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# AC

## Interps

1. Presume aff- environmental protection is presumed intrinsically valuable because it’s a good accessible to everyone, whereas resource extraction benefits the few. This provides a substantive reason to presume, which precedes theoretical reasons because there’s a degree of offense left in the round.

**2.** The negative must accepts the aff’s choice of paradigm and theoretical paradigm- that refers to the role of the ballot, ability to fiat and implement a plan, and choose paradigm issues on theory provided they are bidirectional.

**A.** AFC preserves 100% of the 1AC because I'm forced to speak first and define a starting point for debate, so changing the framework moots 6 minutes of AC offense. Framework contestation makes the 1AC meaningless because the question is now what we should be debating about. Moreover, switch side debate solves and link turns his offense- afc creates a permanent space for framework exploration and inculcates multiple perspectives by forcing debaters to debate under different frameworks. It increases depth and clash by bracketing discussion to issues under a framework, as opposed to between frameworks. Ground is key to fairness because equal access to offense determines access to the ballot.

**B.** There are multiple legitimate interpretations of the topic and the aff goes into the round blind. I had to choose between mutually exclusive interps and the neg can always read T so don’t punish me for having to set grounds.

I can’t read T on the neg and the NC is reactive, so he can always pick a strategy that adapts to meet my AC and give him a shot at winning the round. Giving me paradigm choice ensures the neg will only read theory or T when comfortable winning their interp, regardless of the framework for evaluating T or its impact. Bidirectionality solves since I’m reciprocally constrained- I can’t explode it in the 1AR. Side bias impact turns neg fairness arguments- I should be compensated for a built in skew.

## FW

Oxford Dictionary[[1]](#footnote-1) defines should: **used to indicate obligation**, duty, or correctness, typically when criticizing someone's actions: *he should have been careful* | *I think we should trust our people more* | *you shouldn't have gone*. so I value morality. **The standard is maximizing life!!!!**

1. Actor Specificity. The text of the resolution questions government action, for which there is no act-omission distinction Sunstein[[2]](#footnote-2):

In our view, any effort to distinguish between acts and omissions goes wrong by overlooking the distinctive features of government as a moral agent. If correct, this point has broad implications for criminal and civil law. Whatever the general status of the act/omission distinction as a matter of moral philosophy,the distinction is least impressive when applied to government, because the most plausible underlying considerations do not apply to official actors.  The most fundamental point is that **unlike individuals, governments always** and necessarily **face a choice** between or **among possible policies for regulating third parties.** **The distinction between acts and omissions** may not be intelligible in this context, and even if it is, the distinction **does not make a morally relevant difference.** Most generally, government is in the business of creating permissions and prohibitions. **When it explicitly or implicitly authorizes private action, it is not omitting to do anything** or refusing to act. **Moreover, the distinction** between authorized and unauthorized private action – for example, private killing – **becomes obscure when government formally forbids private action but chooses a set of policy** instruments **that do not adequately** or fully **discourage it.** If there is no act-omission distinction, then government is fully complicit with any harm it allows, so decisions are moral if they minimize harm. All means based and side constraint theories collapse because two violations require aggregation.

This means some side constraint will always be violated, so the government should minimize violations. Life comes first because its instrumental to pursuing all other aims, so policies that effect life come first. This:

**A.** No links indicts of the standard- policymakers act in cases of uncertainty without full knowledge of every consequence or implication in the universe but are always obligated to act. Desirability and pain and pleasure are irrelevant since life comes first. **B.** Preempts is/ought fallacy and empirical constraints- generally speaking countries should and do act to promote overall wellbeing- constraints only exist because a pattern of consistency maximizes well being overall- defense proves my framework is more probable. **C.** Pure reason generates broad stroke guidelines that fail to account for complexities in public policies and experience based factors that alter normative conclusions. **D**. Coopt constitutivist appeals to the nature of agency- I change the focus from individuals to the collective body of rational willers- to be a state just is to maximize life**. E.** Morality by very nature is a guide to action, it has to provide a normative structure that generates prohibitions or obligations on action for individual agents or else it would be meaningless. Generic deflationary arguments have no impact, since the government always has to act, so on a substantive level, skepticism, permissibility, or the inability to prioritize are excluded.

2. Epistemology- Non-natural theories are epistemically inaccessible. Papineau[[3]](#footnote-3)

Moore took this argument to show that moral facts comprise a distinct species of non-natural fact. However, **any** such **non-naturalist view of morality faces immediate difficulties,** deriving ultimately from the kind of causal closure thesis discussed above. **If all physical effects are due to a limited range of natural causes, and if moral facts lie outside this range, then it follow that moral facts can never make any difference to what happens in the physical world** (Harman, 1986). At first sight this may seem tolerable (perhaps moral facts indeed don't have any physical effects). But it has very awkward epistemological consequences. For beings like us, **knowledge of the spatiotemporal world is mediated by physical processes involving our sense organs and cognitive systems. If moral facts cannot influence the physical world, then it is hard to see how we can have any knowledge of them.**

That commits us to maximizing expected well being. Naturalism says goodness judgements are relative to the life form, because the life form explains the standard of evaluation for a good object and explains why objects satisfy the standard. It’s no accident that objects who are subject to the form satisfy the form, just like it’s no accident for a dog to have four legs. This is only true if the life form perpetuates it self, since that ensures it’s no accident the form satisfies the standard to be of the form. Species must act in a accordance with it’s perpetuation, so we should maximize life.

## Inherency

China’s on the brink due to water stress - Fracking causes severe water shortages and pushes us over. Franco[[4]](#footnote-4) ‘13

China has become one of Asia's leaders in expanding unconventional shale-gas extraction in the name of energy self-sufficiency and national autonomy. Experiences of “fracking” worldwide, however, suggest the costs to China of joining this revolution will be loss of control of natural resources and land to major corporations, with negative social and environmental consequences for many communities.  Rising oil prices, concerns about “peak oil” and growing public awareness of environmental depletion have made diversification of energy sources in a “sustainable” manner an urgent worldwide priority for governments and corporations.  In this context, unconventional natural gas is increasingly hailed as a triple win in terms of energy self-sufficiency, economic development and environmental benefits. Extracted through a newly applied use of hydraulic fracturing technology more commonly referred to as “fracking”, it is promoted by the gas industry as a route to lower greenhouse gas emissions – a “transition fuel” that can bridge the shift from a fossil-based economy towards a renewably powered future.  Unconventional gas exploitation has also been embraced by the US as a potential solution to energy insecurity and a geopolitical “game changer”. **China’s shale gas reserves “largest in world”** China has enthusiastically joined this scramble and emerged as an Asian pioneer of unconventional shale gas production,[describing it](http://www.chinadaily.com.cn/cndy/2012-07/16/content_15583281.html)as “a ‘revolution’ to increase domestic gas supply, improve the energy mixture and protect energy security”. The government has[set a target](http://www.globaldata.com/PressReleaseDetails.aspx?PRID=214&Type=Industry&Title=Mining)for the industry to pump 229 billion cubic feet of natural gas from underground shale formations a year by 2015; and by 2020, the nation's goal is for shale gas to provide[6% of its energy needs](http://news.nationalgeographic.com/news/energy/2012/08/120808-china-shale-gas/). Fracking has particular appeal for Chinese policymakers, because of the size of the country’s gas reserves. A recent report by the Ministry of Land and Resources claims China holds the[largest onshore shale gas reserves in the world](http://www.worldenergyoutlook.org/goldenrules)at around 4,800 trillion cubic feet, lying mainly in the Sichuan and Tarim Basins in southern and western China. This would, it is argued, free China’s growth from a key Achille’s heel – its[reliance on imported energy](http://oilprice.com/Energy/Natural-Gas/Its-Official-China-Embraces-Oil-Shale-and-Fracking.html).  The government is also determined to support the sector’s development, because it seemingly provides a way to reduce the national carbon footprint, as[70% of the nation’s consumed energy](http://www.eia.gov/countries/cab.cfm?fips=CH)is currently supplied by burning coal.  However, **Chinese fracking “know-how” is meagre**. As a result, China has encouraged energy companies China National Petroleum Corporation (CNPC), China Petroleum and Chemical Corporation (Sinopec) China National Offshore Oil Corporation (CNOOC) to form partnerships with foreign oil companies. Chesapeake Energy, ExxonMobil, BP, Chevron and Total have all embarked on multi-billion dollar deals, while Shell has announced a shale gas[joint venture with CNPC](http://news.nationalgeographic.com/news/energy/2012/08/120808-china-shale-gas)to operate a 3,500 square-kilometre concession in the Sichuan Basin.**This state**-foreign capital alliancenotably **lacks** anyreal **environmental law protection** in spite of the proven risks from the US and elsewhere. The risks are directly linked to the technology and its application.**Risks of fracking Fracking** is a multi-stage process that **involves drilling** 3-6 kilometres **below the** Earth’s **surface** **through underground freshwater sources to reach shale or coal** bed formations; then drilling horizontally for up to 2 kilometres and blasting a series of fractures to create fissures to release natural gas trapped in the deep rock formations; before finally bringing the deposits up to the surface through high-pressure injection of frac fluid (water, sand and toxic chemicals) into the drilling well. Each stage entails considerable risks. **Cement-casing failures** may **allow** [methane and other **hazardous chemicals**](http://www.nicholas.duke.edu/cgc/pnas2011.pdf)**to migrate to water** sources and water wells. The **fracking inputs contain** known **carcinogens and air pollutants,** which can leak into ground and surface water during the fracking process. **BTEX compounds** such as benzene, toluene, xylene and ethylbenzene, **notorious****for** their harmful **effects** **on the central nervous system, have been found in** hydraulic **fracturing** products used in the US between 2005 and 2009.**Water contamination can result** from accidental **spills during** truck **transportation**, **leakages** through cracked or corroded cement casing of the wells, or as fugitive gas through the rock fractures themselves. Wastewater, known as “produced water”, poses serious risks. **For every million gallons of** chemical-laced frac fluid **injected** down the drill wells, 20-**40％ will** be **regurgitate**d back **to the surface, bringing** with it: **chemicals**, traces of oil-laced drilling mud, and **all** the **other toxic substances** previously **trapped in the rock**– such as iron, chromium, salt, and radioactive materials including Radium 226. Most water **treatment** **facilities** today **are not designed to handle fracking** wastewater. As a result, **much** of it **ends up** sitting in large ponds and eventually[**entering rivers and streams**](http://www.massivemagazine.org.nz/blog/2012/03/19/fracking-the-deeper-you-dig-the-darker-it-gets)**.** Meanwhile, **fracking can** also **cause earthquakes**, as happened in Lancashire in the United Kingdom and Oklahoma and Arkansas in the US. (See[TNI’s full briefing on fracking](http://www.tni.org/briefing/fracking-and-global-land-grab)).**Not enough water** All of this casts doubt on the seemingly “transitional” and “cleaner” aspect of the Chinese **fracking** boom. The boom is most likely to breathe new life into the corporate oil industry's constant search for new avenues for profit, and it **will undermine** the **Chinese** people’s **possibilities for control of resources and their environment**. One issue in China perhaps highlights this more than any other, and that is the way **fracking will exacerbate “water grabbing**”. To achieve the target of 229 billion cubic feet of shale gas will require no less than[485 million cubic feet of water](http://english.caixin.com/2012-11-20/100462881.html). Yet, according to the same source, “most of the nation's **shale gas lies in areas plagued by water shortages**”. **A recent drilling test** operation in Northern Shaanxi Province **encountered complications**, forcing local officials to temporarily cut a nearby city's water supply. **These risks are** all the more **threatening** **in a country** that **already faces major water stress**. China's embrace of fracking may seem attractive on the surface, but its darker consequences are already becoming obvious. Handing over power to determine how land and water is used and how the environment is managed to fracking corporations and their quest for profit is not a path to a sustainable and liveable future for China's citizens.

