitigation options advanced by opaque IAMs.

These furtive actions of yours, the IPCC-IAMC contingent and thereby, collectively the WGIII Bureau including the IPCC chairman Hoesung Lee, plays dangerously into bolstering the erroneous and tenuous arguments espoused by the climate change denialism movement. Perhaps the head of the WGIII TSU’s Raphael Slade’s flat foray into “comedy” with his juvenile cinematic spoof at the closure of the fourth Lead Author Meeting under the IPCC banner, set to John Williams’ Star Wars overture, is worth revisiting in order to demonstrate the fact that this judgement is very much a double-edge sword - *“It is a period of culture war. Scientists have won some battles with evidence and facts. They make this information available for everybody in the Galaxy, allowing people to access knowledge and know the truth. But the Empire of misinformation is not dead and prepares its revenge with an ultimate weapon: Twitter. This armored system can annihilate [sic] decades of reasearch [sic] by simple repetition of falshoods [sic]. But the WGIII alliance have a secret weapon too: a report that will get credible information to policy makers in time for the global*

*stocktake...". If the IPCC purports to be the self-professed, principal purveyor of climate change "evidence" and "facts", where such "evidence" and "facts" have been exposed to a perverse process of "curation", then the "evidence" and the "facts" cease to be evidence and facts due to hidden distortion arising out of the curation. Such distorted "evidence" and "facts" then become, by default, ostensible and thus the accessibility of the ensuing "knowledge" and "truth" as advanced by the IPCC to the policymakers and the proletariat is anything but knowledge and truth due to the obscured effects of institutional power, including behind-the-scene influencers, and its determination of what is "knowledge" and thereby what is "truth". In the case of the presentation of IAMs in the AR6, Slade's assertion of, "...a report that will get credible information to policy makers..." parallels a narrative of a George Lucas film in that it is founded in science fiction rather than science fact. The dishonest dissemination of "knowledge" and "truth" promulgated by the misreporting of "evidence" and "facts" is antithetical to the "neutral" discursive position as championed by the IPCC. It is exactly this form of gross misconduct in the reporting as to the present state of scientific knowledge perpetrated by a United Nations intergovernmental panel that fuels and thus sustains the irrational, pseudo-scientific climate change denialism movement inflamed by the concerted actions of the less than reputable fossil fuel industry and its financiers including governments with their perverse subsidies. In conclusion, it would appear that Slade's reference to the "Empire of misinformation" could well be a phrase descriptive of the IPCC-IAMC contingent with its continued unethical conduct, potentially annihilating decades of research by the simple repetition of techno-economic falsehoods, derived from subjective and opaque IAMs but falsely presented as being objective scientific fact. I repeat, once again, the IPCC's declared aim is "...to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information..." and that "Lead Authors are required to record in the Report views which cannot be reconciled with a consensus view but which are nonetheless scientifically or technically valid." This hypocritical and unconscionable behaviour is not without serious repercussions for the IPCC's reputation as being a credible and trustworthy scientific body, with such behaviour presenting as a very real risk in bringing, erroneously, the entire climate change research field into disrepute including, based upon your calculations Jim as reported in Climate Home News, the scientifically sound remaining 94% of the AR6. **What a dire situation it is when IAMs that constitute up to a mere 6% of the Assessment Report and undeservingly the best part of the press coverage can have the potential of putting the veracity of the remaining scientifically sound ~ 94% of the report at risk.** On the 10 December 2021, Filipino journalist Maria Ressa, recipient of the 2021 Nobel Peace Prize, during her Nobel Laureate speech maintained that, "Without facts, you can't have truth. Without truth, you can't have trust. Without trust, we have no shared reality, no democracy, and it becomes impossible to deal with existential problems of our times: climate, coronavirus, now, the battle for truth."*

Science that informs public and environmental policy which is not transparent can never be regarded as being open science. Indeed, the IPCC's inexcusable prolonged failure to *open the "black box"* of IAMs, which is perhaps a euphemism for the more precise dysphemistic descriptor of "Trojan horse" and regardless of its well-published lip service, is in every respect incongruent with the findings of the UNESCO Intergovernmental Special Committee Meeting related to the draft UNESCO Recommendation on Open Science in May 2021 - "*The idea behind Open Science is to allow scientific information, data and outputs to be more widely accessible (Open Access) and more reliably harnessed (Open Data) with the active engagement of all stakeholders (Open to Society).*" I trust that I do not have to remind you both that the UNESCO is the United Nations Agency with a mandate for Science and as such is the "*legitimate global organisation enabled to build a coherent vision of Open Science and a shared set of overarching principles and shared values.*" This noble position of the UNESCO is irreconcilable with your debasement and perversion, as substantiated by your overall misconduct and exhibited by your arrogance as co-chairs as detailed above, in failing to attend to and to rectify the issue of a lack of transparency in IAMs for the AR6. Your perfidious words together with your demonstrated inaction on this matter as co-chairs represents nothing less than outright hypocrisy.

Moreover, your recent insinuating remark suggesting that I may not be telling you the truth concerning my lack of high-bandwidth broadband access was most unfortunate but was consistent with your wonted pattern of behaviour. Whilst on the matter of your behaviour with respect to this instance, perhaps you would like to expand upon the following comment made on the 1st April 2021 - "*So, we'll invite you just one more time.*" What was the intent of this ultimatum? Another base, veiled attempt at intimidation? More bullying? Let me be abundantly clear with you both that I have never refused a meeting with you, indeed quite the opposite with this fact being supported by the extensive emails sent to you during the cycle in addition to the numerous discussions I have had with WGIII TSU members and with WGIII vice-chairs, with some of these discussions being at your request. I made myself readily available on the occasion here referenced and might I add outside of work hours, with my cancelling a prior engagement to accommodate your last minute

request with you then unilaterally deciding to cancel the arranged meeting at the eleventh hour without the decency of even an apology and performed impersonally through your "PA" on the inane grounds of your need for a "cameras on" meeting. Therefore, your ultimatum of, "*So, we'll invite you just one more time*" is preposterous. In actual fact, Jim and Shukla, it has been the both of you who have failed to engage with my expressed concerns throughout the entire AR6 cycle but as elucidated above, I am of the strong belief that your obvious lack of engagement was very much by design. From your unseemly actions to date attested by such unedifying and dishonourable behaviour and with the complete neglect of your obligations as co-chairs with regard to rectifying this matter, with both of you only having added to the turbidity as a consequence of an absence of virtue, I have reasonable grounds for suspicion about your motivation for insisting on the perpetual need of having a "cameras on" meeting with you both, when you were already well and truly aware, through no fault of my own, that I did not have such facility due to high-bandwidth broadband unavailability. As for your insistence that a "cameras on" meeting is required so as to assist, to borrow your words, in resolving this "tricky" issue is baseless. There is nothing "tricky" about addressing the issue of IAM transparency if it is prompted by a genuine desire for absolute transparency and performed with integrity. The only thing that is "tricky" here is your reprehensible behaviour in so desperately attempting to pervert the accurate reporting of the state of scientific knowledge in the AR6 appertaining to IAMs. By adopting a chronological marker of Risbey et al. (1996. Assessing Integrated Assessment) as an epoch to this dialectical discourse, indicates that the IPCC has had a quarter of a century to resolve this issue of transparency as it relates to IAMs. The IPCC's inability to rectify this critical issue during this extensive temporal term is incomprehensible and inexcusable. There can be no doubt that this failure can only be attributed to sheer institutional incompetence as a result of prolonged cultural decay stemming from an extended period of leadership deficit, exacerbated by epistemic fortification and a gamed peer review process pertaining to IAM research publications.

