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A response to the paper "Towards a fossil fuel non-proliferation treaty" by Peter Newell & Andrew Simms, published in the journal "Climate Policy".
(Published online 8 July 2019).

Hugh Richards, July 2019. [Contact via info@gloscan.org]

Background

Peter Newell kindly sent me the link to the above paper, following correspondence arising from my letter to "The Guardian" (published online* 12/12/18) which was broadly supportive of the authors' concept as originally outlined in an article for The Guardian online (23 October 2018). My purpose in this piece of writing is to pose some queries and challenges that I hope may stimulate discussion as to how the concept of supply-side control of carbon emissions should be taken towards becoming a reality. Also, from my perspective as an "amateur" observer of the climate policy scene, I offer some suggestions on next steps.

As will be evident from the Addendum to these notes, I do not have the capacity to participate in further discussion or development of the concept. However, I hope that the note that I wrote a few years ago entitled (perhaps unwisely) "Fantasy Climate Control ..." may also be a further prompt for discussion. "Fantasy Climate Control ..." can be found in a link from a blog-post on www.GlosCAN.org entitled "Carbon Bombs - A Slow-Burn Narrative." I must emphasise that I do not imagine that the ideas sketched out in "Fantasy Climate Control" are necessarily better than those put forward by Newell & Simms (where there are points of difference). However, I do hope that by highlighting those points of difference here, I will stimulate further deliberation by people with far greater insight than me.

* On-line editorial headline: "We need a non-proliferation treaty for fossil fuels."

In light of the above, in the remainder of these notes, I first set out some comments, queries and challenges of a general nature, then some more specific comments (following the flow of the paper). Then I offer some (perhaps poorly-informed) suggestions on next steps for those who may be taking the concept forward.

General comments

The reason that I am writing these notes is that I agree with the authors that something like the proposed "FF-NPT" is absolutely needed. I find it difficult to believe that global greenhouse gas emissions as a whole can be brought into line with the stated aims of the Paris Agreement (especially "efforts towards" the 1.5°C limit) without a robust, enforceable mechanism for global control of fossil carbon extraction - i.e. what the authors call a "supply-side" approach. In the absence of such a mechanism, I fear that the next very few critical years will be wasted as powerful nations become polarised into camps that might be labelled "laggards" and "virtue-signalling pseudo-leaders", while global emissions ^{rates} continue to rise, or, at best, level off but fail to decrease at anything like the necessary speed.

The need for speed suggests to me that any supply-side fossil carbon control regime needs to be as simple as possible - perhaps something of a "blunt instrument". It also needs to have at least some appeal to existing fossil fuel producing countries and perhaps some of the private fossil fuel companies. I am not convinced that what the authors propose would meet those criteria.

In order to maximise the chance of success within the very short available timescale, I envisage that those involved would need to focus relentlessly on the goal of controlling the extraction of fossil carbon and not get distracted by secondary goals which could probably be addressed through other international agreements, including the Paris Agreement itself. As elaborated in some of my specific points below, I perceive that the authors' proposals already introduce secondary goals and resulting complexities that might be counter-productive. In particular, I question the wisdom of proposing a "Global Transition Fund" within the framework of a "FF-NPT".

Is it possible (as I have suggested in "Fantasy Climate Control") to have an effective regulatory regime for global fossil fuel extraction that does not involve setting up a new supra-national entity that holds and disburses vast funds?

The authors have chosen (consciously or not) to exclude from their proposals the regulation of extraction of fossil carbon in the form of limestone quarried for cement manufacture. I leave it to others to come to a view as to whether this omission should be reversed. I recognise that it may be judged that this supply of fossil carbon may be too small to warrant inclusion.

The authors' key contribution is to take the nuclear NPT as a starting point for proposing a treaty to control extraction of fossil fuels. However, as set out below in more specific comments, I have two main reservations about their approach:

- I think a closer analogy with the nuclear NPT is possible, which would lead to different proposals for a "FF-NPT," especially in relation to "peaceful use."
- I think the paper does not sufficiently explore aspects of the analogy with the nuclear NPT that could be problematic for a treaty to control fossil fuel extraction, which might lead to the conclusion that, on balance, framing the proposals

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as a new "non-proliferation treaty", rather than (say) a "fossil fuel [extraction] control treaty", may be unhelpful when communicating the proposal to policy-makers and opinion-formers, or to wider audiences.