Proves harms, inherency, and topicality- plan is an instance of conflict in the res.

## Advantage 1: Water Wars

This threatens the survival of Chinese citizens – *China’s on the brink and shale-gas extraction pushes us over.* Economist[[5]](#footnote-5) ‘13

CHINA’S emperors regarded control over water as one of the principal ways of controlling the country. They poured their kingdom’s resources into vast projects such as the Grand Canal between Beijing and Hangzhou, which was finished in about 500AD. The country’s Communist leaders have inherited this passion. Eight of the nine members of the previous Politburo’s standing committee were engineers and a former president, Hu Jintao, was a water engineer. The country has built as many large dams as the rest of the world put together. The Grand Canal now forms a link in one of the biggest engineering projects the world has ever seen, whose first stage is due to open by the end of this year. It goes by the unlovely name of the South-North Water Diversion Project (see[article](http://www.economist.com/news/china/21587813-northern-china-running-out-water-governments-remedies-are-potentially-disastrous-all)). If it is ever finished it will move water along 2,000 miles of new canals, some of them across the Himalayan plateau, from the Yangzi in the south to the Yellow River in the north, at a cost of more than $50 billion. Unlike some of China’s recent infrastructure extravagances, the diversion project addresses a serious problem. **China is dangerously short of water**. While the south is a lush, lake-filled region, **the north**—which has half the population and most of the farmland—**is** more **like a desert**. **The international definition of water stress is 1,000 cubic metres** of usable water per person per year. **The** average northern **Chinese** **has less than a fifth of that** amount. China has 20% of the world’s population but only 7% of its fresh water. A former prime minister, **Wen Jiabao**, once **said water shortages** **threaten “the** very **survival of the** Chinese **nation**”.The shortage is worsening because China’s **water is disappearing**. **In the 1950s the country had 50,000 rivers** with catchment areas of 100 square kilometres or more. Now the number is down to 23,000. **China has lost 27,000 rivers**, mostly **as a result of** over-exploitation by **farms or factories**.Water shortages impose big costs. China is hoping for a shale-gas revolution but does not have enough water for it since most of the gas reserves are in the driest parts of the country. **The World Bank puts the cost of China’s water problems**—mostly damage to health—**at 2.3% of a year’s GDP**.**Right problem, wrong solution** China clearly needs to do something—but not the South-North diversion project. Aside from the massive cost, the two rivers involved have very different ecosystems and taking water from one to the other could do irreparable environmental harm. The bits that have been finished already have killed many organisms. China’s vast engineering projects could also hurt its neighbours. The diversion scheme is just one of several proposals for the rivers of southern China, including the upper reaches of the Brahmaputra and Mekong, which could affect a billion people who live downstream. And all those projects would increase the amount of water in China by only a few percentage points.The government is approaching the water problem from the wrong end. **Damming or diverting rivers tackles only supply**—increasing available water by capturing more of what flows through rivers or by moving water from one river to another. **The government would do better to focus on demand**, reducing consumption of water in order to make better use of limited supplies. Water is too cheap in most cities, usually costing a tenth of prices in Europe. Such mispricing results in extravagance. Industry recycles too little water; agriculture wastes too much. Higher water prices would raise costs for farms and factories, but that would be better than spending billions on shipping water round the country. Development plans should also be rewritten with an eye to the shortage. China is building cities of a million people in the Gobi desert. That makes no sense. The government should stop boosting demand for water in places that have none. China should also fine polluters. According to the land ministry, more than half the groundwater in northern China is too dirty for people to wash in, let alone drink, and some is so poisonous it cannot even be used in the fields. Reducing pollution would not just improve Chinese people’s health, but would also do more than building any number of dams to increase available supplies of usable water. China’s engineers have performed amazing feats in the course of its development. But the water problem is best solved by its economists and environmental regulators.

Fracking uses immense water and makes it toxic – requires massive infrastructure disruption. Gustafson[[6]](#footnote-6) ‘13

So, with fracking, at what cost is sovereignty pursued? **Fracking** uses immense amounts of water, **requires infrastructural disruptions** across vast landscapes, and produces toxic ‘frack water.’ **In** the dry lands of northern and southern **Argentina**, misallocation of water borders on a criminal act. And, while Fernández and Kicillof meet cheering urban crowds, **energy** sovereignty **relies on a**n extractive **project** **that** **turns** rural regions and **indigenous territories into zones of “**[**national sacrifice**](http://www.opsur.org.ar/blog/wp-content/uploads/2012/05/Zonas-de-sacrificio-impactos-de-la-industria-hidrocarbur%C3%ADfera.pdf).” Rather than popular sovereignty, energy independence starts to sound much like what we hear in the United States: more fossil fuels to fuel the economic system. And increasingly, the Southern Cone, Brazil, and much of Bolivia, are now at the epicenter of a coming fracking push, wholly[coherent with the United States' pro-fracking foreign policy](http://www.state.gov/s/ciea/ugtep/index.htm). Popular resistance to fracking is expanding, especially in Neuquén, where a multi-sectorial alliance of farmers, environmentalists, and Mapuche organizations are mobilizing in the courts and in the streets. The[Observatorio Petrolero del Sur](http://www.opsur.org.ar/blog/)and[Argentina Libre de Fracking](http://www.argentinalibredefracking.org/)are spearheading the struggle by[informing the public](https://www.youtube.com/watch?v=i9MOISFiAP4). These organizations are demanding alternative economies, energies, and ecologies. Their key question: “For whom and for what are we producing energy?”

Shale won’t develop in Chin. The comparison is no longer fracking versus no fracking- it’s try or die aff, three warrants. McMahon[[7]](#footnote-7) ‘13

**In the U**nited **S**tates, **shale** gas **plays** **have been located near** the **pipelines and terminals** needed **to bring** the **gas to market**. **The U.S. has** a very vast and **well-built** midstream **infrastructure**,” Said Andrew Walberer of the management consulting firm A.T. Kearney. “So wherever you find the stuff you can get it to where it needs to go, and a lot of other countries don’t have the midstream infrastructure already in place that we have.” China has the world’s largest reserves of shale gas, according to [Scientific American](http://www.scientificamerican.com/article.cfm?id=china-slow-to-start-fracking-for-natural-gas-in-shale" \t "_blank), but **China is expected to develop** them **slowly** **because it lacks** the **infrastructure to deliver** the **gas**.**5. Water** Drillers fracture shale by penetrating it horizontally, then injecting water, laced with chemicals, under high pressure. The shale shatters, and the gas escapes up the well. The water acquires additional pollutants, including [radioactive elements](http://www.forbes.com/sites/jeffmcmahon/2011/08/03/fracking-radiation-targeted-by-doe-ge/" \o "Fracking Radiation Targeted By DOE, GE" \t "_blank), and much of the polluted water remains underground.“A lot of these unconventional resources—pick a place, maybe **China**—are in populated areas where **water is at a premium**,” said Beck, “and that is one of the things that **you need a lot of to do hydraulic fracturing:** water. So you’ve got to think about where you’re going to get the water.” **6. Expertise**Hydraulic fracturing developed in the United States in the 1990s, and experts in fracturing technology and shale geology developed with it. Flying those experts to Romania or Poland increases the cost of shale development in a world market where gas development is no longer so profitable, said Statoil’s Poncet. **Expertise is** so **concentrated in the U**nited **S**tates, Poncet and Walberer said, that experts would have to be taken off of jobs in the U.S. for resources to be developed abroad“To put a geologist in China you’ve got to take him or her off of some other project somewhere else which may have a low risk profile, like in the U.S.” Walberer said.And geologists are in high demand because each shale formation presents drillers with unique challenges.“There was a huge concern when the Chinese became very active here in the states around the issue of **technology transfer**,” said Kipp of Wells Fargo. But ”the ability to transfer that from [Eagle Ford](http://en.wikipedia.org/wiki/Eagle_Ford_Formation" \t "_blank) **to** a **shale** formation **in China is** pretty **difficult** to do.”