Perhaps contrary to your disingenuous intention for Chapter 3, as now documented in subsection "5.2.2 *Author selection*" to your WIREs Climate Change article, the exploitation of the anticipated "silent participation" of disciplinary diverse non-IAM LAs in the chapter, I can assure you with absolute certainty, will in no way afford the IPCC's facile desire for quasi-transparency regarding its engagement with IAMs for the AR6. Chapter 3's CLAs Keywan Riahi and Roberto Schaeffer's immoral attempt on the 27th October 2020, with your ignoble involvement, in having me removed from the chapter on the basis that I was not an IAM practitioner when it was in fact due to my sustained criticisms of the lack of IAM transparency in the AR6 in addition to my WIREs Climate Change article having been published during the cycle, reveals to all that the claims you both make in your article as to Chapter 3's disciplinary diverse author selection for the purpose of "transparency", including "*...individuals who had been critical of IAMs in the published literature at the time they were selected*", is utterly deceitful. This also holds true with your email to me on the 10 February 2020 annexed hereto. These irrefutable facts are consistent with your long history of mendacious and reprehensible conduct as WGIII co-chairs during the preparation of the AR6. **In the most rudimentary terms, the IPCC Bureau appointed me with the express aim of lifting transparency for IAMs in the AR6, then the IPCC-IAMC contingent behaved in a unrelenting and unconscionable manner that actively prevented me from performing the very task that I had been charged with. Based upon such oppositional behaviour, the questions that must follow are - what is motivating the insular IPCC-IAMC contingent in such concerted and unethical obstruction of IAM transparency? what is being hidden from policymakers? whom are the IPCC-IAMC contingent promoting?** Given my experience at the IPCC WGIII together with my observations of the IPCC-IAMC contingent, I wholly concur with political scientist and past IPCC author David Victor's (2015. Climate Change: Embed the social sciences in climate policy, p.29) contention that, '*[t]he IPCC process is dominated by insiders who move from assessment to assessment*' in addition to his concluding caution that the Panel "*...must not monopolise climate assessment.*"

While on the matters of quasi-transparency, quasi-openness and the quasi-integrity of the IPCC WGIII AR6, with you both acting as appointed co-chairs, I would be very interested to understand the basis for you, Jim, making the most inappropriate remark at the closure of the opening pomp and ceremony to the first Lead Author Meeting in Edinburgh, Scotland regarding those in WGIII then being able to speak openly and freely with the departure of the invited media. What would the media make of this unfortunate, highly questionable and most unprofessional remark of yours particularly in light of the IAC's 2010 critical review of the processes and procedures of the IPCC and the Panel's resulting proclamation for its commitment to openness and transparency? This inappropriate remark of yours made in Edinburgh was highly disrespectful towards the legion of professional journalists in attendance whose duty it was to inform the public on the work of the IPCC and your disgraceful behaviour demonstrates that you both, as WGIII co-chairs, and elements of the IPCC more broadly, manipulate and exploit the independent media as an in-house public

communications arm in order to create and promote the illusion of scientific transparency and openness to society. Such an unprofessional remark, combined with your aforementioned misconduct as WGIII co-chair, reveals that the following comments of yours, Jim, as stated no less in your IPCC AR6 WGIII co-chair candidacy application, are pure affectations: “[s]cientific rigour and relevance rely on robust processes” and that, “[m]aintaining IPCC’s credibility and reputation means building on the IAC reforms to ensure that the transparency of processes is enhanced and the effective communication strategy employed in AR5 is continued.” Oh the things men say for election!

Based upon my expertise, both academically and professionally, in the study of human factors particularly in the domain of organisational ergonomics, what is evident from these disturbingly amoral events is that the IPCC is in desperate need for the development and implementation of coherent standard operating procedures (SOPs) for the conduct of research assessment and scholarship that embody the principles of transparency, integrity, accountability, reliability and respect. Such an undertaking would be best served with the appointment of an independent ethics committee so as to formulate and support the required SOPs. Think of this, if you will, as “CCTV of the intellect” in that the prospect of an “all-seeing eye” will hopefully have all scholars on their “best behaviour” in accordance with the SOPs and would be especially helpful as a means of “encouragement” for those so-called intellectuals who may be predisposed to contrary behaviour. As Camus penned, “*An intellectual is someone whose mind watches itself. I am, happy to be both halves, the watcher and the watched.*” Equally important and further to the development and implementation of SOPs is the necessity for the establishment of an independent ombudsman external to the IPCC for the purpose of monitoring the entire process and to secure and maintain procedural compliance, in addition to the execution of impartial assessments particularly when complaints of misconduct are made against senior members of the IPCC. Further to the above, I would most strongly recommend that an independent forensic audit is undertaken into matters of potential conflict of interest (COI) for the AR6. The IPCC must not, under any circumstance, be used as a concealed conduit for the indirect advancement of either explicit or implicit commercial interests in order to gain financial and/or political advantage under the pretence of independent “science”. Given your involvement, Jim, with the COI Task Group, formed in response to the IAC’s recommendation, I would advise that the current COI declaration is in manifest need of urgent revision as the current IPCC “Conflict of Interest Policy and Implementation Procedures” are grossly inadequate and self-serving thereby permitting, most alarmingly, for the non-disclosure of actual conflicts of interests. In other words, and returning to the Claytons kola tonic slogan, I would describe the AR6 COI disclosure statement as being the conflict of interest declaration you make when you’re not making a conflict of interest declaration. Moreover, the IPCC COI declaration states that, “*I understand that information about my interests will be held by the IPCC for a period of five years after the end of the assessment cycle during which I contributed, after which the information will be destroyed. Subject to requirement to notify the existence of a conflict of interest to others under paragraph 6 of the Implementation Procedures, I understand that these forms will be considered confidential and will be reviewed in accordance with the COI Implementation Procedures.*” A confidential COI declaration that is destroyed after a term of 5 years, post publication, pertaining to author involvement in the preparation of a scientific report that is openly published for the perusal of both policymakers and the public? The non-disclosure of critical data and information related to the preparation of its Assessment Reports seems to be a systemic issue for the IPCC. In the interest of scientific integrity and transparency, as well as public accountability, all COI declarations made by IPCC authors must be made publicly available on a register and must be retained for posterity. Finally, it is my strong opinion and recommendation that those who have orchestrated and participated in this gross misconduct in the AR6, regardless of their positions of seniority, should in no way be considered for having any further involvement with the IPCC so as to ensure that cultural and systemic reforms are successful. As Confucius cautioned - **you cannot carve rotten wood.**