The analogy with the nuclear NPT would suggest the United Nations as the sponsoring organisation for a "FF-NPT" and an oversight body analogous to the IAEA (perhaps "International Carbon Extraction Agency"?). However, the authors have / suggested the OECD (+ Russia?). I merely highlight this, without having an opinion on the matter.

That said, I do think it is helpful to put the threats to global security posed by fossil fuel extraction "in the same league" as the threats from nuclear weapons and their proliferation. I think this "global security threat" framing as a motivator for international action on fossil fuel extraction needs to become much more prevalent. It is not a prominent theme of the paper, being absent from the Abstract, for example. I suspect that such a framing may appeal more to right-of-centre audiences than the prevalent language of "equity" and "justice" used in the paper.

As a final general point, I ask whether the "peaceful use" of fossil fuels under a "FF-NPT" could create the economic incentives (that are currently lacking) to make carbon capture and geo-sequestration (CCS) happen at a material scale. Could this make such a treaty more palatable to at least some fossil fuel producing states and/or states that host the HQs of fossil fuel companies that claim to take climate change seriously?

Specific points

[In these notes, I make reference to the page numbers (1 to 12) and paragraph numbers (including an incomplete paragraph at the top of a page as "para. 1").]

Page 4, para. 3-5; The authors state that for fossil fuels, "non-proliferation... would refer to preventing the exploitation of new fossil fuel resources...". The phrases "new fossil fuel resources", "new fossil fuel reserves" or just "new fossil fuels" are widely used in discourse about climate change, but often without clear definition. These phrases clearly apply to regions where no extraction has so far occurred. However, they would not necessarily apply to proposals for massive expansion of existing fields. Personally, I am not convinced that the phrase "non-proliferation" is sufficiently applicable to fossil fuels for it to be helpful in headlining the goals of the proposed treaty, as both use and extraction of fossil fuels have already proliferated without control for over two centuries. That said, I agree that the analogy with the IAEA's role in overseeing national accounting for fissile nuclear materials is very helpful.

Page 5, para. 2: The authors suggest that "disarmament would... be delivered not just by restricting supply, but also reducing demand... under the NDCs [under] the Paris Agreement...". I think that introducing demand reduction into the analogy with the nuclear NPT risks partly obscuring the supply-side focus of the proposals. As others have noted, the problem with fossil fuels is not one of scarcity but of abundance. A robust measure of the success of an effective supply-side treaty would be scarcity-driven increases in fossil fuel prices to levels that would dramatically decrease demand (and, I suggest, make CCS economic where no substitute for fossil fuels is available).

Page 5, para. 3: Here I think the authors have chosen a very loose analogy with the "peaceful use" aspect of the nuclear NPT. A tighter analogy would be to explore what "peaceful use" of fossil fuels would mean. I am no advocate for the fossil fuel industry or the technology it supports, but I find it impossible to envisage a near future in which no fossil carbon is being extracted, whether for fuels, chemical feedstocks or (to return to an earlier point) cement manufacture. As I suggested in my letter to The Guardian and in slightly more detail in "Fantasy Climate Control," I think that "peaceful use" of fossil fuels could be achieved by introducing CCS into the fossil carbon accounting needed under a supply-side treaty. The authors' proposals seem to introduce a complex web of inter-dependent initiatives, mostly focusing on fiscal incentives to cut emissions by demand reduction, rather than supply-side controls.

Page 5, para. 5: I assume that in writing "...first halting, and then phasing out, fossil fuel production..." the authors mean "...first halting expansion of..."

Page 5, para. 5: A query about criterion (ii); why would first movers not include states that meet criterion (i) ("ability to pay") but export most of their fossil fuel production?

Page 5, para 5: Why is criterion (iii) framed in terms of "historical... use of fossil fuels to date" rather than just historical extraction (as suggested in "Fantasy Climate Control")? I have also suggested there should be a cut-off date before which it is deemed that states allowed extraction of fossil carbon in ignorance of the risks to the global climate. [Somewhere around 1990 would seem about right for that purpose.]

Page 5, para. 6: I fear that an attempt to impose controls on private fossil fuel companies' assets (reserves) through the "FF-NPT" signatory countries in which they are headquartered would be open to abuse by tactical re-location of HQs and/or company registration. That is why, in "Fantasy Climate Control", I suggest that the main instrument of control could be carbon extraction permits issued by the countries/states in which the fossil fuel resources/reserves are located, regardless of ownership.