China water scarcity breaks down global stability – multiple warrants. Arvig[[8]](#footnote-8) ‘13.

As with any massive global issue, the first step is always to increase our own awareness of what is causing the problem. Similar to our global water shortage issues, **the water crisis in China is due** in large part **to uneven distribution and fresh water concentration**. This is becoming further **complicated by rapid economic development that demands the use of more water**, and by many accounts, poor environmental practices. Some blame this combination of factors on the fact that China has recently run more than 28,000 rivers dry. The Chinese government is responding by attempting to reallocate fresh water from areas of plenty to areas of need. While distribution of resources is a key driver in China’s water crisis, the issues are made too complex by everything from geography to competing interests to make this a viable solution. The New York Times reports: Beijing has placed its faith in monumental feats of engineering to slake the north’s growing thirst. The South-North Water Transfer eventually aims to pipe 45 cubic kilometers of water annually northward along three routes in eastern, central and western China. All three pose enormous technical challenges: The eastern and central routes will be channeled under the Yellow River, while the western route entails pumping water over part of the Himalayan mountain range. The estimated cost of $65 billion is almost certainly too low, and doesn’t include social and ecological impacts. Construction has already displaced hundreds of thousands, and issues the like possible increases in transmission of water-borne diseases have not been properly studied. But Beijing’s calculus is political: It is easier to increase the quantity of water resources, at whatever cost, rather than allocate a limited supply between competing interests. Metals & Mining Contributing to China Water CrisisAs for the competing interests at play, industries from farming to mining are seated alongside the health and well-being of the Chinese people. And there simply isn’t enough water to support them all. Beyond the impact to China, here is why the rest of the world needs to be just as terrified: **As one of the largest mining nations, disruptions in** the **water** supply in China **could significantly impact Chinese mining** efforts **increasing prices of goods throughout the world** **China supplies** nations including **India and Pakistan with** drinking **water**, **meaning** the **supplies of these nations are** also **at risk, which could lead to dangerous instability** in this part of the world **Water shortages could limit the ability of** the **Chinese people to cultivate** enough **food to sustain their own population**, **which could contribute to a** future **global food crisis**

Brink is now – Tensions between India, China, and Pakistan over water access is reaching a critical point now. Memon[[9]](#footnote-9) ’14

**India,** as both an upper and lower riparian country, **finds itself in dispute with downstream neighbours, Pakistan** and Bangladesh, **which accuse it of attempting to dominate water flows. India fears the same of upstream China, which plans extensive dam-building projects** over the Tsangpo River that flows into eastern India. The construction of Baglihar Dam by India in the disputed Kashmir region has triggered fierce opposition from Pakistan, which sees it as an effort to threaten, withhold and divert its rightful share of water. The view is that **the Baglihar Dam creates a reservoir on a river coming into Pakistan and enables Indian control over the headwaters of the Indus, making Pakistan water dependent. The cumulative effect of the** Baglihar **Dam and other** similar **projects could give India the ability to store enough water to limit the supply to Pakistan at crucial times during the monsoon season.** Therefore, these dams remain a source of significant tension.

Water Scarcity in China leads to civil unrest and South-East Asian water wars. Brooks[[10]](#footnote-10) ‘07

If China continues to overexploit its scarce water resources a serious water crisis looms in its future, which could even set off consequences for the rest of the world. **As the North continues to rely more heavily on water that comes from the South, regionally conflicts over water could erupt**. In addition, **competition between sectors for water supply could develop into something more violent and cause serious civil unrest**. **The Qinghai-Tibetan Plateau is the source of rivers that reach India**, Bangladesh, Burma, Bhutan, Nepal, Cambodia, **Pakistan**, Laos, Thailand, and Vietnam. **When China begins to run out of water**, **it may** try to **hoard the remaining water supply** for its own people, **thereby diverting water that would have reached these countries** in South and Southeast Asia. **Many of these countries, specifically India, are already facing their own severe water crises, which will only be exacerbated** if China diverts rivers that would have delivered much needed water.

**Having extensively contaminated its own major rivers** through unbridled industrialization, **China now threatens the ecological viability of river systems tied to South and Southeast Asia** in its bid to meet its thirst for water and energy. Both diverting water that would have flowed to other countries and **allowing increasingly polluted water to run through other countries has already angered neighboring countries and will continue to do so**. **Political relations could be further strained by massive migration of people from regions facing severe water shortages that could spill over into other countries.** In fact, many analysts argue that **the oil wars of the 20th century will be replaced by water wars in the 21st century.**

Water disputes can go nuclear. Zahoor[[11]](#footnote-11) ‘12

**The failure of diplomacy**, manipulation of IWT provisions by India **and growing** water **scarcity in Pakistan and its** social, political and economic **repercussions** for the country **can lead both** the countries toward a **war**. **The** existent **A-symmetry between** the **conventional forces** of both the countries **will compel the weaker** side **to use nuclear weapons** to prevent the opponent from taking any advantage of the situation. Pakistan's nuclear programme is aimed at to create minimum credible deterrence. **India** has a declared nuclear doctrine which **intends to retaliate** **massively in case of first strike** by its' enemy. In 2003, India expanded the operational parameters for its nuclear doctrine. Under the new parameters, it will not only use nuclear weapons against a nuclear strike but will also use nuclear weapons against a nuclear strike on Indian forces anywhere. Pakistan has a draft nuclear doctrine, which consists on the statements of high ups. Describing the nuclear thresh-hold in January 2002, **General** Khalid **Kidwai**, the head of Pakistan's Strategic Plans Division, in an interview to Landau Network, said that **Pakistan will use nuclear** **weapons in case** India occupies large parts of its territory, **economic strangling by India**, political disruption and if India destroys Pakistan's forces. The analysis of the ambitious nuclear doctrines of both the countries clearly points out that **any military confrontation** in the region **can result in a nuclear catastrophe.** The rivers flowing from Kashmir are Pakistan's lifeline, which are essential for the livelihood of 170 million people of the country and the cohesion of federative units. The failure of dialogue will leave no option but to achieve the ends through military means. The only way to discard the lurking fear of a nuclear cataclysm is to settle all the outstanding disputes amicably through dialogue. The international community has a special role in this regard. It should impress upon India to initiate meaningful talks to resolve the lingering Kashmir dispute with Pakistan and implement the water treaty in its letter and spirit. The Indian leadership should drive out its policy towards Pakistan from terrorism mantra to a solution-oriented dialogue process. Both the countries should adopt a joint mechanism to maximize the utility of river waters by implementing the 1960 treaty, Besides negotiations with India, Pakistan should start massive water conservation and management projects. The modern techniques in agriculture like i.e. drip irrigation, should be adopted. On the other hand, there is a dire need to gradually upgrade the obsolete irrigation system in Pakistan. The politicization of mega hydropower projects/dams is also a problem being faced by Pakistan, which can only be resolved through political will.

Extinction. Hogan[[12]](#footnote-12)

In the fall of 1983, a group of scientists led by Carl Sagan introduced a new strain of apocalyptic discourse into the freeze debate: the rhetoric of nuclear winter. Simply stated, the theory of nuclear winter held that **even a small exchange** of nuclear weapons—on the order, perhaps, of 500 of the world’s 18,000 nuclear—**would throw so much** dirt, **soot,** and smoke **into the atmosphere that the earth would be plunged into** darkness and subfreezing temperatures, a **“winter” lasting long enough to create** “a real possibility of the **extinction** of the human species” Unlike doomsday scenarios that preceded it, **the theory of nuclear** weapons **winter was based upon “extensive scientific studies**,” and it had been “endorsed by a large number of scientists.”