When considering in totality the above ignominious events committed by various members of the IPCC and the IAMC, the closing paragraph to your WIREs Climate Change article can only be assessed as being nothing more than a deceptive figment of the IPCC-IAMC contingent’s conceited, ergo deluded, imagination (p.8) - “*The IAM community and IPCC have grasped the issue and are taking active steps to improve transparency, to a degree that might not be demanded in other areas of modeling. This journey is not yet complete. We expect progress by the end of IPCC AR6 but do not doubt that further efforts may subsequently be demanded and required.*”

However, before I consider this concluding statement in its entirety, allow me to examine your following words of, “*to improve transparency, to a degree that might not be demanded in other areas of modeling. This journey is not yet complete. We expect progress by the end of IPCC AR6 but do not doubt that further efforts may subsequently be demanded and required.*” Your assertion of “*to improve transparency, to a degree that*

might not be demanded in other areas of modeling" is convenient although without foundation in fact (cf. see, as previously discussed, the assertion of Purvis (2021)). The IPCC and IAM research community only have to broaden their perspective marginally to find numerous examples of formalised transparency protocols for data intensive environmental disciplines in order to understand where the IPCC and IAM research community have been failing so dismally over the past two and half decades. Indeed, DeCarolis et al. (2017. Formalizing best practice for energy system optimization modelling, p.195) state - "*Despite the use of ESOMs to produce high visibility assessments, there has been little attempt to formalize the approach to model-based analysis. By contrast, life cycle assessment (LCA), which involves similar analyst judgments, has benefitted from efforts aimed at a standardization in approach (e.g., [29,31,159]). While such guides belie the ongoing methodological debates within the LCA community [160], they have produced consensus on a broad range of issues and serve as a practical guide for LCA practitioners. While the application of ESOMs has had significant influence on public policy [19], there has been little effort to develop formal, general guidance related to their application.*" I made this very fact known to you both in an email of 13 November 2020, referencing DeCarolis and colleagues' observation. Neither of you provided a response to this "inconvenient" fact. Of a similar concern is that other Chapter 3 non-IAM LAs including myself, all having expertise in Life Cycle Assessment (LCA) modelling, have on numerous occasions throughout the AR6 cycle brought this matter to the attention of the Chapter 3 CLAs and LAs from the IAM research community. All occasions were met with the usual deafening silence! If the International Organisation for Standardisation (ISO) under ISO14040 mandates a "*full*" critical review, ***which includes an assessment of the appropriateness of the data used in conjunction with associated documentation***, for public comparative LCAs; then the publicly published IAM mitigation scenarios by the IPCC that advocate fundamental alternations to the technological fabric of society the world over, impacting upon successive generations and supporting ecological systems, must, in addition to "peer review", also be subjected to a "*full*" critical review including an assessment of the appropriateness of the data used (i.e., input data). However, without the disclosure and provision of IAM scenario input data and with the IPCC-IAMC contingent's recalcitrance for such (see for example, your pathetic "*patchy in practice*" remark), then the task of a "*full*" critical review remains an impossible task for both enquirers and critics. This then raises serious questions as to how such IAM studies are being accepted for journal publication, the standard of peer review these studies are being subjected to and more importantly who is conducting the review (e.g., modellers from within the IAMC). As I previously stated, (Robertson 2020. Transparency, trust, and integrated assessment models: An ethical consideration for the Intergovernmental Panel on Climate Change. p.6) - *Pfenninger (2017) sagaciously cautioned that until energy researchers make their models and data freely accessible then academic publishers should reject such research. Likewise, this caution is not merely limited to academic publishers but must also equally apply to those institutions that publicly disseminate such research findings. These institutions that are tasked with informing policymakers, in this instance the IPCC, must heed this call for the sake of trust and transparency in the scientific method...In policy-focused research, it is impossible to determine whether a modeled scenario is "correct" given that one "truth" does not exist and as such the metric is no longer one of truth, but trust (Pfenninger, 2017). Trust demands access to data (Beck, 2012). It behooves the IPCC to ensure openness and transparency in its published assessments. However, given the absence of IAM input data and accompanying documentation detailing the underlying assumptions contained in the aforementioned SR1.5 and the previous Assessment Reports, the IPCC has failed in a most concerning manner to fulfill its professed obligation as to transparency. This very issue of transparency in the IPCC, with it being an important principle for promoting trust with the public, with the scientific community, and with governments, has been previously revealed to be lacking in several stages of the IPCC assessment process (Shapiro et al., 2010). Griffiths et al. (1995, p. v) contend, "[t]he level of trust that has characterized science and its relationship with society...will endure only if the scientific community devotes itself to exemplifying and transmitting the values associated with ethical scientific conduct."* As you both correctly state in your WIREs Climate Change article (p.2), "*Progress can be made on substantive issues only if debate is well-informed. Transparency about methods and assumptions is an absolute prerequisite in this respect. Transparency does not in itself guarantee scientific closure, but it facilitates debate and provides a clearer evidence base for policymakers.*" However, due to the fact that the IAMs scenarios which appear in the AR6 fail your "*absolute prerequisite*" of "*transparency about methods and assumptions*" so as to enlighten a "well-informed debate", then the policymakers must subsequently be, according to your declared logic, without "*a clearer evidence base*" from which to work from when devising policy. May I prompt you both with Mejlgaard and colleagues' (2020) assertion that research integrity is reliant upon moving from "*talk to walk*" although in this instance, this "talk" of yours would be impossible to translate into "walk" given that it is simply benighted drivel.

