

Response to the Shell consultant (Adam Hawkes) rebuttal.

Kevin Anderson; March 28th, 2024

This is a short rebuttal to the key points raised by the Shell-appointed consultant Adam Hawkes from the “sustainable gas institute”. My contributions, here and in the original Phase Out report have been provided *pro bono*.

Key points:

The rebuttal by Shell’s consultant:

- 1) makes no direct to the IPCC’s scientifically-derived carbon budgets for a 50% chance of not exceeding 1.5°C (i.e. the central framing of the Phase Out report).
- 2) rejects both the 1.5°C interpretation of the Paris Agreement and the IPCC’s (Working Group I) carbon-budget analysis and conclusions.
- 3) comes to the polar-opposite conclusion to that of the UN Secretary General, who emphasises that: *“Today, fossil fuel producers and their enablers are still racing to expand production, knowing full well that their business model is inconsistent with human survival.”*
- 4) seriously mis-characterises the methodological nuances detailed in the “Phase Out Report”, often making bold statements that are simply wrong and on occasions untrue
- 5) makes repeated reference to the absence of *“practical, technical and economic reality of climate change mitigation”*, but not once does he refer to those realities in terms of impacts or adaptation.
- 6) exhibits a clear preference for sacrificing the lives and livelihoods of citizens in climate vulnerable communities rather than impose profound changes to the ‘evermore oil and gas’ business model of Shell and its “enablers”
- 7) draws comparisons with the IEA’s NZE scenario, demonstrating either a failure to understand the links between budgets and pathways or deliberately attempting to mislead
- 8) makes repeated reference to the IPCC scenarios (Working Group III), all of which are produced by six Integrated Assessment Model (IAM) groups in the Global North; he completely ignores the rapidly growing critique of such techno-economic models by Global South scholars (e.g. [Equity assessment of global mitigation pathways in the IPCC Sixth Assessment Report](#))

Overall, the rebuttal by Adam Hawkes is very much a piece of Shell PR masquerading as independent analysis. Whilst ostensibly it gives the impression of a detailed investigation, more careful reading very much suggests a set of a pre-determined findings and conclusions, and not a robust and analytical examination of the issues from which independent conclusions are drawn.

Shell’s consultancy report opens with a section: “RELEVANT CONCLUSIONS IN HAWKES II”. Below is a response to each of the points in turn:

On 3.1: Adam Hawkes response here and later in the main body of the report contains no analysis, rather just very selective readings of others work. When he refers to “respected institutions” he is deliberately ignoring the detailed critiques and concerns of many scholars, particularly those from the Global South (see earlier reference). He fails, at every occasion, to actually address directly the simple

arithmetic arising from the IPCC's carbon budgets and the temperature and equity commitments enshrined in the Paris Agreement. The implications of such arithmetic lead to conclusions that run directly counter to Shell's plans for the exploration and development of new oil and gas fields. Adam Hawkes is likely fully aware that his statements on coal, whilst clearly favourable to Shell, impose major disruption to energy supplies (and hence near-term human wellbeing) in the Global South.

On 3.2: The values provided are not for holding temperatures at or below 1.5°C, but rather are for a global overshoot in temperature that is later assumed to be brought down by the removal from the atmosphere of hundreds of billions of tonnes of carbon dioxide. This 'removal' challenge is intended to be undertaken by future generations using technologies that today remain, at scale, highly speculative. Throughout the Consultant's report, no reference is made to the viability or otherwise of such heroic assumptions. Similarly, Adam Hawkes ignores significant concerns raised across the academic literature on both overshoot and the need for future technological developments to remove the CO₂ emissions associated with Shell's (and other Oil and Gas majors) plans for yet more fossil fuel exploration, development and production. Consequently, the values Adam Hawkes has put in bold are not for 1.5°C.

On 3.3: Adam Hawkes notes *"there are important weaknesses in both the methodology and the assumptions used in the Tyndall Report"*. He then proceeds to lay out his key concerns under four headings. The following is a response to each of these headings (reiterated in italicised blue below)

(a) have no regard to the practical realities of climate change mitigation decision making, where the feasibility and economics of abatement options is the key factor (see Section 5 for more details);

It is interesting to note how Adam Hawkes recognises the *"practical realities of climate change mitigation"* (in near to medium term mostly impacting wealthy Global North nations), but chooses to ignore the existing day to day practical realities of living with (and dying from) rapidly rising temperatures (thus far, mostly impacting poorer Global South nations).