Page 6, para. 1: If the locus of control is to be primarily through governments, is it really relevant or helpful to attribute historical responsibility to fossil fuel companies (whether privately or state-owned)? As I wrote in my letter to The Guardian, "fossil fuel companies extract their products where relevant governments permit." I see it as primarily a failure of governments that has allowed fossil fuel extraction to continue unimpeded in the three decades since the threat of climate change became widely recognised internationally.

Page 6, para. 3: As I have suggested above in my "general" comments, I am concerned that the authors' proposals are not sufficiently tightly focused on supply-side measures. Also, it seems to me that a supply-side treaty could be adequately effective without encompassing all fossil fuel producing countries (and ^{all} countries that hold unexploited reserves), let alone "most UN members." That said, there would be ^{direct} no cost to countries that lack fossil fuel resources if they were to become signatories, and this could help build normative pressure on fossil fuel producing countries that may initially be reluctant to join.

Page 6, paras. 4 & 5: I will not reiterate here my concerns about the proposals being perhaps unnecessarily complex in term of what the authors call "issue linkage." In relation to the potential "green paradox" problem, I question whether in principle, it is such a problem, since (as I understand it) the key factor that will determine the extent of future climate change is not the rate of emissions per se, but the cumulative stock of long-lived greenhouse gases (principally CO₂) in the atmosphere. The necessary vastly increased rate of construction of low carbon technologies and infrastructure (including for CCS, I suggest) will require substantial fossil carbon inputs, but these should be within the context of an all-time global fossil carbon budget enforced through the "FF-NPT" or similar.

Page 6, para. 5: I find it concerning that the authors seem to assume that "norm-building" is the principal means available to gain sufficient participation ⁱⁿ and compliance with the proposed treaty. I suspect that for some key fossil fuel producing countries, more coercive means will need to be available, as is the case with the nuclear NPT.

Page 6, para. 6: Given the need for speed, I am concerned about the suggestion of phased implementation, starting with coal. To single out one form of fossil fuel seems likely to alienate countries with large coal reserves and/or high dependency on coal, creating an "uneven playing field". Under a global system of per-capita ^{fossil} carbon extraction allowances (as suggested in "Fantasy Climate Control") countries would be able to make their own calculations as to whether to use their allowances to extract indigenous coal (or other fossil fuels) or sell those allowances to help fund low carbon infrastructure or other national priorities such as climate adaptation measures.

Page 7, para. 2: I reiterate my point that "widespread use of... CCS technologies remain remote" for the simple reason that there is not yet an effective mechanism to make it an economic proposition. Even its advocates (such as David Hone of Shell in his book "Putting the Genie Back") acknowledge that emission trading schemes are not going to generate a sufficiently high global carbon price to get CCS to the necessary scale on the short available timescale. In "Fantasy Climate Control" I suggested that CCS schemes (verified by an equivalent of the IAEA) could be used to increase the global total of fossil carbon extraction permits, which those funding the CCS use or sell, as they choose.

Page 7, para. 3: Setting aside the "coal first" context (see comments on Page 6, para. 6) might it be better to seek "first movers" (across all fossil fuel types) that include at least some countries that are most threatened by climate change, as well as the major fossil fuel producing countries that are generating those threats? Some "threatened" countries may also be fossil fuel producers (or hold unexploited resources) and may be more willing to forego future extraction ("unilateral disarmament") in order to gain influence over the form of the treaty. The global security threat framing of fossil fuel extraction suggests to me that "first movers" should include members of international security bodies such as the UN Security Council and NATO. Clearly, leadership from countries with multiple stakes in the success of the treaty, and ^{having} well-resourced policy-making and diplomatic capacities (e.g. Netherlands, Norway, UK -?) would be helpful.

Page 7, paras. 5&6: I reiterate my challenges to the concept of a "Global Transition Fund under the FF-NPT." To me it seems non-essential, and could slow or even thwart the negotiation of the treaty, through the economic and political complexities it would involve.

Page 8, para. 2: It is good to see the analogy with the IAEA being drawn here, and the suggestion of the UN as the "hosting" institution for negotiating the treaty. This perhaps represents a shift in the authors' thinking from their initial proposal in the Guardian on-line (cited as Simons & Newell (2018), where the focus was on the OECD).

Page 8, para. 3: Might some "actors whose profitability resides in extracting remaining fossil fuels" perhaps see such a treaty as providing a legitimising regulatory framework that should raise the unit prices of their products in the medium term and provide greater market certainty for planning the transformation of their businesses towards low-carbon technology, including CCS? It should be revealing to see how some private and state-owned fossil fuel companies that have declared aspirations to such transformations would respond to emerging support for a "FF-NPT". If the treaty is to be negotiated between states, then the positions of state-owned fossil fuel companies and private companies with strong national identities could be very important and open to political influence by ^{the relevant} negotiating governments.