## Advantage 2: Air Pollution

Fracking is causing major air pollution and comparatively worse. Coleman[[13]](#footnote-13) ‘13

The Mullers’ article, titled …  has met with massive protests. The Mullers’ article, titled[**“Why Every Serious Environmentalist Should Favour Fracking,”**](http://www.desmogblog.com/2013/12/16/new-major-frackademia-report-co-written-converted-climate-skeptic-richard-muller)posits that fracking China’s shale would allow China to burn more natural gas. Muller claims this would decrease dangerous levels of air pollution caused by coal. Muller is specifically concerned about PM2.5, air pollutants that are less than 2.5 micrometers in diameter, small enough to penetrate deep into the lungs. PM2.5 is a serious and deadly problem in China and the developing world. However, Chinese energy experts like[**Greenpeace’s Lifeng Fang**](http://thinkprogress.org/climate/2013/04/17/1878501/as-china-addresses-its-airpocalypse-coal-exporters-fear-loss-of-another-market/)do not agree that burning fossil fuels like gas are a solution. In response to the Mullers’ paper, Lifeng Fang commented:“Burning coal is the biggest source of air pollution in China, the country is still highly dependent on coal. China must stop the coal rush, by cutting excessive capacity from the steel and cement industries. Renewable Energy is the proven solution for China for sourcing clean energy without air pollution, CO2 emission and intensive water use. But, shale gas is not even the transition energy for China.” People living near fracking operations would be surprised to learn that fracking was beneficial to air quality. **In Colorado, the industry** recently[**admitted that fracking caused serious air quality problems.**](http://greenpeaceblogs.org/2013/11/19/colorado-fracking-companies-admit-to-major-air-pollution-problem-emissions-rules-proposed/)In areas of Colorado with shale drilling and fracking, the air quality is as bad as Los Angeles, twice the level that federal regulators say should exist. **Families** in Colorado **have been**[**uprooted and forced to move from shale drilling areas**](http://www.ncbr.com/article/20130125/NEWS/130129943/-1/oilnaturalgas)because of health concerns. In fact,[**levels of PM2.5 have skyrocketed in Colorado**](http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1439), due to the tens of thousands of diesel tractor trailers necessary to service fracking sites. The Mullers never addresses this in the paper. The Muller paper also gives schizophrenic answers to the problem of climate change. Muller oscillates from claiming that global warming is “a serious long term threat” and that gas “can help address the global warming issue” to claiming that gas “will not halt global warming.” **Studies on** the greenhouse impact **of** methane, **the primary component of gas, have shown it to be up** to[**105 times as powerful as CO2**](http://www.stanford.edu/group/efmh/jacobson/Articles/I/NatGasVsWWS&coal.pdf)**at trapping heat** in the atmosphere. Furthermore, scientists have theorized that fugitive **emissions** of methane **from fracking wells could make gas worse than**[**coal**](http://ecowatch.com/category/news/energy-news/coal-mining-pollution/)**pollution for the climate**. A study in the Uintah basin in Utah found gas wells leaking[**up to 60 tons of methane per hour**](http://www.sltrib.com/entertainment/nightlife/sltrib/news/56692751-78/basin-carbon-emissions-gas.html.csp). When the entire lifecycle of gas is taken in to account, including the gas used for chemical feedstocks, as a recent report by the[**Environmental Integrity Project**](http://www.environmentalintegrity.org/news_reports/documents/FINALGHGReport20131205.pdf)has done, it becomes clear that **shale gas and fracking pose serious threats to the climate system**. The Mullers’ paper calls the issue of fugitive emissions and their global warming impact “mistaken,” because methane does not stay in the atmosphere as long as CO2. However, the Mullers do not address the fact that **continued increases in shale drilling and fracking lead to expanding levels of methane lo**ss, thereby **providing a constant stream of methane into the atmosphere for years to come.** The report was commissioned by the Centre for Policy Studies, a think tank started by Margaret Thatcher and based in the United Kingdom. The Centre for Policy Studies, which is[**funded in part by tobacco corporations**](http://legacy.library.ucsf.edu/tid/ubw30a99/pdf?search=%22centre%20for%20policy%20studies%22), is known for its conservative, pro industry politics. The Centre has been a key booster of fracking in the United Kingdom, where drilling has met with[**massive protests.**](http://www.greenpeace.org.uk/blog/climate/don%E2%80%99t-want-your-home-fracked-just-say-no-20131014)

Alts exist- nonuniques disads. O’Neill[[14]](#footnote-14) ‘13

**Opponents** of the agreement **have** three major **concerns**: potential environmental harm, **the failure to consult the Mapuche indigenous nation** that lives on the land destined for fracking, and the Argentine government’s ability to oversee and control Chevron’s activities in the country. [**Fracking has the potential to release methane gas into the air and dangerous chemicals into drinking wate**r](http://www.nrdc.org/energy/gasdrilling/), opponents say. Mauro González, of the Center for Argentine Growth and Development, says the concerns are unfounded. “Only the newest technology will be used in Vaca Muerta,” he says, “which guarantees that it will be very environmentally-friendly.” Regardless of whether that’s true, says Jonatan Baldiviezo, of the Argentine Association of Environmentalist Lawyers, the government has a constitutional mandate to release a full environmental impact statement for public debate before launching new industrial ventures on public land. So far, it has failed to do so. “They don’t want to,” he says, because “they don’t want to make public the quantity of chemicals they use and what chemicals those are.” Furthermore, opponents add, **no one consulted the Mapuche of** southern **Argentina** about the agreement. Under both the Argentine Constitution and international treaties Argentina has signed, the Mapuche not only have the right to consultation but also need to give their consent before any industrial activity that would modify their way of life takes place on their land. Mapuche activists say they’re unlikely to grant consent. “It’s not just the land they are taking,” says Lautaro Nahuel, of the Mapuche Confederation of Neuquén. “All the natural life in this region is interconnected. Here, they’ll affect the Neuquén River, which is the river we drink out of.” Finally, opponents are concerned about the government’s ability to oversee and control Chevron’s activities. Diego Di Risio, of the Petroleum Observatory, says that the government is creating new judicial bodies through which the oil companies will be able to influence government policy. So “it won’t be the state that determines if part of the profits have to be invested in social causes, what the best environmental practices are, and what taxes the company should pay,” he says, “but rather the state and the company together.”Environmentalists point to renewable energy as a better way to address Argentina’s energy crisis.[One recent study](http://asamblea-ambiental.blogspot.com.ar/2013/07/fracking-vs-energia-eolica.html)found that generating **wind energy in Argentina would** require about **the same investment** as fracking **and** would **offer a faster rate of return**. Contrary to proponents’ claims, fracking will involve investment by the taxpayers, Diego Di Risio says. For example, the government of the Neuquén Province has agreed to build new aqueducts to provide the water necessary for fracking. Di Risio adds that **renewable energy production would create more jobs than** oil **extraction and** that **reduced energy usage and increased** energy **efficiency should accompany renewable** energy **exploitation**. Environmentalists plan to oppose fracking on many fronts. Some municipalities have begun to outlaw the practice, but the national government says those moratoriums are illegitimate, because the national government controls energy policy and natural resources belong to the provinces.

Fracking causes public health concerns – turns the econ neg and outweighs. Barth[[15]](#footnote-15) ‘13

**Potential public health costs should be reflected in a thorough economic assessment. Multiple researchers have discussed** potential**negative health impacts that may result from water and air contamination. Various chemicals used in [fracking] hydraulic fracturing include carcinogens and endocrine disruptors, which are related to serious diseasesand birth defects, both involving significant costs**. **Bamberger and Oswald [59], Schmidt [60], Weinhold [61], and McKenzie, Witter, Newman, and Adgate [62] have investigated health impacts.**In the case of humans, **such costs can be estimated by measuring health services costs related to specific diseases and the loss of life and decreases in life expectancy.**In the case of domestic and farm animals, values may be assigned based on market prices. All these health costs should be estimated using probabilities based on the likelihood of contamination by the various pathways.

Pollution causes mass suffering and death. Sharma[[16]](#footnote-16) 08

**One of the greatest challenges facing humanity is environmental degradation**, including deforestation, desertification, pollution, and climate change – an issue of increasing concern for the international community. Environmental degradation increases the vulnerability of the societies it affects and contributes to the scarcity of resources. Climate change will lead to an increase in the intensity and frequency of weather extremes, such as heat waves, floods, droughts and tropical cyclones. The people hardest hit by climate change and environmental degradation are those living in the most vulnerable areas, including coastal communities, small island nations, Sub-Saharan Africa and Asian delta regions. It is the poorest of the poor, who lack the resources to prepare, adapt and rebuild, that are most affected. Environmental degradation can lead to a scarcity of resources, such as water and farmable. Extreme weather events, such as severe flooding, increase the spread of waterborne diseases, such as malaria and diarrhoea. The effects of the major environmental problems on both health and productivity are: a. Water pollution and water scarcity: As per the estimation of UN,**more than two million deaths and billions of illnesses a year are attributable to water pollution. Water scarcity compounds these health problems.Productivity is affected by the costs of providing safe water, by constraints on economic activity caused by water shortages, and by the adverse effects of water pollution and shortages on other environmental resources** such as, declining fisheries and acquifer depletion leading to irreversible compaction. b. Air pollution: As per the estimation of UN, urban**air pollution is responsible for 300,000—700,000 deaths annually and creates chronic health problems for many more people. Restrictions on** vehicles and**industrial activity**during critical periods**affect productivity**, as does the effect of acid rain on forests and water bodies.

