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## US presidential candidates' views on unconventional gas and oil: Who has it right?

### *Short communication submission*

**Abstract:** Unconventional oil and gas extraction (from shale, coal, or tight sands) via hydraulic fracturing (often just 'fracking') has the potential to transform the US physical and political landscape. This issue has played a role in the 2008 and 2012 US presidential contests and recently emerged as a point of demarcation between the final four democrat and republican contenders for the White House. On the democrat side, broadly, Sanders advocates for a ban on unconventional hydrocarbon development, whilst Clinton advocates for strict regulation but sees opportunities for natural gas in the US's energy future. Donald Trump and Ted Cruz favour development. I evaluate the extent to which the two presidential nominees and the two runner-ups' views are justified based on the most recent natural, physical, and social science on this issue. In doing so, I discuss the characterisation of unconventional gas as a 'bridge fuel' and unpack what conditions would be necessary for this metaphor of 'bridging' to be appropriate. This short communication will hopefully instigate further the debate amongst scholars of energy politics, energy policy, and energy development on the role unconventional oil and gas plays in the US's energy future and the US's approach to climate change mitigation.

Keywords: shale gas; natural gas; hydraulic fracturing; bridge fuel

**Main text:**

Unconventional gas and oil development via hydraulic fracturing (often called ‘fracking’)<sup>1</sup> has entered the US presidential contest once again. Recently, the topic emerged as a point of dissonance between democratic candidates Senator Bernie Sanders and former Secretary of State Hillary Clinton at their televised debates on March 6th in Flint, Michigan, and March 9th in Miami, Florida. Perhaps a reason that unconventional oil and gas development is featuring prominently in the democratic primary is that it has become a bellwether for energy policy and the future direction of energy development in the US more widely. A candidate’s stance on unconventional oil and gas development reveals much about his or her perspective on fossil fuels and alternative, renewable energy sources as well.

In this short communication, I review the positions on unconventional oil and gas development afforded by the final two democratic and republican candidates in each primary. Although Clinton and Trump are the nominees, the broader discourse generated by the other final candidates could have relevance to policy and to party perspectives on this issue. I assess to what extent the nominees’ and runner-ups’ positions and assertions are justified based on the established science (natural, physical, and social science) on this topic. My goal herein is to spark further debate about the role of unconventional oil and gas development in US energy policy and about what approach to national regulation of such development is most justified. I should clarify that my own research on unconventional fossil fuel development has entirely focused on public perceptions and values in relation to development; nevertheless, I have taught courses that explored in-depth the most recent leading research on environmental, economic, health, and social impacts of such development.

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<sup>1</sup> Note: I use the phrase ‘unconventional oil and gas development’ throughout this article to refer to the set of processes and associated effects that attend this form of energy extraction/development. Whilst no term is perfect, social-psychological research into how this word is used provides nuanced discussions of why to avoid use of ‘fracking’ (Evensen et al. 2014; Wolske and Hoffman 2013).

## **The Democrats**

Senator Sanders: Bernie Sanders has advocated for a stop to all hydraulic fracturing for oil and gas in the US. In the March 6<sup>th</sup> debate, he stated, ‘I talk to scientists who tell me that fracking is doing terrible things to water systems all over this country.’ In the strict sense, this could be entirely true; it is likely that Sanders did speak with scientists who told him this. However, we also know that scientists exist (but are few and far between) who still claim that global climate change is in no way anthropogenically induced. Therefore, the mere fact that some scientists have a particular position does not make that position reliable. Unlike on the topic of climate change, the science on unconventional gas development, particularly in terms of water contamination and carbon emissions, is still hotly contested.