Therefore, your assertions of "*...to improve transparency, to a degree that might not be demanded in other areas of modeling*", "*[t]his journey is not yet complete*" and "*[w]e expect progress by the end of IPCC AR6 but*

do not doubt that further efforts may subsequently be demanded and required” are without merit; words without substance. Words that are designed to impress rather than to address. This appears to be a recurring theme at the IPCC with its penchant for authoring sophistic works concerning IAMs. Such assertions when considered together with your “*patchy in practice*” remark further highlights the thoroughly misleading statements concerning the IPCC-IAMC’s data availability and the then new resource of the “*1.5C Scenario Explorer*” hosted by the IIASA with its “...aim to follow the FAIR principles of scientific data and analysis: findability, accessibility, interoperability and reusability” as purported in Huppmann et al. (2018). *A new scenario resource for integrated 1.5C research, p.1027*). The spurious nature of Huppmann et al. (2018) was discussed in my WIREs Climate Change article regarding its suspect claims as to the initiatives devised for the purpose of enhancing transparency of the IAM scenarios that appear in the IPCC Special Report on Global Warming of 1.5C. Consistent with the IPCC, the IAMC appears to have an identical penchant for authoring sophistic works concerning IAMs. The unsubstantiated and misleading assertions of Huppmann and colleagues’ was raised by me in an email of the 22 May 2020 to Dr. Jenn Richler, the then Senior Editor of the paper’s publisher, scientific journal Nature Climate Change and I quote - “*I was wondering why Nature Climate Change would publish Huppmann, D., Rogelj, J., Kriegler, E., Krey, V., Riahi, K. Nature Climate Change 8, 1027-1032 (2018), which includes erroneous statements such as, “[t]he consolidated scenario data supporting the IPCC SR1.5 assessment has been published online as part of the ‘IAMC 1.5 °C Scenario Explorer hosted by IIASA’, which ensures the reproducibility and transparency of scenario assessments, but also allows for the reuse of scenario data by other research communities” (p.1027) and “[t]he public release of the database and the analysis notebooks for the SR1.5 is intended to increase openness and transparency towards the scientific community working on integrated assessment and climate change mitigation policies, as well as towards the public at large” (p.1030)? Both of these statements cannot be substantiated given the absence of model input for the scenarios and the paucity of documentation detailing critical underlying assumptions. I am rather surprised that Nature Climate Change would publish this paper given these critical omissions. ...to suggest that the IAMC 1.5°C Scenario Explorer database is a database is misleading to say the least. This is not a database, per se, and thus does not remotely adhere to the FAIR data principles as purported by Huppmann et al. (p.1027)...how do journals such as Nature Climate Change allow for the publication of such research when it fails to adhere to the rigours of the scientific method (e.g. reproducibility).” Disturbingly, no response was received from Senior Editor Richler to my most valid and well-supported questions concerning Huppmann and colleagues’ suspect article. While the acknowledgement of a study’s shortcomings and the subsequent withdrawal/retraction of an accepted and published peer reviewed manuscript is not consistent with the accepted and expected high-standards of the scientific peer review process which ultimately reflects unfavourably upon the professional competency of the editorial board of the publishing journal; face-saving through silence and gatekeeping from a journal only exacerbates and perpetuates scientific obfuscation and the erosion of trust in science. Maintaining a journal’s “impact factor” through the perverse publication of papers that fail replication should be of critical concern not only to the scientific community but also to society at large, as such lamentable behaviour from an editorial board of a scientific journal actively and consciously contributes to the replication crisis. This unfortunate silence from Senior Editor Richler regarding this issue of IAM scenario input data transparency is in stark contrast to her predecessors at Nature Climate Change with the publication of the following 2015 journal editorial, Nature Climate Change (2015). *IAM helpful or not?*, p. 81) - “*It is essential, if IAMs are to effectively help shape climate change policy, that these underlying assumptions as well as model inputs are made explicit. Only then can experts probe the robustness and meaningfulness of their outputs. Just as importantly, the equations driving IAMs need to be specified so as to allow users to understand the mechanisms responsible for the model projections and predictions. Such transparency should help avoid the impression that IAMs are ‘black boxes’, the inner workings of which are inscrutable and impossible even for experts to assess whether model projections are realistic.*” Correspondingly, and consistent with the state of IAM opacity for the AR6, Risbey et al. (1996, p.390) opine that, “...the process of IA is akin to the construction of a house with many disciplinary bricks and a lot of subjective mortar and glue. It is often the case that while the bricks may be documented, the glue is not. One consequence of this is the loss of transparency, where the actual model structure is opaque to other members of the community. This leads to a situation where results and insights cannot be reproduced. Reproducibility is an important component of assuring adequacy, for unlike many other disciplines, it is not enough to assess the adequacy of the individual components in an integrated assessment model. It is necessary to assess the adequacy of the whole as well. Key to this task are reproducibility and transparency, which are facilitated if model results and insights can be traced through the model structure to starting assumptions and inputs”. As Serra-Garcia and Gneezy (2021. Nonreplicable publications are cited more than replicable ones) worryingly enquire - “**why are papers that failed to replicate cited more?**”, in addition to - “**why are nonreplicable papers accepted for publication in the first place?**”*

Apropos your egregious behaviour and unscrupulous actions to date documented herein, your exact and indisputable contribution to IAM transparency for the AR6 is at radical variance to that untruthfully affirmed in the self-serving and self-preservationist public relations exercise represented by your unfounded and unscholarly work of fiction, that is to say, your WIREs Climate Change article. Again, may I remind you both that according to the funding information declaration, your WIREs Climate Change article was supported in its open-access publication by funds provided by the Engineering and Physical Sciences Research Council, Grant/Award Number: EP/P022820/1 which has a stated value of £2,259,287. I noted on the "Summary on Grant Application Form" that this "...award supports the scientific activities of the Co-chair of Working Group III (Mitigation) of the Intergovernmental Panel on Climate Change (IPCC) and scientific members of the Technical Support Unit (TSU)." Is this the best use of public monies particularly when the said article could hardly be referred to as being a "scientific activity" due to its absence of scientific merit with its preference for public relations' doublespeak as a means of proactive damage control? I should add that numerous IPCC WGIII scientists expressed to me their dismay at how such an article was even accepted for publication since it made no scholarly contribution, with its reading being more reminiscent of an advertorial for junk science. The use of "persuasive" language and semantics in science communications do not make an untruth true although, superficially, it may create dishonesty, as intended, an impression suggesting otherwise. Given the above particularised account of gross misconduct, of which the majority of events detailed had transpired before the publication of your "companion piece" to mine; for you both then to conclude your WIREs article (p.8) with the following insincere statement is a display of arrant prevarication and is unequivocally demonstrative of not only your temerity as co-chairs but also your duplicity as scientists — **"We expect progress by the end of IPCC AR6 but do not doubt that further efforts may subsequently be demanded and required."** As previously established, the problem of IAM transparency was first identified twenty-five years ago (i.e. Risbey et al., 1996) with extensive literature on the issue having been since published in peer review scientific journals. With full knowledge of this fact and a first-hand awareness, given your involvement, of the depths of depravity to which the IPCC-IAMC contingent will sink to, distinguished by an assemblage of perverted conscious actions in an attempt to silence scientifically supported criticism conjointly with a quarter of a century's worth of institutional hubris and epistemological idolatry is highly disturbing particularly when you both now proclaim that the IPCC and the IAMC "...have grasped the issue and are taking active steps to improve transparency." It is quite remarkable that with no less than a quarter of a century of peer reviewed scientific critiques of IAM transparency in addition to trenchant criticisms from governments, the IPCC and the IAMC still have failed to grasp, even at a rudimentary level, the issue notwithstanding the baseless assertion of yours suggesting otherwise. After two and a half decades of institutional recalcitrance in anyway to meaningfully address the exigent issue of IAM transparency together with the corrupting misconduct of the IPCC-IAMC contingent throughout the AR6 draft cycle, such a specious proclamation is unquestionably dishonest and is highly illustrative of the level of engineered deceitfulness arising from institutional delusions of grandeur and an incapacity to act in accordance with research ethics encompassing both scientific conduct and the moral conduct of the individuals involved. **The epistemic niche provided by the IPCC-IAMC contingent has created a cognitively consistent system that protects against dissonance and condones unethical conduct if such conduct is performed as a means of dissonance reduction thereby elevating the institution above the scientific ethics code and the standards of professional conduct. IAMs über alles!**