These impacts outweigh on duration and scope. Chen et al[[17]](#footnote-17) ‘13

This paper's findings suggest that an arbitrary Chinese policy that greatly increases total suspended particulates (TS**air pollution is causing the 500 million residents of Northern China to lose more than 2.5 billion life years** of life expectancy. The quasi-experimental empirical approach is based on China’s Huai River policy, which provided free winter heating via the provision of coal for boilers in cities north of the Huai River but denied heat to the south. Using a regression discontinuity design based on distance from the Huai River, we find that ambient concentrations of TSPs are about 184 μg/m3 [95% confidence interval (CI): 61, 307] or 55% higher in the north. Further, the results indicate that life expectancies are about 5.5 y (95% CI: 0.8, 10.2) lower in the north owing to an increased incidence of cardiorespiratory mortality. More generally, the analysis suggests that **long-term exposure** to an additional 100 μg/m3 of TSPs **is associated with a reduction in life expectancy at birth of about 3.0** y (95% CI: 0.4, 5.6).

## Advantage 3: Birth Defects

Fracking increases defects and infant health. Bricker[[18]](#footnote-18) ‘14

In his recent State of the Union address, President Barack Obama praised natural gas as “the bridge fuel that can power our economy with less of the carbon pollution that causes climate change” and vowed to “cut red tape” to help business invest in it. But**two studies** released this winter bolster long-held fears that the extraction process, hydraulic fracturing, or**[suggest] fracking, presents serious dangers for human health**—and**in particular, the** health of the**unborn. One of the studies** was conducted in Colorado, where some cities have sought a moratorium on fracking and industry has pushed back, by public health scientists from the Colorado School of Public Health and BrownUniversity. The central **find**ing is**a strong correlation between proximity to fracking wells and congenital heart defects**. As the number and nearness of wells to a pregnant woman’s home went up, so did the likelihood that her baby would develop a heart problem. Strikingly, “Births to mothers in the most exposed tertile [an exposure level equal to 125 wells within mile of the home] had**a 30% greater prevalence of CHDs** [congenital heart defects]…than births to mothers with no wells**withi n a 10-mile radius** of their residence.” The authors also saw some evidence that fracking wells upped the incidence of neurological defects, though only at high levels of exposure. They looked for a correlation with oral clefts, low birth weight, and premature birth, but did not find that fracking made them more likely. A **[Another] study** in Pennsylvania, another state rich in natural gas, had different but worrisome findings. (Authored by researchers from Princeton, Columbia, and the Massachusetts Institute of Technology, it is not yet peer-reviewed or publicly available but was presented in January.) As Mark Whitehouse of Bloomberg View wrote last month, “They**found that proximity to fracking increased the likelihood of low birth weight by more than half**, from about 5.6 percent to more than 9 percent. The chances of a low Apgar score, a summary measure of the health of newborn children, roughly doubled, to more than 5 percent.” Although fracking has frequently been linked to water contamination, Whitehouse notes that drinking chemicals does not seem to pose the greatest risk during pregnancy. “The researchers found similar results for mothers who had access to regularly monitored public water systems and mothers who relied on the kind of private wells that fracking is most likely to affect,” he writes. “Another possibility is that**infants are being harmed by air pollution associated with fracking activity**.” Miriam Rotkin-Ellman, a public health scientist at the Natural Resources Defense Council, points out that**prior studies have linked the** ambient**presence of chemicals released during** natural gas**extraction**,such as sulfur dioxide, nitrogen dioxide, and benzene,**to birth defects.**

This outweighs a) life-years- when lives come into conflict we ought to prefer those of infants since they have more years to live - provides a mechanism by which we compare loss of life, via the quality of life-years. b) duration – birth defects cause long-term systematic impacts throughout their lifetime instead of a singular instance of harm. And, society has the most important obligation towards them because of their dependency. Kittay[[19]](#footnote-19)

**Our neediness**, as well as**our ability to cooperate to fulfill needs and desires, is at the heart of community and all social organization.** Needs which political theorists have most often identified include protection of our person and property from violence and appropriation. Thomas Hobbes put the position most forcefully, but more liberal theorists also identify the need for protection and adjudication of conflicts as the source of social and political association.**Contractarianism**, arguably the received view in political philosophy,**posits ‘‘a social contract’’ by which we exchange a natural liberty for a political liberty—a liberty gained through securing the cooperation necessary for protection within** and of **communities**. Communitarians want to project a stronger base for com- munity, a desire for affiliation as well as the acquisition of material goods, a need for shared moral values as well as the protection of liberty and property rights. There is, however, another sort of necessity that is still more funda- mental and that issues in relationships with the most compelling bonds. This is the need that results from **[including] inevitable human dependencies**,14 that is,**from our dependency in our young years**, in our frail old age, during illness, or from significant impairment. At these times we need care, fre- quently total care, care so extensive that the people who care for us cannot attend to their own needs, their own requirements. The need to care for one person’s extreme dependence (e.g., the dependence of infancy) in- duces a dependency in the one who does the caring, the ‘‘dependency worker.’’ 15 The dependency worker requires others who will see to it that resources are available to meet the needs of both herself and the needs of her charge. She also needs assurance that when her care for another im- pedes her ability to care for or fend for herself, she can depend on another for sustenance and aid and that when she is unable to care for her charge another will. Although the one who cares for a very dependent charge will herself be more or less dependent on others given different social and economic circumstances, the**inevitable dependencies**that arise in hu- man life**always serve to join us each to one another.**We are connected through our own vulnerability when dependent and our vulnerability when caring for dependents, as well as through the potential of each of us to become dependent and to have the responsibility for a dependent. The bonds that form through relationships of dependency are fre- quently deep and count among those we most cherish.**No society can exist beyond one generation unless its youngest dependents survive and mature into adulthood, and no decent society can neglect those who become dependent during the years** that intervene between birth and death.16 Yet even as these dependencies**[that] form the basis of much social organization**, the inevitably dependent individual and those closest to her in the chain of dependencies are the most exposed members in a social order. Dependency work has traditionally been situated in the family. Com- munitarians, in citing the decline of the traditional two-parent hetero- sexual family in Western industrial nations, most especially in the United States, have lamented its dissolution precisely because the traditional nu- clear family is the site of a particular form of dependency work: care of children. (Historically, the family has been the site of every form of de- pendency work.) However, it is when women move out of the ‘‘private’’ sphere of the family that the dependency hidden from public view be- comes visible and is revealed as having the social dimension it has in fact always had. As women, within our own culture and within cultures every- where, are the ones most responsible for dependency work, they become vulnerable by virtue of their traditionally assigned labor. Within complex industrial, nonagrarian societies, that vulnerability is heightened by a social and economic structure that makes access to even basic resources dependent on access to income.17

## Plan Text

Plan text: The People’s Republic of China and the Argentine Republic should enact national bans on hydraulic fracturing.

## Solvency

Fracking is comparatively worse than conventional methods - environmental protection needed now. UPI[[20]](#footnote-20) ‘12

BEIJING, Nov. 28 (UPI) -- As China readies for the water-intensive process of hydraulic fracturing, or fracking, to tap into massive reserves of shale natural gas, concerns are rising regarding the country's already limited water supply. China has 25.08 trillion cubic meters of exploitable onshore shale-gas reserves, China's Ministry of Land Resources has said. But most of that gas lies in areas plagued by water shortages, says a report in China's Caixin newspaper.**To extract natural gas** from underground formations, **10 times more water is needed compared to** pumping equivalent amounts of **oil** and gas **from conventional wells**, said Bao Shujing, deputy director of Sinopec Petroleum Exploration and Development Research Institute's Department of Non-Conventional Energy Technology Support.As part of its current five-year economic plan, **China aims to produce 6.5 billion cubic meters of shale** gas a year by the end of 2015.To reach that production goal, 1,380 wells need to be drilled, **requiring** up to **13.8 million cubic meters of water**, an industry expert told Caixin. By contrast, **China's entire industrial sector uses** about **35 million cubic meters of water annually**.The World Bank says China's per capita water availability is only one-quarter of the world average.**This water deficit is** a **key** issue **for** the **development** of China's shale reserves says Lin Boqiang, an energy expert at Xiamen University."I think the reserves estimates aren't realistic, because without water how can you develop them?" he recently told the Financial Times.Contamination of underground aquifers is also a risk with fracking.Caixin reported an unnamed source at China's Geological Exploration Department as saying that as shale development increases, the Chinese government will likely introduce specific, shale gas drilling policies designed to protect the environment, particularly groundwater. Yet an industry source said those policies are unlikely to be legally binding. Even ahead of China's shale development, the Ministry of Environmental Protection says that groundwater in 57 percent of the country's 660 cities is significantly polluted. **Environmentalists have urged the** Chinese **government to put in place environmental standards** **for** the country's **shale** gas sector.Yang Fuqiang, a Beijing adviser on environment and climate change affairs for the Natural Resources Defense Council, warns that **such rules** to protect the environment **are needed now before drilling accelerates.**In the meantime, Beijing is trying to jump-start shale development.In its second auction for shale gas licenses last month, Beijing secured 152 bids from 83 companies. And earlier this month, the Chinese Ministry of Finance announced it was encouraging shale development by offering subsidies of $2.10 per cubic feet of production through 2015.

Assign disads zero percent risk- the US already is replacing the Middle East as a major exporter of LPG used in petrochemicals, transportation, and heating- that compensates for loss of domestic supply. Reuters[[21]](#footnote-21) ‘14

A deal between China's top refiner**[Sinopec](http://data.cnbc.com/quotes/688-SZ" \t "_self)**and**[Phillips](http://data.cnbc.com/quotes/PSXP" \t "_self)**could be a game changer that signals **the U**nited **S**tates **is on track to become** **one of the top suppliers** **of** liquefied petroleum gas (**LPG**) **to** the world's second-biggest economy. **China** is the biggest consumer of LPG, a compressed mix of propane and butane, used for heating and transport, and now increasingly being considered for making petrochemicals. As demand in China soars, **the U.S.shale boom has led to a surge in production** of LPG, **which is bringing down global prices and challenging established suppliers** in the Middle East.