Page 8, para. 4: In identifying states to take leadership, I think some care needs to be taken not to give undue weight to those states which have "already taken bold stances on supply-side policy". Some such stances are in reality almost cost-free - such as states foregoing exploitation of unproven resources (e.g. shale gas) or declaring an end to a form of extraction of fuel that has already ceased at material scale within their territories (e.g. coal).

Para. 8, page 4: I hope I am mistaken, but the approach proposed seems likely to be incremental and slow, like the Nationally Determined Contributions process under the Paris Agreement. I do not imagine that fossil fuel extraction can be brought under control globally "overnight", and implementation will need to be planned and phased. But it must be materially effective very quickly.

Page 9, para.1: While the "climate emergency" movement and the signing of multi-signatory statements are helpful, it should not be overlooked that these initiatives are unlikely to have much traction in some of the key states that must be involved in the treaty.

Page 9, para.2: I agree entirely with this paragraph, but reiterate that the "FF-NPT" as proposed seems unnecessarily complex and not sufficiently purely focused on the supply-side. I fear that it is not sufficiently distinct from the Paris Agreement, and there would be too much confusion about its distinct and complementary aims. As mentioned previously, I particularly question the need to set up a Global Transition Fund under a "FF-NPT." Proponents of such a treaty also need to be open about the fact that control of fossil fuel extraction will not of itself solve the climate change problem, as there are many other sources of greenhouse gases and other climate forcing agents, some of which may also need stronger global controls than will be delivered by the sum of NDCs under the Paris Agreement.

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One challenge the paper does not explore / is how the remaining fossil carbon budget would be calculated. A potential process is described on page 4, para.4, but this does not discuss the huge range in calculation outcomes, dependent on whether the derived limit is 1.5°C or "well below 2°C " (or even 2°C), and on what level of confidence in staying below the limit is required. The Paris Agreement remains "contractively ambiguous" on these vital questions. Negotiation of a "FFNPT" would have to remove the ambiguity. Would the outcome become accepted by all signatories to the Paris Agreement, either formally or as an unofficial norm?

Potential next steps?

I lack expertise and influence relevant to the enormous challenge of making something like the authors' proposal a reality. For reasons that should be apparent from the Addendum to these notes, I have not tried to search on-line for recent relevant developments.

I hope that others are already pursuing or developing courses of action that will make my suggestions below redundant.

However, since I think there needs to be further discussion as to the scope and aims of a supply-side treaty (or other agreement) to control fossil fuel extraction, I hope my suggestion below may in some way be useful.

Quantitative modelling of different illustrative ways of allocating the global fossil carbon budget is clearly an early step, so that potential "first movers" can have some understanding of the implications for their particular circumstances. A wide variety of scenarios should be modelled, including alternative warming limit goals ($1.5-2^{\circ}\text{C}$), different risks of not meeting those goals, alternative approaches to allocating national fossil carbon budgets, alternative pathways for treaty implementation, scenarios with and without CCS, and variant calculations including extraction of limestone for cement.
 [This is not an exhaustive list.]

In view of the current risk of the world's states polarising into what I have called "laggards" and "virtue-signalling pseudo-leaders", I think every effort should be made to include a truly wide range of states among those approached to show leadership on this initiative. From my poorly-informed perspective, the categories I imagine should be involved from the outset (by involving at least one ^{willing} "representative" country) would include:

- Countries especially threatened by climate change
- Major coal-producing countries
- OPEC countries
- Other countries with high economic dependence on fossil fuel extraction
- Countries with major state-owned or other "national" fossil fuel companies
- Members of the UN Security Council (permanent and rotating)
- NATO members

[This is not an exhaustive list].

Clearly, the countries with several of these memberships/attributes are likely to be key players, especially if they have well-resourced and internationally respected diplomatic and policy-making capabilities. I hope that the UK could be one of them, but perhaps not as a "first mover" given current difficulties over "Brexit," etc.