Perhaps more bygone wisdom from Risbey et al. (1996, pp. 374-375) with regard to IAMs and their future contribution to climate science-policy boundary work is worthy of consideration - "*The past few decades provide us with a number of examples of such unifying paradigms. The field of Cybernetics of the 1950s, Information Theory of the 1960s, Catastrophe theory of the 1970s, Chaos theory of the 1980s, and Complexity theory of the 1990s are examples of such paradigms. A striking characteristic of some such efforts is a 'boom-bust pattern' in the way the field is viewed (Horgan, 1995; Sigmund, 1995). In the 'boom' stage, the endeavour receives considerable attention and research funding. Excitement amongst supporters and others in the scientific community about possibilities for research sharply increases. Substantial claims are made by proponents regarding the (as yet un-demonstrated) explanatory prowess of the approach. Science writers jump into the fray and writing of books with popular appeal soon becomes a cottage industry. Fortunately, reality soon catches up with rhetoric. As the larger scientific community begins to examine the applications of the approach in their own domain, skepticism regarding its universal nature begins to emerge. In due course, the trickle of skeptics turns into a flood. Unkept promises and undelivered potential eventually result in a bust. A few dedicated researchers continue to work in the area, now substantially less visible and vocal, and perhaps, living up to a more modest but realistic potential.*" **Where in this "boom-bust pattern" is the IAM research community at present? Given WGIII vice-chair Andy Reisinger's revelation as to you, Jim, not being a "fan" of IAMs; WGIII vice-chair Diana Urge-Vorsatz's remark that you, Jim, wanted to enact reform after so many decades of IPCC's over-reliance on IAMs; your calculation that**

IAMs constitute up to 6% of the report contents, approximately 25% of the summary for policymakers and the best part of the press coverage; in addition to the increasing criticisms from the larger scientific community extended to many of those authors participating throughout the WGIII of the AR6 as is evident in their explicit reporting of criticisms of IAMs across the chapters in the SOD including review comments to submitted drafts: it would seem that the IAM research community are at Risbey and colleagues' cycle phase of - "Fortunately, reality soon catches up with rhetoric. As the larger scientific community begins to examine the applications of the approach in their own domain, skepticism regarding its universal nature begins to emerge. In due course, the trickle of skeptics turns into a flood. Unkept promises and undelivered potential eventually result in a bust." Therefore all things considered, notably the unkept promise as to IAM transparency together with recent rhetorical ramblings from the IPCC-IAMC contingent contrasted by an increase in critical scientific publications with their antecedents dating back to a quarter of a century; the IAM research community appears to be at the end of the boom and at the beginning of the bust phase.

Prior to responding to the above charges, it may prudent for you both to adhere to the IPCC's external media communication firm's tactics, as circulated to all WGIII scientists, detailed in "A GUIDE TO GIVING MEDIA INTERVIEWS", of: **ABC** when answering difficult questions - "**A**nswer (briefly), **B**ridge (and that's why..., our focus on..., what we mustn't forget is..., however...), **C**ommunicate (use information from your agenda)", or use **CBC** when it is a question you can't answer - "**C**lose it off, **B**ridge, **C**ommunicate - e.g. that's not a question for me, it is a policy issue. What I can say is..." According to the website of the external media communication firm in question, it provides, *inter alia*, "Advice on how to make the most of straight forward questions so that a less well-informed journalist is encouraged to ask the "right" questions; Powerful but subtle techniques to move away from difficult issues or unhelpful questions; Help to close off questions that spokespeople are unable or unwilling to answer in a way that maintains credibility." My skin creeps and my stomach turns with such vile and vulgar "communications" strategies in the dark art of spin as have been endorsed and adopted by a UN scientific body, in this case, the IPCC. I wonder what the "less well-informed" press will make of this slur against their professional competency as well as having their line of questioning being manipulated, subliminally, by IPCC scientists who have been "coached" by a "media communications specialist"? As The Public Relations Society of America asserts, "Any attempts to mislead or deceive an uninformed audience are considered malpractice." Continuing the WGIII TSU head Raphael Slade's Star Wars "parody", the situation may well be one of IPCC WGIII scientists trained in Jedi mind tricks by a Yoda-inspired spin doctor! Since when did science require the spin doctoring of a "media communications specialist", which is a self-appointed professional euphemism for the less palatable term of public relations firm due to the PR profession's adverse association with "spin" as a consequence of the infiltration of "communications specialists"? It is this type of unethical behaviour from a self-styled "PR" firm in advocating manipulation, deception and control that has badly tarnished the legitimate profession of public relations and, when applied to science communications, undermines the very credibility of science. Remember that "PR spin" is solely concerned with manipulation, deception and control which then hides behind the respectability of the profession of public relations or trades under the distant taxon of "media communications specialist". Confirmatory of this euphemism is that I note on the returns to the UK Government Companies Office that the "media communications trainer" in question, the managing director of the company, is described as being a public relations consultant. Wilcox et al. (2015. *Public Relations: Strategies and Tactics*, p.104) state that, "[v]irtually all codes of ethics begin with the duty to tell the truth, and the code of ethics for the field of public relations is no exception. The first article in the Code of Brussels, enacted by the IPRA, says, "Act with honesty and integrity at all times so as to secure the confidence of those with whom the practitioner comes in contact." And the first principle of the Arthur W. Page Society is simply, "Tell the Truth." The authors (*ibid.*, p.112), as cited in Harmon "Feeding Frenzy: Crisis Management in the Spotlight", reproduce the "sideline philosophy" of college and professional basketball coach Rick Pitino: "Lying makes a problem part of the future; truth makes it part of the past." However, it is imperative to be mindful of Forcault's thesis that, "[t]ruth is a thing of this world: it is produced only by virtue of multiple forms of constraint. And it induces regular effects of power. Each society has its regime of truth, its general politics of truth: that is, the types of discourse that it accepts and makes function as true" (Forcault 1980. *Truth and Power, In Power/Knowledge: Selected Interviews and other Writings*, p.131).