Washington restricts exports of crude and has only slowly opening up liquefied natural gas shipments for energy security reasons, but there are no such limits on LPG sales. **Read More[Investors flock to energy partnerships in new shale play](http://www.cnbc.com/id/101552479" \t "_self)** China's first purchases of U.S. LPG were made last year, amounting to 3,530 barrels per day, according to Chinese customs' data, in deals done by little known private firms.But marking the entry of big oil **Sinopec** Corp **and** U.S. refining company **Phillips 66 struck a deal** last month to supply U.S. LPG for delivery likely to start in 2016 and put by traders at about 34,000 bpd worth around $850 million at current prices.Sinopec, China's top ethylene producer, is looking at using U.S. LPG for making petrochemicals due to cheaper pricing and shortages of the traditional feedstock naphtha, a product from processing crude oil. **Read More[Merkel: U.S. shale gas could help Europe diversify energy](http://www.cnbc.com/id/101514486" \t "_self)** "The U.S. shale boom could lead to a fresh way of developing China's petrochemical sector," said Mao Jiaxiang, deputy head of Sinopec's research arm, China Petrochemical Consulting Corp."We're evaluating the competitiveness of U.S. light-end feedstocks versus naphtha as a petrochemical feedstock," added Mao.**U.S. exports of LPG could** roughly **triple by 2020** from last year to around 635,000-795,000 barrels per day, energy consultancy FACTS Global Energy estimated.**China has lined up** about 100,000 bpd of **long-term U.S.** LPG **imports** with supplies mostly starting in 2015-16, including the Sinopec deal and otherwise mainly involving smaller firms, traders said. China's total LPG imports could reach half-a-million bpd by 2020, up nearly four-fold from last year and overtaking other key Asian importers such as Singapore and Indonesia, they said."The supply overhang of U.S.LPG...would put America in direct competition against the Middle East, vying for the China market," said Al Troner of Houston-based Asia Pacific Energy Consulting.**Middle East suppliers** such as Qatar,the United Arab Emirates and Saudi Arabia **together supplied 80 percent of China's** LPG **imports** of 132,000 bpd in 2013.**Petrochemical feedstock** China is the world's largest LPG consumer, using about 874,000 bpd, though the bulk of this is for heating or transport and only 5 percent is used in the petrochemical sector.Most of China's own LPG supplies come as a by-product in refineries and normally contain olefins containing coke that can create unwanted residue in steam crackers that makes it more dirty and expensive to use as a feedstock for petrochemicals. LPG from gas fields contains no olefins.**Read More[Shale gas's next frontier could be Poland](http://www.cnbc.com/id/101220363" \t "_self)** Colin Shelley of FACTS Global Energy said that China's imports had the potential to rise sharply now that LPG was being increasingly looked at as a feedstock to make petrochemicals."Sinopec is taking the lead. We may see CNOOC, we may also see PetroChina," he said. Last June, Sinopec proposed building a $3.1 billion ethylene plant in eastern China, which would be the company's first to use natural gas and LPG as a feedstock.CNOOC, parent of CNOOC Ltd, is also considering using LPG for its new 1 million tonne-per-year cracker in Guangdong province, said a company official. **Attractive pricing** Currently traders estimate U.S. LPG costs roughly $850 per tonne, $50-100 per tonne lower than Middle East supplies for May delivery to China. It is also cheaper than naphtha for China delivery at about $1,000-1,200 per tonne. The bulk of China's 100,000 bpd U.S.LPG orders is due for delivery from 2015-2016 when U.S. export facilities are completed and after an expansion of the Panama Canal to allow through bigger tankers, known as very large gas containers (VLGC), to cut the journey time to Asia by more than two weeks.LPG is transported in tankers at around minus 40 degrees Celsius, although not super-chilled to the extent of LNG at about minus 160 degree Celsius. Apart from Sinopec, other Chinese buyers of LPG are mostly private investors in propane dehydrogenation (PDH) plants, which process propane into propylene, used in plastic products. China's Tianjin Bohai Chemical Industry Group launched in September a 600,000 tonne-per-year PDH plant in the northern city of Tianjin, the first of about 10 such plants being built or planned to cash in on a shortage of propylene.The plants have been tying up with U.S. LPG firms such as Enterprise Product Partners and Targa Resources Corp.

The AC harms evidence is the tip of the iceberg- more intensive drilling and state secrecy each link is more probable and prefer my evidence. Bradsher[[22]](#footnote-22) ‘14

IAOSHIZHEN, China — Residents of this isolated mountain valley of terraced cornfields were just going to sleep last April when they were jolted by an enormous roar, followed by a tower of flames. A shock wave rolled across the valley, rattling windows in farmhouses and village shops, and a mysterious, pungent gas swiftly pervaded homes. “It was so scary — everyone who had a car fled the village and the rest of us without cars just stayed and waited to die,” said Zhang Mengsu, a hardware store owner. All too quickly, residents realized the source of the midnight fireball: a shale gas drilling rig in their tiny rural hamlet. This verdant valley represents the latest frontier in the worldwide hunt for shale gas retrievable by the technology of hydraulic fracturing, or fracking. It is a drilling boom that has upended the energy industry and spurred billions of dollars of investment. Like the United States and Europe,[China](http://topics.nytimes.com/top/news/international/countriesandterritories/china/index.html?inline=nyt-geo)wants to wean itself from its dependence on energy imports — and in Jiaoshizhen, the Chinese energy giant Sinopec says it has made the country’s first commercially viable shale gas discovery. Its efforts could also help address another urgent issue, as Beijing looks to curb an overwhelming reliance on coal that has blackened skies and made China the largest contributor to global warmingBut the path to energy independence and a cleaner fossil fuel is fraught with potential pitfalls. Threats to workplace safety, public health and the environment all loom large in the shale gas debate — and the question is whether those short-term risks threaten to undermine China’s long-term goal.The energy industry around the world has faced criticism about the economic viability of vast shale projects and the environmental impact of the fracking process. But interviews with residents of six hamlets here where drilling is being done, as well as with executives and experts in Beijing, the United States and Europe, suggest that **China’s search poses** even **greater challenges.**In China, **companies must drill** two to **three times as deep** as in the United States**, making the process** significantly **more** **expensive**, noisier **and** potentially more **dangerous**. **Chinese energy giants** also **operate** **in** strict **secrecy**; **they** **rarely** **engage** with local **communities, and accidents claim a high death toll**.The still-disputed incident in Jiaoshizhen has raised serious concerns among its residents.Villagers said that employees at the time told them that eight workers died when the rig exploded that night. Sinopec officials and village leaders then ordered residents not to discuss the event, according to the villagers. Now villagers complain of fouled streams and polluted fields.“There was a huge ball of fire,” said Liu Jiazhen, a mustard greens farmer with three children who lives a five-minute walk from the site. “The managers here all raced for their lives up the hill.”Ms. Liu said that the flames rose higher than the pines on a nearby ridge, covering the steel frame of the rig, which is nearly 100 feet high. The flames burned for hours, she said.Sinopec describes the incident as a controlled flaring of gas and denies that anybody died. While the company would not speak in detail about its shale projects, Sinopec said it ran its operations safely and without harm to the environment.Li Chunguang, the president of Sinopec, said in an interview in late March that nothing had gone wrong in Jiaoshizhen. “There is no basis for this,” he said.The bustling activity in Jiaoshizhen indicates a significant find for Sinopec.Feeder pipes connect some of the dozen or so drilling sites, and 100 more wells are planned. Bright blue, boxy equipment for gas compression is being installed on large, flat lots next to at least two of the drilling rigs. A two-lane road has been paved across a mountain pass from Fuling, the nearest city, to help carry the 1,100 truckloads of steel, cement and other supplies needed for each well.The valley has been so isolated for centuries that residents of its 16 hamlets still speak a dialect that is distinct even from Fuling, 13 miles away. Jiaoshizhen had only two-story concrete buildings and single-story mud brick farmhouses last August; Sinopec workers lived in trailers while managers rented the upstairs of concrete homes. On a visit six months later, at least 20 tower cranes were erecting high-rises.The gas field in Jiaoshizhen “is the closest we have in China to a breakthrough project,” said Gavin Thompson, the head of Asia and Pacific gas and power research at Wood Mackenzie, one of the largest energy consulting companies. He noted, however, that **Sinopec was providing few details** and that he, like **most Western experts, had not been able to** **visit** the valley.Chris Faulkner, the chief executive and president of Breitling Energy, a Dallas company that has advised Sinopec on its drilling in western China for four years, said that the **energy giants’ reluctance to have open discussions** about health, safety and environmental issues might **prompt** **communities to fear the worst**.“If they think that they’re going to go out and drill 1,000 wells, and no one is going to Google ‘fracking,’ they’re fools,” he said, adding that even in China, “the days of ‘shut up and be quiet’ are gone.” The Chinese energy giants have plenty of money to fund their efforts. Sinopec has one million employees and is the world’s fourth-largest company by revenue after Royal Dutch Shell, Walmart and Exxon Mobil; the fifth-largest is China National Petroleum. With their deep pockets, the companies have been investing heavily in North American shale businesses; Sinopec paid $2.2 billion in 2012 for a 30 percent stake in Devon Energy’s shale gas and[oil](http://topics.nytimes.com/top/news/business/energy-environment/oil-petroleum-and-gasoline/index.html?inline=nyt-classifier)operations in the United States. In China, workplace safety is a significant concern. Thousands die each year in coal mines, according to government statistics that have prompted a successful national crackdown over the last decade.**Scant information is** publicly **available** **about** the **safety and environmental records of** **the** politically powerful, mostly **state-owned oil and gas industry**. But Sinopec has acknowledged two deadly accidents in the last year, albeit not related to fracking. An oil pipeline explosion in Qingdao killed 62 and injured 136, and a cooking gas explosion in Dongguan killed one.In Jiaoshizhen, after the blast, worries linger about the impact on the residents’ health and their fields. Villagers said in interviews in August and February that the fast-spreading gas they encountered last year had been foul-smelling. Sinopec said that it had done air tests and not found any toxic pollution, although it declined to identify the gas. The gas evoked particular fear here because drilling by China National Petroleum in 2003 about 120 miles to the northeast released toxic gases that killed 243 people and sickened thousands. That accident involved conventional gas exploration, however, not fracking. Residents here also worry about diesel runoff from the drilling sites, tainting local streams and at least one shallow well. The drilling “makes so much noise and the water that comes down the mountain has become so much dirtier to drink; now it smells of diesel,” said Tian Shiao Yung, a farmer. Sinopec said that it temporarily provided drinking water to residents after drilling foam surfaced in a nearby cave last spring, and it changed its drilling practice. The company said that subsequent tests had shown the local water to be “drinkable.”Despite her complaints, Ms. Tian, like every other resident interviewed, welcomed the drilling for one reason: money. Sinopec rents land from farmers for 9,000 renminbi, or $1,475, per acre each year. Farmers earn that much money from growing crops only in the best years, and then after hundreds of hours of labor.“Farmers don’t mind; now they can buy their rice instead of having to grow it,” Ms. Tian said, adding: “I’m still drinking the water.”