To evaluate Sanders’ statement, much hinges on the definition of ‘terrible’. It distresses me to write this, as I did indeed ‘Feel the Bern’, but ‘terrible’ seems a hyperbolic overstatement. The best science to date in leading academic journals has revealed examples of underground and surface water contamination due to unconventional gas development (Jackson et al., 2013; Llewellyn et al., 2015; Olmstead et al., 2013; Vidic et al., 2013), but it is by no means clear that such effects are more damaging for water quality, let alone water systems, than are conventional forms of fossil fuel extraction. It seems quite obvious that unconventional development will not be great for local environments, but when deciding whether to allow it, the more relevant matter would seem to be whether it is worse than the energy development we already allow (unless one proposes banning those other methods of development as well). A systems perspective in which the effects of an energy source are examined in their social/cultural context and vis-à-vis other energy options is necessary (Sovacool, 2014a).

Former Senator Clinton: Hillary Clinton has been characterised as having a ‘more nuanced’ view on this issue (Mooney, 2016). At the March 6<sup>th</sup> debate she asserted, ‘I don’t support it when the release of methane or water contamination is present. I don’t support it unless we can require that anybody who fracks has to tell us exactly what chemicals they are using.’ Clinton’s general approach is to advocate for much stricter regulation, but not to support an outright ban. Her specific selection of conditions for when not to support development, however, are potentially disingenuous in that development will always release methane and contaminate water, to some extent. The question (and policy discussion) cannot be about *if* these things will occur, but rather to *what degree* they will occur. What level of water contamination and methane release is acceptable? All forms of energy development, even wind and solar, have negative environmental consequences (e.g., during production and installation) (Duggan-Haas et al., 2013). Avoiding environmental damage is not possible, but having a principled and non-arbitrary threshold for the damage one is willing to accept is possible (Evensen, 2015); a conversation about justice considerations is relevant here (Cotton, 2016; Evensen, 2016; Sovacool and Dworkin, 2015).

Clinton’s position showed understanding of regulatory nuance on unconventional oil and gas development when she pointed out in the debate that it is not the role of the president to ‘go ordering folks around’ on this issue. Indeed, because oil and gas regulation occurs at the state level generally, a president has little authority to take definitive action on unconventional gas and oil development other than for development occurring on federal land. Regrettably, Sanders seemed to lack this perspective (or was unwilling to accept it) during the debates.

### **Democrats on unconventional gas and climate change**

Sanders, however, did provide a strong rationale for his aversion to unconventional oil and gas development. He stated, ‘We have got to be bold now. We’ve got to transform our energy system to energy efficiency and sustainable energy.’ This support for a direct shift to renewable and alternative energy sources is in contrast to Clinton’s comment at the March 9<sup>th</sup> debate that ‘We need to...quickly move to make a bridge from coal to natural gas to clean energy.’ Clinton’s use of the tired and confusing metaphor of a ‘bridge’ is unfortunate. Picture a bridge in your mind. It leads clearly from one place to another, helping you to reach a destination that otherwise would be inaccessible or that would require a substantial detour. This is (and always has been) an inappropriate metaphor for natural gas (Duggan-Haas, Ross, and Allmon, 2013). Natural gas may produce fewer carbon emissions overall than coal (Allen et al., 2013; Newell and Raimi, 2014; Schrag, 2012; Sovacool, 2014b; Zavala-Araiza et al., 2015), but the way in which gas carries us to renewables is opaque. Although some scholars have shown that natural gas can complement, rather than hinder, the progress of renewables (Gilbert and Sovacool, 2014), it remains unclear and tenuous that shale gas could actually increase uptake of renewables. In this sense, unconventional gas is more like the e-cigarettes increasingly common in Europe – it might be better than the alternative (regular cigarettes), but it is still causing damage and is unhealthy enough and questionable enough to be outlawed in some nations.

### **The republicans**

Turning to the republicans, there is less analysis to provide. Ted Cruz, a Senator from Texas, has perhaps unsurprisingly supported unconventional oil and gas development. He has cited creation of ‘countless new jobs’ and the ability to ‘drastically reduce our dependence on foreign energy supplies’ as rationales for development (Cruz, 2011). It seems, however, that the number of jobs created can be, and has been, counted. Research on

the employment impacts of unconventional gas and oil development has revealed that jobs certainly have been created, but numbers are underwhelming compared to hyped expectations, even before the crash in oil and gas prices that led to closure of many operations (Kinnaman, 2011; Paredes, Komarek, and Loveridge, 2015; Weber, 2012).