Objective science, in as much as science that is wise to, and explicit in disclosing, exogenous/endogenous bias, does not need instruction in matters of "staying on script". Staying on script is the preoccupation of political campaigning distinguished by the dishonest dissemination of propaganda and not that of an independent scientific body. Science must aspire to being devoid of politics, or at the very least cognisant of its impacts (e.g. modelling inherently political socio-economic pathways), otherwise it risks becoming weaponised by partisan politics at which the very strength of science, that is to say, its independence, is lost.

The independent scientists as appointed by the IPCC provide the strength upon which the Panel trades. However, this crucial independence of those appointed scientists is then cajoled by a third-party PR firm employed and endorsed by the Panel whose sanctioned messaging suggests that any unsanctioned action by an author would risk bringing the IPCC into disrepute. What well-spun spin! This public relations cajoling of scientists by way of script rehearsal would not be “necessary” if the IPCC remained inside its designated orbit of strictly assessing “...on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information...”, given that the latent cajoling is a byproduct of the IPCC’s illicit extension of said orbit and for that reason is intentionally designed to create an untruthful impression to those external to the internal processes and procedures that remit conformity has occurred.

Spin operating behind the facade of “a guide to giving media interviews” does not remotely alleviate perceived contention on matters of science but actually has the opposite effect when it comes to the long-lasting disturbance it inflicts upon the public’s psyche and its reception to scientific information that has been presumably defiled by “PR” intervention. This communications strategy in paltering has also become the compulsion of the fossil fuel industry with its peddling of “clean technologies” such as CCS assisted by the greenwashing provided by the self-styled “PR” fraternity. Science trades on its trust. Spin breeds mistrust, contrary to that which the merchants of spin promote. Therefore, such “professional” services in subterfuge and prevarication, that is to say the tactics of **ABC** and **CBC** respectively, do not bolster but rather erode public trust in science as is evidently the case in post-truth politics. Telling the truth does not require the “skills” of a “PR” firm but learning the “art” of telling half-truths does. Spin is a nauseating characteristic of contemporary politicking not of traditional science. Science is in no need for such noxious intervention. It is imperative that science transcends this form of vogue debasement for this is not how science works. Analogous to that of the emission of greenhouse gasses, “PR” spin is a pollutant the world can do well without. As an independent research scientist participating in the IPCC WGIII AR6 already in receipt of the PR firms’s disconcerting “training materials” for IPCC authors, I did not appreciate my inbox being spammed by the WGIII TSU insisting on me having one-on-one media training with the PR firm’s managing director for the purpose of indoctrination via inculcation. Such persistent, unsolicited invitations have at all times been declined by me. Let me be perfectly clear with you both, Jim and Shukla, I make no objection whatsoever to the IPCC’s desire to seek advice on effective media communication strategies. However, I do take absolute exception to the IPCC seeking external advice from a PR firm on how to put spin on scientific knowledge and how to covertly censor, in a cordial manner, the independent voices of the appointed scientists who participate, voluntarily, in the preparation of the Assessment Reports. I was appointed to WGIII as an independent scientist with no conflict of interest, and with the publication of the AR6, I remain the very same independent scientist with no conflict of interest.

Is this the IPCC’s idea of transparency in the reporting on the current state of climate change mitigation science? The “PR” firm’s “a guide to giving media interviews” is in all honesty, that is to say without the spin, a guide in how to evade media questions that are not aligned with the IPCC agenda and in how to exploit the media as a communications tool for advancing the said agenda. The polysemous term of “agenda” used in accordance to that which features in the IPCC’s PR “training material” is a cause for significant concern. I trust that the payment for services rendered by the “PR” firm engaged by the IPCC WGIII have not drawn upon any portion of the £2,259,287 fund provided by the Engineering and Physical Sciences Research Council, Grant/Award Number: EP/P022820/1, particularly when “public relations” do not conform to being a “scientific activity” for which the funds are to be expended as stipulated on the “Summary on Grant Application Form”? This deplorable tactic of coordinated media exploitation by rogue elements of the upper echelons of the IPCC is rather reminiscent of the unprofessional remark that you, Jim, made at the closure of the LAM1 opening pomp and ceremony in Edinburgh to the effect that “we”, the IPCC scientists, could now speak openly and freely with the departure of the media representatives. With the benefit of hindsight, I can now fully understand what you, Jim, truly meant when you stated in your IPCC AR6 WGIII co-chair candidacy application that, “[m]aintaining IPCC’s credibility and reputation means building on the IAC reforms to ensure that the transparency of processes is enhanced and the effective communication strategy employed in AR5 is continued.”

Since the IPCC’s external PR firm is located in the U.K., I gather that the decision to engage such services in “media communications” is more than likely, either partly or wholly, attributable to your co-chairing of WGIII, Jim. In other words, to put it bluntly, whose deranged decision was it to soil science?

I am of absolute certainty that you both will engage the services of the IPCC’s external public relations consultancy on how to deal with these “tricky” questions, an adjective I have appropriated in this instance from the lexicon as used in the PR firm’s “training material” circulated by the IPCC WGIII TSU, in addition to

the preceding points of order on scientific conduct as well as on matters of unethical personal conduct. Rather fortuitously for the IPCC, I noted on the PR firm's website that the "team" are specialists in crises communication having applied such specialist skills to a diverse range of issues such as "oil pollution" and to the "use of animals in medical research".

Supplementing the somewhat limited **ABC** and **CBC** tactics, as advocated by the IPCC's PR firm, when confronted by difficulties; may I suggest an alternative face-saving, spin tactic, popular but ineffective since time immemorial, that you both could employ in an attempt to address the above allegations, subject of course to the firm's public relations guidance. This self-preservation tactic is represented by the ironic acronym of **DEAD**, ironic in that when one employs such a "PR" tactic of last resort in a crisis situation, particularly after having been confronted by implicating material evidence, their credibility becomes just that: **DEAD** - *Deny the charge outright (this allows you, the accused, to cast doubt on the accuser's accuracy of the declared attribution); Exaggerate the alleged situation (create and disseminate a new narrative with alternative facts supportive of your denial which then allows you to regain control); Attack the accuser (the preceding denial and exaggeration steps enable you, the accused, to now attempt to discredit the accuser thereby turning the table on your accuser and reinforcing the faux legitimacy of your alternative facts as previously exercised); Deny once more (this is done in order to emphasise the initial denial which lends erroneous credibility to your recently disseminated fictitious narrative and in turn enables you to call, falsely, into question the trustworthiness of your accuser).*

Woe the day for science and society when IPCC scientists all sing from the same hymn sheet with the choir master being the managing director of third-party "PR" firm!