## Underview

1. Maximizing life comes first in case of moral uncertainty. Since we presently lack definitive grounds for believing any particular moral theory, we should maximize our ability to find demonstrable moral truths. Bostrom:[[23]](#footnote-23)

These reflections on moral uncertainty suggest[s] an alternative, complementary way of looking at existential risk. Let me elaborate. Our [that] present understanding of axiology might well be confused. We may not nowknow—at least not in concrete detail**—**what outcomes would count as a big win for humanity**;** we might not even yet be able to imagine the best ends of our journey**.** If we are indeed profoundly uncertain about our ultimate aims, then we should recognize that there is a great option value in preserving—and ideally improving—our ability to recognize value and to steer the future accordingly. Ensuring that there will be a future version of humanity with great powers and a propensity to use them wisely is plausibly the best way available to us to increase the probability that the future will contain a lot of value.

2.Adopt a policymaking view of the resolution. Joyner[[3]](https://mail.google.com/mail/u/0/" \l "1442c135946f8489__ftn3" \o "):

Use of the debate can be an effective pedagogical tool for education in the social sciences. **Debates**, like other **role-playing**simulations, **help students understand different perspectives on a policy issue by adopting [one]** **a perspective as their own.** But, unlike other simulation games, debates do not require that a student participate directly in order to realize the benefit of the game. Instead of developing policy alternatives and experiencing the consequences of different choices in a traditional role-playing game, **debates** **[and] present[ing] the alternatives and consequences in a formal**, rhetorical **fashion** before a judgmental audience. Having the class audience serve as jury helps each student develop a well-thought-out opinion on the issue by providing contrasting facts and views and enabling audience members to pose challenges to each debating team. These debates ask undergraduate students to examine the international legal implications of various United States foreign policy actions. Their chief tasks are to assess the aims of the policy in question, determine their relevance to United States national interests, ascertain what legal principles are involved, and conclude how the United States policy in question squares with relevant principles of international law. Debate questions are formulated as resolutions, along the lines of: "Resolved: The United States should deny most-favored-nation status to China on human rights grounds;" or "Resolved: The United States should resort to military force to ensure inspection of Iraq's possible nuclear, chemical and biological weapons facilities;" or "Resolved: The United States' invasion of Grenada in 1983 was a lawful use of force;" or "Resolved: The United States should kill Saddam Hussein." **In addressing both sides** **of** these legal**propositions, the student** **debaters must consult the vast literature** of international law, especially the nearly 100 professional law-school-sponsored international law journals now being published in the United States. This literature furnishes an incredibly rich body of legal analysis that often treats topics affecting United States foreign policy, as well as other more esoteric international legal subjects. Although most of these journals are accessible in good law schools, they are largely unknown to the political science community specializing in international relations, much less to the average undergraduate. By assessing the role of international law in United States foreign policy- making, students realize that United States actions do not always measure up to international legal expectations; that at times, international legal strictures get compromised for the sake of perceived national interests, and that concepts and principles of international law, like domestic law, can be interpreted and twisted in order to justify United States policy in various international circumstances. In this way, **the debate format gives students the benefits ascribed to simulations and other action learning techniques**, in that it makes them become **actively engaged with their subjects**, **and not be mere passive consumers**. **Rather than spectators, students become legal advocates**, observing, reacting to, and structuring political and legal perceptions to fit the merits of their case. The debate exercises carry several specific educational objectives. First, students on each team must work together to refine a cogent argument that compellingly asserts their legal position on a foreign policy issue confronting the United States. In this way, they gain greater insight into the real-world legal dilemmas faced by policy makers. Second, as they work with other members of their team, they realize the complexities of applying and implementing international law, and the difficulty of bridging the gaps between United States policy and international legal principles, either by reworking the former or creatively reinterpreting the latter. Finally, research for the debates forces students to become familiarized with contemporary issues on the United States foreign policy agenda and the role that international law plays in formulating and executing these policies. 8 The **debate** thus **becomes an excellent** **vehicle for** **pushing students beyond stale arguments over principles** into the **real world** of **policy analysis**, political critique, and legal defense.

# Frontlines

## A2 Econ DA

1. No uniqueness- shale-gas doesn’t and won’t contribute to the Chinese economy. Yep[[24]](#footnote-24) ‘14

The development of **China’s shale-gas industry has moved forward** over the past year, **but far more remains to be done** than has been accomplished if the nation’s ambitious production targets are to be met, according to executives attending an energy conference here.Here’s a quick rundown on the status of the industry and the daunting challenges ahead:**The Players** Only two players have made progress on the ground so far. Leading the pack is state-run China Petroleum & Chemical Corp., or **Sinopec**, which said this week that its first commercial shale-gas field is running “ahead of schedule.” The field, in the Fuling district of Chongqing**, will produce** around **1.8 billion** cubic **meters of gas this year**, 5 billion cubic meters next **year and 10 billion by 2017**, the company said. In second place is[**Royal Dutch Shell**](http://online.wsj.com/public/quotes/main.html?type=djn&symbol=RDSB.LN)**[RDSB.LN +0.46%](http://blogs.wsj.com/public/quotes/main.html?type=djn&symbol=RDSB.LN?mod=inlineTicker" \t ")**PLC, which has partnered with China National Petroleum Corp. Shell is producing some tight gas in Changbei, Shaanxi province, and is implementing a drilling program in the Sichuan basin, but trails Sinopec in drilling and production.“A number of the areas have gone into extended well testing and we are getting into the appraisal side of things,” said Maarten Wetselaar, executive vice president at Shell’s integrated gas business. He said an assessment of the initial drilling activity will take more time.Meanwhile, new players may soon join the ranks and scale up exploration. **Drilling** So far **fewer than 100 shale-gas wells have been drilled** **in China, compared with** around **40,000 wells in the U.S.,** whose shale-gas boom China hopes to replicate. That, of course, leaves a lot of drilling to be done. But among national Chinese oil companies, only Sinopec has a mandate to fast-track shale-gas production, while[**PetroChina**](http://online.wsj.com/public/quotes/main.html?type=djn&symbol=601857.SH)**[601857.SH 0.00%](http://blogs.wsj.com/public/quotes/main.html?type=djn&symbol=601857.SH?mod=inlineTicker" \t ")**remains focused elsewhere, with less than 1% of its total budget devoted to shale-gas drilling, according to Wood Mackenzie. Beijing has set targets of producing 6.5 billion cubic meters of shale next year and 60 billion-100 billion cubic meters a year by 2020. “But 6.5 billion cubic meters is not a shale-gas industry. If you get to 6.5 billion cubic meters is that a catalyst to getting to 60 and to 100 billion cubic meters? Because those are the kinds of growth projections that Chinese demand is supporting,” said Gavin Thompson, head of Asia-Pacific natural gas research at Wood Mackenzie. **Water** One of the major challenges for shale gas exploration in China was the availability of water–which is key to the drilling technique, called hydraulic fracturing or fracking, used to access natural gas trapped in shale rock formations. Shell’s Mr. Wetselaar said that in many instances it was able to access to much deeper water sources through drilling and improve an area’s water supply. “The challenges are very different from locality to locality. But we are focused on making it a sustainable solution,” he said. Newer fracking techniques have been able to limit the amount of water used, but in several parts of China obtaining water for shale-gas drilling will remain a challenge. **Regulatory environment** China’s recent decisions to boost private-sector participation and implement reforms are expected to help the shale-gas industry, although a lot more needs to be done. “Additional moves by the national oil companies to open the upstream and downstream to private capital will also expedite the timeline for shale production, even if **the government remains unlikely to me**et its highly ambitious **2015 and 2020 targets**,” Eurasia Group said in a recent report.In any case **Chinese shale gas remains** **a** huge **prospect** for energy companies given the sheer size of the estimated reserves.“Relative to United States’ shale-gas plays, the [reserves] of the Sichuan and Tarim basins are potentially enormous and, if successful, could rival the Marcellus in terms of absolute scale,” Bernstein Research said recently. It also said initial well flows in the Sichuan basin appear better than expected while costs were  lower than expected.