I suggest Adam Hawkes conclusion here is premised on one of two positions:

- 1) he judges that there is no significant link between ongoing emissions and rising temperatures, and hence we do not need to concern ourselves with climate impacts (a broadly climate sceptic position); or
- 2) he views the long-term profitability of the fossil fuel industry as more important than avoiding destructive climate impacts being metered out to poor climate vulnerable communities today, as well as the widening and escalating climate impacts tomorrow as emissions continue to rise.

The UN Secretary General made specific reference to the business model of the Oil majors and their "enablers", when he concluded: *"Today, fossil fuel producers and their enablers are still racing to expand production, knowing full well that their business model is inconsistent with human survival."*

In terms of quantitative analysis, Adam Hawkes assiduously ignores the explicitly quantitative and science-based framing of the Phase Out report. To reiterate, the headline analysis was for a 50% chance or better of not exceeding 1.5°C of warming and was premised on the IPCC's latest carbon budgets. Given we are now in 2024, it is worth updating the budgets to the start of this year to give a clear and science-based framing of the mitigation challenge we are facing. Based on the IPCC's values, the remaining budget is now 340 billion tonnes of carbon dioxide (340GtCO₂), and is reducing at about 1% each month. To put that in context, 340GtCO₂ is around eight years of current global

emissions. However, since AR6 (which itself was premised on papers typically published between 2015-2019), there have been significant improvements in understanding the detailed links between emissions and temperature, not least improvements in assessment of aerosols. In October 2023, a refinement of the IPCC's carbon budgets, published in Nature and including IPCC authors, concluded that the IPCC value for a 50% chance of 1.5°C should be reduced by around 40%, and that for an 83% chance of 2°C by nearer 20% ([Lamboll 2023](#)). Lamboll, and similar budgets, are now typically considered to more accurately reflect the physical reality we face. Based on Lamboll et al, current emissions will exceed the remaining budget for a 50% chance of not exceeding 1.5°C in as little as five years.

It is absolutely key in reviewing the Shell consultant's report, that this quantitative context of the mitigation challenge be at the forefront of thinking. In the Phase Out report we made no judgement as to the viability or otherwise of the 1.5°C commitment enshrined in the Paris Agreement and reinforced in subsequent COP declarations. Instead we simply assessed quantitatively what would be necessary to stay within the science-derived budgets for that commitment. That five and eight years of current emissions will blow through Paris 1.5°C commitment is deliberately side-lined by Adam Hawkes. Had he explicitly addressed the five- to eight-year challenge head on, rather skate around it with pseudo maths and science, then he would not have been able to produce the conclusions that Shell required from their report. Consequently, I caution against being taken in by the ostensibly numerical assessments in the Consultant's report as these detract from the nebulous mitigation framework preferred by Shell and on which the Consultant's report is based. Moreover, the methodology detailed in the Phase Out report explicitly noted the significant limitations and provided carefully described reasons for the methods finally chosen. Adam Hawkes wholly mischaracterises this level of circumspection and nuance, and moreover repeatedly fails to suggest what alternative he would adopt. Instead he lazily evokes his un-caveated interpretations of the conclusions of 'respected institutions'.

(b) rely on a questionable and narrow measure of equity between nation States (see [Section 6](#) for more details);

We acknowledged in the Phase Out report, at length, the considerable limitations of our, and indeed any measure of equity; we also referenced others work on how to apportion the now incredibly onerous challenge of holding to just five to eight years of current emissions. As we note, for practical deliverability reasons (within the IPCC's 1.5°C carbon budget) the approach we adopted erred in favour of the wealthier higher emitting nations, only serving to further exacerbate the historical inequality for causing climate change. It is clear from Adam Hawke's report that his preferred (and deeply subjective position) is that 'practical realities' of Shell (in terms of oil and gas production) should be given far more weight than concern for the lives and livelihoods of climate vulnerable communities. It is these very communities that successfully had the 1.5°C commitment enshrined in the Paris Agreement, an Agreement Adam Hawkes (and Shell) clearly reject as too challenging for their 'more oil and gas' business model.