As with the above essay of both the personal misconduct of members of the IPCC-IAMC contingent and the IPCC-IAMC contingent's continued unethical obfuscation of IAM scenario input data, this concluding appraisal of the IPCC's manipulative media engagement is similarly concerned with the principles of integrity and transparency, or more accurately, the total absence thereof. The IAC's report chair Shapiro (IAC 2010. Climate change assessments—Review of the processes and procedures of the IPCC: Committee to review the Intergovernmental Panel on Climate Change, p.viii), noted in the report's preface that, "...climate science has become so central to important public debates that accountability and transparency must be considered a growing obligation, and this alone would require revisiting IPCC's processes and procedures." Clearly, a revisit is urgently required and is long overdue. In conclusion, may I remind you both of the IAC's following recommendation to the IPCC when it states (*ibid.* p.58) - "Because the individuals involved in the IPCC assessment process carry the burden and responsibility of maintaining the public's trust, it is important for all involved to act with transparency and integrity and to abide by appropriate codes of conduct." The IPCC's integrity and transparency must be beyond reproach, which currently, it is not due to the misconduct of the IPCC-IAMC contingent; hence my decision to author this open letter. At its most basic, what the IPCC-IAMC contingent has done for the AR6 is to attempt to protract its anti-science agenda of obfuscation by way of a facade with the unethical misuse of "appointed" non-IAM research scientists for the "purpose" of IAM transparency in Chapter 3 so as to underhandedly prop up the unethical research practices of the IAM research community.

Taking into consideration the disquieting sequence of shameful concerted events characterised by abhorrent, incautious and unprincipled conduct with all the aforementioned documented instances having been designed with the explicit intention of extinguishing a well-founded critical voice concerning the lack of transparency in IAMs and associated scenarios in the AR6, with each of the failed attempt at intellectual censorship being met with an increase in the level of institutional desperation for suppression, particularly post publication of my WIREs Climate Change article; I wholeheartedly concur with Lahsen and Turnhout's (2021, p.7) words of warning when producing research and writings which "...transgress the idealized façade of global change science" in that, "[i]f important gatekeepers judge that acceptable limits have been transgressed, this can cause attacks and exclusions from interesting and career-enhancing events and jobs." **I am fully aware when composing this open letter of the ultimate implications of my outright exception to institutional power of the old order taking precedence over scientific integrity and environmental protection.** Lahsen and Turnhout (2021, p.8) conclude - "In science as in society, decisions about change (and funding) should not lie with those with attachments to the old order." **I caution each of you not make the foolishly grave mistake of attributing the repercussions of my authoring this open letter to the words contained herein, for the aftermath lies firmly and squarely with those scientists and their misconduct who have been the subject of this letter. In science, indeed in every human endeavour, such unethical behaviour must not be allowed to stand but rather must be strongly opposed and exposed whatever be the cost, personal or otherwise.** May I remind you both of an

email from the IPCC WGIII TSU sent to the AR6 WGIII authors prior to the WGIII SPM release were it declared: ‘...one rule, really the only one: **“Do no harm. Don’t bring the IPCC into disrepute.”**’ It is most unfortunate that this “golden rule” of the IPCC is selectively applied and not universally followed as demonstrated by the above accounts of misconduct concerning IAMs in the AR6. This is yet again another example of the IPCC’s failure in moving from “talk to walk”. First it was the failure to comply with the Principles Governing IPCC Work, then the failure to comply Code of Conduct and now, the failure to comply with the IPCC’s “golden rule”. **Do not, under any circumstance, misread this open letter as being other than a disclosure of the degree of disrepute that the IPCC-IAMC contingent has inflicted upon the IPCC.** By the actions of the IPCC-IAMC contingent and the inactions of the Working Group III Bureau, including IPCC chairman Lee’s inaction, have most sadly already done irreparable harm to the Panel and in doing so the aforementioned persons have brought the IPCC, and more broadly the United Nations, into disrepute. As WGIII co-chairs implicated in the above acts of misconduct, you each have been, and still are, well aware that the IPCC has had **every** opportunity to remedy this quarter-of-a-century long problem throughout the AR6 draft cycle. However, for reasons as elucidated above, the IPCC-IAMC contingent has, by way of incessant acts of subterfuge, sustained twenty-five years of unethical obfuscation whilst having the shameless audacity to simultaneously profess its achievement of IAM transparency for the AR6. Finally, I fully agree with Lahsen and Turnhout when they advance the following (2021, p.7), *“It behooves us to ask if suppression of discussion of interests and power structures in science do not work more against than for the desired environmental protections”* as such *“...suppression creates a lack of transparency that sustains the unproductive status quo in science.”*

If I were to remain silent on this outstanding matter of research ethics and had not authored this open letter, then I too would be complicit in this quarter of a century long problem as to the lack of IAM transparency and its implication upon policy, intra- and inter-generational justice and the protection of the environment. There is a societal expectation that those involved in the IPCC act in accordance with the Principles Governing IPCC Work and thus there is also a societal expectation for those involved to uphold these principles as well as to expose conduct that is inconsistent with such principles. I would also add that my decision to author this open letter is consistent with the IAC’s stipulation that, *“...it is important for all involved to act with transparency and integrity and to abide by appropriate codes of conduct”* as *“...the individuals involved in the IPCC assessment process carry the burden and responsibility of maintaining the public’s trust”* (IAC 2010, p.58). Moreover, keeping silent on my part would, in a most significant manner, compromise my own ethical standards; such is the seriousness of the problem. Make no mistake this is a particularly critical problem for science, society and the environment. As Lieutenant-General David Morrison, when Chief of the Australian Army, forcefully asserted with respect to unacceptable behaviour and misconduct of personnel - **“The standard you walk past is the standard you accept.”**

The following serious, sensible and solemn words from James Dyke, Robert Watson and Wolfgang Knorr (Dyke et al. 2021. *Climate scientists: concept of net zero is a dangerous trap*), published in The Conversation, are most germane to the above disquisition of the presentation of IAMs in the AR6 - *“As scientists, we are taught to be sceptical, to subject hypotheses to rigorous tests and interrogation. But when it comes to perhaps the greatest challenge humanity faces, we often show a dangerous lack of critical analysis. In private, scientists express significant scepticism about the Paris Agreement, BECCS, offsetting, geoengineering and net zero. Apart from some notable exceptions, in public we quietly go about our work, apply for funding, publish papers and teach. The path to disastrous climate change is paved with feasibility studies and impact assessments. Rather than acknowledge the seriousness of our situation, we instead continue to participate in the fantasy of net zero. What will we do when reality bites? What will we say to our friends and loved ones about our failure to speak out now? The time has come to voice our fears and be honest with wider society. Current net zero policies will not keep warming to within 1.5°C because they were never intended to. They were and still are driven by a need to protect business as usual, not the climate. If we want to keep people safe then large and sustained cuts to carbon emissions need to happen now. That is the very simple acid test that must be applied to all climate policies. The time for wishful thinking is over.”*