In terms of reducing foreign dependence, there is no doubt that the US has become much more self-reliant on fossil fuels following the expansion in unconventional development over the last two decades. Nevertheless, Cruz (2011) stated that without unconventional development the US would ‘be left even more dependent on foreign dictators for our energy needs’. Someone with Senator Cruz’s political leanings might characterise Prime Minister Justin Trudeau as an evil dictator, but the fact remains that the US imports more oil from Canada than it does from all OPEC nations combined; Canadian imports nearly double those from all Persian Gulf nations (US EIA, n.d.). The leading countries from which the US imports natural gas are Canada and Trinidad. Imposing geopolitical threats indeed.

Finally, from the little we know about Donald Trump’s views on unconventional oil and gas development, the only thing of which we can be certain is that his perspective will be subject to the quotidian vicissitudes of his schizophrenic personality. We must accept that Trump’s views on key policy issues are so ephemeral that he could be anywhere on this issue by November 2016. In 2011, Trump wrote that shale gas could afford ‘more time to innovate and develop newer, more efficient, cleaner, and cheaper forms of energy’ (p. 24). This claim suffers from the same dilemma as Clinton’s position on natural gas as a bridge fuel. Unless a pathway from natural gas to renewables and/or other low-carbon sources is clear, increased reliance on natural gas will more likely just lead to a shift from one fossil fuel (coal) to another (gas). If natural gas displaces coal (as it has begun to do), this will require substantial infrastructure investment (e.g., to replace/update coal-fired power plants with gas turbines or to expand gas distribution for home and commercial heating).

Beyond problems of how the shift from unconventional gas to ‘cleaner’ and ‘cheaper’ energy would occur, it is not even clear that this is Trump’s position any longer. On 26 May, he stated at a speech in Bismarck, North Dakota, ‘We’re going to deal with real environmental challenges, not the phony ones we’ve been hearing about’ – this, of course, in relation to his denial of anthropogenic climate change (Parker and Davenport, 2016). Withdrawing any US support for climate change mitigation, supporting unconventional hydrocarbons, and speaking of the need to bring back uneconomically-viable coal extraction makes one wonder where renewables fit in the mix.

## **Synthesis**

So where does this brief analysis leave us? No presidential nominee or runner-up has really said anything of substance on the issue of unconventional gas and oil development. The democrats highlight platitudes about environmental contamination (overblown in the case of Sanders), whilst the republicans hype development’s economic potential (exaggerated in the case of Trump and Cruz). Predictably, no candidate has mentioned the social impacts that often dominate concerns about development in areas where it is occurring (Jacquet, 2014), but which are rarely mentioned in mass media coverage (Ashmoore et al., 2016).

The most interesting perspective the candidates have to offer is on the role of unconventional development in contributing to or distracting from a transition to alternative, renewable energy sources. On this topic, Sanders seems to offer the most reasoned and valid perspective. Now that Clinton is the democratic nominee, people interested in the future of climate policy should push her on how she conceives of natural gas as a ‘bridge’. This could become an even larger issue in the final run-up to the November elections, and potentially a way to differentiate Clinton from Trump’s chameleon-like banter on the topic of unconventional gas development and energy policy more broadly.



Natural gas will certainly be an important component of the US energy mix for several decades, but if its use for electricity and/or heating is expanded substantially, this will lead to capital investments that will not easily be abandoned or reversed. Increasing use of natural gas would serve more readily to increase the opportunity costs for making a shift to renewables than to facilitate that move. I have yet to hear a convincing argument for how unconventional gas could actually function as a true 'bridge'; at best it is an e-cigarette. Nevertheless, an e-cigarette still might be better than unfiltered, hand-rolled tobacco for a world addicted to energy consumption.

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