(c) are derived from a subjective approach to allocating carbon budgets to producer country groups, and use a subjective mathematical construct to determine the pace of oil and gas reduction within each country group (see [Section 7](#) for more details);

Certainly our fully described and quantified approach was both subjective and mathematical. This is an unavoidable requirement of any equity framework, and to give the impression that an objective apportionment regime exists (and which we ignored) is deliberately misleading.

(d) apply a stringent and unrealistic assumption of no availability of CDR or Carbon Capture and Storage (CCS) at any point in the future (see Section 8 for more details).

In section 3.2.4 our Phase Out report very explicitly notes *“the vital role of some form of CDR in balancing ongoing warming from residual agricultural emissions of nitrous oxide (N₂O) and methane (CH₄).”* Moreover, the report goes on to quantify this level at *“4 to 7 GtCO₂e/year [30], [31] – not too dissimilar to estimates of future CDR.”* It is difficult to understand the motive for describing 4 to 7GtCO₂e of CDR each year as “no availability of CDR ... at any point in the future” – other than to deliberately mischaracterise the reports assumptions as extreme – and thereby to suggest the analysis and conclusions should be dismissed. The Consultant’s report proceeds (in section 8.1) to repeat such falsehoods, using a spurious smattering of numbers to give the impression of quantitative reasoning. Ultimately, the categorical statement by Adam Hawkes is simply false; the level of CDR assumed in the Phase Out Report aligns with many estimates from the literature.

A similar level of deliberate misinformation occurs in relation to CCS, when the Consultant notes “the Tyndall Report also assumes CCS to be entirely unavailable”; this is again simply wrong. The report expressly notes how *“CCS looks set to be a key technology”* in addressing industrial (process) emissions, particularly from cement (currently around 4% of global CO₂ emissions, not the zero value Adam Hawkes uses to misinform). Turning to CCS with fossil fuels, here we assumed the uptake to be highly limited, with four specific factors provided as reasoning: 1) the very short timeline of the 204-340GtCO₂ (i.e. the 1.5°C carbon budget); 2) the level of CCS (explicitly including capture, so not EOR) forecast by the Global CCS Institute for 2030; 3) the lifecycle emissions from the literature; 4) the thirty year legacy of massively over-promising the level of delivery of CCS. The Consultant does not attempt to counter any of these factors. In contrast, he simply relies on the predictions of further CCS by the same or similar organisations to those who have overplayed their hand previously.

On 3.4 & 3.5: Whilst this was not an issue addressed within the report, some form of downscaling is ultimately required to deliver real change. As it is Adam Hawkes provided no alternative means of driving change within the incredibly tight 200-340GtCO₂ budget range for a 50% chance of not exceeding 1.5°C. If his report provides any sense of where he thinks responsibility lies, it is with poorer Global South nations, an approach that is also embedded in the scenarios of the IAMs.

On 3.6: As is the case throughout all of Adam Hawkes report, he chooses to ignore the IPCC’s carbon budgets and associated timelines. A straight line of falling emissions from the start of 2024 would, for the IPCC 50% ≤ 1.5°C carbon budget, hit zero emissions by ~2040. For the Lamboll budget, this would be ~2034. He ignores these timelines precisely because they do align with the billions of tonne delivery of CCS and CDR that his delay scenarios assume. However, even these dates do not truly capture the timeline of the IPCCs and Lamboll’s carbon budgets. As of today, emissions continue to rise. Even assuming a sea change in global political leadership, reducing emissions at the necessary rate will still take several years to bring about. Factor in such an unavoidable rollover from rising to rapidly falling emissions, and so the timeline for the 1.5°C budget comes closer still, to around 2037 (for the IPCC) to 2031 (for Lamboll). The consultant chooses simply to not engage with the reality of the maths and timeframe of the Paris 1.5°C commitment, preferring instead to pass the mitigation burden on to future generations in many years.

Further comments on Shell report

On Coal

The reference by the Consultant to the Phase Out report's approach to coal again mischaracterises the method as unclear; the approach, the limitations and the reasoning are detailed in the report. What is evident is the consistency with which Adam Hawkes dislikes approaches that embed any sense of equity between the Global North and South. As the report notes in detail, coal is a much more important energy source across developing countries than it is for the developed nations. Taking this into account, as is required by the Paris Agreement and indeed the original UNFCCC (under the guise of common but differentiated responsibility and respective capabilities) again undermines Shell's (and hence the Consultant's) preference for a higher carbon budget for oil and gas.