The IPCC’s excessive dependence on and misplaced trust in “black box” IAMs has been inimical to the transition. The IPCC-IAMC contingent has significantly contributed to the delay in transitioning to a post-fossil carbon economy with its modelled countervailing imaginaries of speculative, large-scale, high-risk, fossil fuel-backed, Pandora’s box CCS technologies. In doing so, the IPCC, the IAMC and undeclared influencers including those with commercial interests have, collectively, been instrumental in generating an unprecedented and unacceptable risk that now endangers the human rights of successive generations by the continued degradation of the receiving environment; the very environment that humanity has unwisely and selfishly treated as an externality in the violation of its intrinsic rights but that which humanity is wholly

dependent upon for its own survival and prosperity. The perverse predicament is that the longer the delay in transitioning to a post-fossil carbon society as the result of the ill-perceived future availability of large-scale CCS technologies, with conceptual credence having been provided by the IPCC-IAMC contingent, together with the perennial combustion of fossil fuels; the greater the dependency society will have upon such technologies in order to remain compliant with the Paris Agreement's "well-below 2C" commitment. Most alarmingly, the greater the societal reliance on CCS technologies for mitigation; the greater the financial benefits that will accrue to fossil fuel incumbents due to preserved fossil fuel sales in addition to their consequently created revenue stream of CCS given the fossil fuel industry's predominant ownership of the intellectual property in these technologies. This financial win-win has the effect of fossil fuel incumbents having their social licence for the enduring sale of antiquated fuels being renewed on the unproven premise of "zero emission" fossil fuels as a result of CCS technologies deployment. Accordingly, the game plan of the fossil fuel industry is no longer one of denial. It is now one of delay. Rather than the road to a cooler world being paved with good intentions and good inventions; the road ahead may well be paved with bad intentions and bad inventions leading us to, most alarmingly, a warmer world. The illusory environmental principle of "the polluter pays" may require revision, in that, "the polluter earns (more than ever)". The IPCC's culpability in delaying the transition is perfectly encapsulated by the anthropocentric folly of IPCC chairman Hoesung Lee's irresponsible and compromised advocacy statement for CCS and fossil fuels - "***The better this technology becomes – the more carbon it can prevent from entering the atmosphere – the less these assets need to be kept in the ground, and vice versa.***"

Over half a century ago, the notable mathematician and science communicator Bronowski (1971, p.14, The disestablishment of science) opined, "...there is now a duty laid on scientists to set an incorruptible standard for public morality." However, achieving this incorruptible standard for public morality will demand no less than scientists of the highest character. As Einstein observed, "Most people say that it is the intellect that makes a great scientist. They are wrong: it is character."

Like its Integrated Assessment Models, the IPCC has become nothing more than a "black box" with strategically placed zerk fittings¹. The transparency of Integrated Assessment Models in the IPCC Sixth Assessment Report is as pellucid as a puddle of sweet crude.

From an independent and extremely concerned research scientist (Lead Author - Chapter 3 and Contributing Author - Chapter 10 of WGIII AR6),
Simon Robertson, Ph.D.

NOTE:

1. A fitting designed by Oscar Zerk to allow lubrication, namely grease or oil, to be applied directly to bearings or other moving parts of a machine.

Annex

On 10 Feb 2020, at 8:29 pm, Skea, Jim <[redacted]> wrote:
Dear Simon

Thanks, we've heard. And not just from you.

I'll discuss with Shukla how to move this forward. The Bureau picked the author team for this chapter with the aim of lifting transparency.

Thanks for updating us.

Best wishes

Jim

Jim Skea
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Tel: [REDACTED]
Email: [REDACTED]
Web: [REDACTED]
Personal web page: [REDACTED]
New book: [REDACTED]

From: Simon Robertson <[REDACTED]>
Sent: 10 February 2020 00:34
To: Slade, Raphael B <[REDACTED]>; Skea, Jim <[REDACTED]>
Subject: Chapter 3 development concerns.

Dear Raphael and Jim,

I hope this email finds you well.

It is most unfortunate that my numerous expressed concerns regarding Chapter 3 still remain unanswered and or ignored by my IAM colleagues.

For your information, please find below an email reply sent to Kate Calvin on the 30th Jan. I have yet to receive a response other than an autogenerated 'out of office' reply. I should add that from the past patterns of behaviour, I am not expecting any meaningful response.

During LAM1, I was assigned the task of conducting the analysis of the sectoral dynamics for the transportation sector. This task has been absolutely impossible to perform given that the AR6 'database' contains only model output and no model input (with the exception of a few output-input model feeds such as population, GDP etc.). The paucity of model input data and a lack of documentation that should accompany the various scenario runs for each IAM is what I would regard as being highly unethical. As an LCA practitioner, this incredulous behaviour is deeply concerning. This concern of mine was brought about by the following encounter. When examining the CO2 emissions for the transportation sector limited to an ensemble of approximately 70 pathways, I noted that there were 3 outliers that depicted negative emissions in year 2100. These outliers were unusual to say the least. As I had no information as to the what and why questions as to these pathways, I sent out a group email to the IAM experts in the chapter. After a bit of coaxing, the modeller in charge of these pathways contacted his colleague for further information. What was then relayed to me was something that I would regard as being most serious, that in fact, the negative emissions in these pathways were the consequence of three 'reporting errors', one error for each pathway. What was even more concerning is that these pathways containing the 'reporting errors' appeared in SR15, with one pathway having a reporting error of 10 Gt CO2! If 'reporting errors' of such magnitude were to come to public attention, then the resulting implications for the IPCC's credibility could be of serious concern.

As such, the disconcerting position I now find myself in as a result of not having knowledge as to what is happening behind-the-scenes of the ensemble of trajectories/pathways, is that I am forced, for example, to cite a 2017 publication regarding a generic statement of how IAMs deal with a particular issue that then applies to model/scenario combinations that are subsequently produced post 2017. As I have no idea as to what is happening in the new ensemble, I fear that the citation may no longer be applicable. This concern I also had as a reader of IPCC reports, and now, I find myself in the position of making a potential research faux pas. Moreover, if the faux pas is not realised, then this would be an awful indictment upon the slow evolutionary nature of IAM/scenario modelling exercises. As a result, the question that immediately springs to mind is 'what is new for policymakers since the last report release'? However, as I am not the modeller responsible for generating the scenario output, I can only cross my fingers and hope that all is well. With that said, such a situation does not sit well with me as a researcher and as a LA!

Kindest regards,
Simon