In order to attract wide attention to the proposed approach, I suggest gathering an eye-catchingly wide range of signatories to an open letter or other form of statement supporting serious consideration of supply-side control of fossil carbon emissions. This might gain wider support if it stops short of actual advocacy of such an approach, and it should, I think, avoid reference to specific proposals such as a "FF-NPT," except perhaps by way of example. The signatories could then be drawn from all constituencies that profess concern about climate change, including relevant fossil fuel interests (states or companies), financial institutions (e.g. insurance companies) and others who would not usually be seen "on the same page" as the "usual suspects" involved in advocating for climate change mitigation. I had a go at initiating something like this 2-3 years ago, and had support in principle from two prominent academics – one an author of one of the references cited by Newell & Simms and the other an advocate of CCS to offset continued fossil fuel extraction. However, it soon became apparent that I lacked the capacity to take this forward (see

Addendum) and one of my potential collaborators sadly developed terminal cancer and has since died. I should be glad to share the draft text that was developed before this initiative foundered, should that be potentially helpful.

I would hope that the process of gathering signatures to such an open and inclusive letter/statement could work synergistically and in parallel with convening an appropriately open and inclusive conference or workshop, at which alternative approaches to supply-side control of fossil carbon could be discussed, preferably with the aim of convergence on a simple set of propositions that could then be put to potential "first-mover" states. Sponsorship of such an event under a suitable international body without obvious vested interests could improve the chances of its output being taken seriously.

Through an accident of geography, I have direct contacts with some of the people at the heart of the "Extinction Rebellion" movement mentioned in the paper (page 10, para.1). I have tried (so far without success) to suggest that something like a "FF-NPT" could be a clear and credible demand of the movement, global rather than national in scope. Perhaps other advocates of the supply-side approach who have higher public profiles could promote it further with both "XR" and other grass-roots activist movements. Perhaps in such quarters, the concept could become known as a "LINGO* Treaty"?

* LINGO = "Leave it in the ground"

ADDENDUM - Some context

I think it may be helpful for readers of these notes to have some understanding of my context, both in terms of both my background and my current circumstances, and of the limitations ~~that~~ on my further involvement that arise from those circumstances.

I have a first degree and PhD in geology and (now in my late 50s) am towards the end of a full-time career spent mainly as a technical specialist working in the UK nuclear industry, focusing on the management of contaminated land and radioactive waste. In my current role I am leading work to define the radiological and physical end states for decommissioning and clean-up of the UK's first-generation (Magnox-type) nuclear power station sites. This is work that involves plans of work that extend into the early 22nd century, and assessment of ~~know~~ processes that would affect any residual radioactivity on the sites over ensuing centuries or even millenia.

I just about manage to fulfil my professional role, despite ~~know~~ having a minor disability that makes some activities painful, including typing and editing electronic documents. With adaptive technology (including voice recognition) I can usually do what needs to be done, but I have to minimise computer use outside the work context; hence my use of hand-writing here.

A further limitation has arisen recently since my mother had a major stroke in early June 2019. I have had to take time off work and be away from home to help her transition to a care home and the necessary clearance and sale of her home. This has left little time or energy for voluntary activities. These notes have been written intermittently in short gaps between activities focused on my mother's welfare and affairs.

My work has brought me to live in Gloucestershire, and since 2012 my family has lived ~~the~~ in Stroud. There is much "green" activism in Stroud, and it has been (with some justification) claimed as the birth-place of the "Extinction Rebellion" movement. I have some friends and several acquaintances who are highly involved in Extinction Rebellion. Some of them were previously involved in "Gloucestershire Climate Action Network" (GlosCAN.org) - a voluntary semi-informal networking organisation that has a steering group which I have chaired since 2016, although since the emergence of Extinction Rebellion, GlosCAN has become somewhat dormant. My present circumstances have not yet led me to step down as Chair.

In my capacity as a GlosCAN Supporter, I have written a number of articles for the GlosCAN blog, usually with the assistance of the steering group Secretary, who has been kind enough to type up my manuscripts. Topics covered include:

- "Carbon bombs" - my own attempt at analogy with nuclear weapons control, which links to my note "Fantasy Climate Control..."
- "Climate Emergency"
- Extinction Rebellion (a "friendly critique")
- Carbon capture and geosequestration/storage (CCS)
- A review of "Putting the Genie Back" by David Hone (Shell's Chief Climate Change Adviser)

A shorter version of my review of "Putting the Genie Back" was published in the on-line version of "Geoscientist" - the magazine of my professional association, the Geological Society.

I also wrote a letter to the Geological Society (published in "Geoscientist" suggesting that the Society should (in its "Year of Carbon" - 2019) produce a position statement on geological aspects of CCS.