On the IEA's NZE scenario

The Consultant clearly does not like the inclusion of equity in the distribution of the remaining carbon budget for oil and gas. However, this dislike appears to be driven much more by the results than the method, which he describes as "not grounded in realities of climate change mitigation". What these "realities" are and how they align with the IPCC's small and rapidly dwindling 1.5°C carbon budgets he fails to make clear. He does however make specific reference to the results being different to the those within the IEA's Net Zero Emission (NZE) scenario. However, the consultant fails to mention that the IEA scenario is not for a 50% chance of not exceeding 1.5°C (despite the title of the IEA's report). The level of energy-based emissions of carbon dioxide under the NZE emission pathway is much higher than the IPCC's headline 1.5°C carbon budget. The IEA's 1.5°C pathway (in their report [Credible Pathways for 1.5°C](#), Figure 1) assumes energy-only emissions totalling ~442GtCO₂ (from 2024 to zero emissions at the start of 2050). This is 30% higher than IPCC's 1.5°C budget, which covers CO₂ emissions from all sources (i.e. including landuse), not only energy. In the IEA's later update to their 2023 report, 'Net Zero Roadmap: [A Global Pathway to Keep the 1.5°C Goal in Reach](#)' the cumulative emissions under their 1.5°C pathway rise still further, exceeding the IPCC's 50% ≤1.5°C budget by around 40%. To a degree the IEA acknowledge this when noting that their pathway "*lead[s] to limited overshoot of the 1.5°C limit*" (p.56 of the Update report); that is to say, it exceeds 1.5°C and then returns to it by or before 2100. However, the IEA's language fails to capture just how significant the level of excess emissions assumed really is. Still more striking, is the level of divergence between the emissions embedded in the IEA's updated pathway and the carbon budget estimate by Lamboll et al. Here the IEA emissions are over twice the level estimated by Lamboll.

It is concerning that the Consultant failed to draw Shell's attention to this very high level of carbon budget overshoot. Alternatively, it could be that he wasn't aware of this, which is a concern given his reliance on others' work to avoid undertaking analysis himself. Either way evoking a report (in this case the IEA NZE) as delivering on something it does not, either through ignorance or deliberate manipulation, does not reflect well on the author. Moreover, attempting to hide this behind some perfunctory quantification, as the Consultant does in section 5.6, only adds to the suspicion that accepting a given set of 'findings' was a prerequisite of the appointment.

On the economics

When Adam Hawkes turns to economics, he chooses a form that fails to take account of the importance of oil and gas income to different nations (a key factor in the Phase Out report). Similarly, he fails to consider variations in the marginal value of money between nations – simply applying a dollar value regardless of the real-world implications; this will have detrimental and sometimes dire impacts for many poor oil and gas producing nations.

It is evident in section 6.3, that the Consultant either does not understand the details of the allocation approach adopted in the report, or perhaps is again trying to mischaracterise the analysis. The point of considering non-oil and gas based GDP as a coarse but adequate metric, is exactly because (in the national examples he uses) it is less about the importance of oil and gas to GDP, but rather, the level of GDP remaining once the oils and gas revenue is removed.

On the NDCs

As a statement of fact, the Consultant's comment that the NDCs were adopted in Paris is correct. However, reference to this is a distraction from the reason for and the analysis within the Phase Out report. The Paris Agreement explicitly made reference to pursuing efforts to avoid exceeding 1.5°C of warming. That such an absolute commitment cannot be matched with the summation of random independent pledges (which have different boundaries, differing units and over differing timeframes) is widely recognised as a major internal contradiction of the Paris Agreement. However, this has no bearing on the Phase Out report, and so, other than as yet another distraction, it is difficult to understand why Adam Hawkes thought it material to his critique.

A final personal note, I find it deeply disturbing that the Consultant choose to so blatantly mislead. It is 2024 and following decades of disinformation and lying by the oil majors on the climate science, Adam Hawkes is now seeking further delay on mitigation through very similar processes of obfuscation and deceit.