2. His internal link scenario is inevitable- trade loss is a foregone conclusion. Leahy et al[[25]](#footnote-25) ‘13

Guido Mantega, **Brazil’s** finance minister, is known for his ability to put an optimistic spin on any piece of news. But even he struggled this week when it came to explaining an important element of the country’s [**disappointing first-quarter economic performance**](http://www.ft.com/intl/cms/s/0/17534428-c85e-11e2-acc6-00144feab7de.html) **– a drop in mining output.** “**The mineral extraction industry depends** much more **on the external economic scenario** than others, which remains adverse outside Brazil, therefore, making our exports more difficult,” the minister lamented.**The weakness** in the mining sector – the great paymaster of the Brazil’s economic boom of the past decade with its shipments of iron ore to China – **hints at** **a** deeper, more **uncomfortable truth** not only **for Latin America**’s largest economybut also for the other non-Chinese members of the so-called Brics club of large emerging nations, which also includes **Russia, India and South Africa**.**China**, for 10 years **the** principal **driver of** the phenomenon known as “**south-south” trade** between emerging economies, **may** not only **be slowing down from** the breakneck **growth** rates of the past. **It may** also **be changing its model from the outward-looking, export-led structure that favoured trade with emerging nations** – particularly commodity exporters in Latin America, Russia and Africa – **to one based more on internal consumption**. It is **a concern** **that started** **to hit** home this week with three of the Brics nations – **Brazil,** [**South Africa**](http://www.ft.com/intl/cms/s/0/235eec58-c7a1-11e2-9c52-00144feab7de.html) **and** [**India**](http://www.ft.com/intl/cms/s/0/df6827be-c9bf-11e2-af47-00144feab7de.html) **– reporting disappointing first-quarter gross domestic product figures.**“**Markets are showing** growing **concerns about the sustainability of China’s** current **growth model,**” Andre Loes, HSBC Latin America chief economist, said in a report released this week.

## A2 REM DA

1. No link- the plan only affects extraction of shale gas, not mining of rare earth metals

2. Even if the plans effects limit mining, that disadvantage is not instrinic the aff’s mechanism- AND alternate causality takes out the DA- the US is developing extraction facilities and accessing different metal supplies which solves links to spillover and conflict. Rowley[[26]](#footnote-26) ‘13

Still, could **the Chinese monopoly could be coming to an end** through other means? The world has woken up to the importance or rare earths in recent years. **In California, a company** called Molycorp last year **resumed mining in the Mojave Desert,** after suspending work a decade earlier. With **new supplies having come online in** 2011 from a rival outfit, Mount Weld in **Australia,** prices for rare earths have been coming down in tandem with the whole commodity price spectrum. That is not being taken as reason to relax, however. There is currently no rare earth mining going on in the European Union, which relied 100pc on Chinese imports of rare earths in 2011, the most recent year for which data is available. **In the UK**, David **Cameron** in March **unveiled a bid to harvest the rare earths**, among other natural riches, that lie at the bottom of the ocean. Sponsored by the Government, a company called UK Seabed Resources has won the first commercial exploration rights over a 58,000 square–kilometre area of the Pacific,[**with the eventual aim of collecting mineral-rich polymetallic modules – mysterious formations on the ocean floor - which contain rare earths**](http://www.telegraph.co.uk/finance/commodities/9935942/Britain-plunges-into-deep-sea-mineral-rush-with-help-of-Howard-Hughes.html). That has yet to yield any product, of course, but signals the political interest in these materials. Similarly,[**Japanese scientists have found large reserves of rare earth metals on the Pacific seabed**](http://www.telegraph.co.uk/finance/comment/ambroseevans_pritchard/9951299/Japan-breaks-Chinas-stranglehold-on-rare-metals-with-sea-mud-bonanza.html) that they say can be mined cheaply. As a result of growing production elsewhere, China’s share of the market dropped from 98pc to 86pc last year, according to figures from the US Geological Survey, as **new production came online in** Australia and **the USA**, supported by some small but stable production in India. And yet, even if China’s stranglehold on production of the raw elements is challenged, analysts warn that a more significant hold on the market remains unabated. The thing to remember is that China’s goal in offering state support to its home-grown rare earths industry was much broader than just digging and processing ore, says Kieron Hodgson, mining analyst at Charles Stanley. Beijing, instead, was aiming to build a value chain, where by the rare earths are dug up, processed, and then incorporated into end products. “China does not have a monopoly on the resource, it has a monopoly on the process,” he says. “It has world- leading processing facilities, world-leading ability to manufacture and take the product from the ground and put it into something of use - and that was always China’s ambition when it identified rare earths as strategic metals.” In this area, the West lags even further behind. It can also be argued that growth in production elsewhere could merely supportive of China’s prowess in this area, as it reaches the limits of its own production. As a result, he believes **Washington will eventually unleash state support** in a bid to foster an industry **to combat China’s dominance in this area.** “**The US** is likely to do something only because it **has enough resources to start an industry**," he says. “Governments are waking up to the fact that they almost have to bankroll it - in much the same way the Chinese government bankrolled it all those years ago.”

## A2 Energy Security DA

1. Nonunique - Cross Apply McMahon. Fracking is still an energy prospect that is expected to underwhelm relative to government estimates. It will be decades before it contributes even a miniscule amount of energy so it doesn’t impact energy security.

2. Nonunique – even if natural gas is key to future energy security, Shale Gas is a relatively expensive type of natural gas. China has access to alternatives and exports its gas anyways. Nuclear power solves energy security in the near future. Luft[[27]](#footnote-27) ‘13

GL: I think that **shale gas may not [be] the best choice for China** - **there are a lot of natural gases that are more affordable than shale** gas. One of these is methane, which is the output of coalmine gas, because methane is stored deep within**. When the coal is mined, natural gas can also be simultaneously drawn out.** **Another problem with shale is that China is gradually pushing its natural gas exports to its neighbouring countries**, such as Pakistan, Russia and Myanmar. **There is an abundance of natural gas sources to choose from and the price will most likely be lower than shale gas**. China does not need to be the greatest exploiter of shale gas. In addition, what I want to say is (this may provoke some attacks) - **China's future lies in nuclear energy.** Firstly nuclear energy emits little carbon dioxide and pollution and is comparable to the amounts that natural gas emits. Secondly, nuclear energy is actually quite safe. Nuclear accidents have caused some fatal accidents previously, but every day thousands of people die because of respiratory diseases related with pollution from coal burning. And in China in 1975, 171,000 people died overnight because of a dam failure. I believe that in ten years time, the views and discussion on nuclear energy will be very different from today. **Within the next five years, China will build at least ten nuclear power plants.**

3. Turn: Renewables are key to future China energy security. Mathews and Tan[[28]](#footnote-28) ’13.

In the medium-term, **renewables offer China energy security in a way that continued reliance on fossil fuels** (particularly imported coal and oil) **cannot** possibly offer. Every country is faced with a choice between, on the one hand, continued reliance on **fossil fuels, with their geopolitical implications and threat of military entanglements**, and on the other an increasing reliance on **renewables, which are based on manufacturing activities.** **As China industrializes**, and becomes the new workshop of the world, so **an ever larger share of its increasing energy needs can be met by manufacturing activities such as production of wind turbines and solar PV cells**. So long as **China** is able to tap renewable sources of energy for these manufactured devices to work on (solar and wind energy) it **can generate superior energy security through renewables than it can through** continuing (or **deepening) its reliance on fossil fuels.**

But Fracking decreases investment in renewables. US experience proves. Hauter ’12.

“Memom to Fracking Apologists: You’re hurting Renewables(and You’re Greenwashing the environment Too)” Wenonah Hauter, *Food & Water Watch Executive Director.* Food and Water Watch. September 2012. http://www.foodandwaterwatch.org/blogs/memo-to-fracking-apologists-youre-hurting-renewables-and-youre-greenwashing-too/

Let’s talk first about gas as a bridge fuel. **Thanks to shale** gas **drilling, natural gas is** cheap — **so cheap** that **it’s taken investment away from renewables**. **NextEra Energ**y Inc. **cancelled plans for new wind power projects thanks to cheap gas**, according to Greenwire, **and the U.S. government has said that the low price** of natural gas **is** **one of the threats to the future of wind energy.** Wind power comprised approximately 42 percent of the added electricity capacity in the United States in 2008 and 2009, and this declined to 25 percent in 2010 and 32 percent in 2011. **Funding for clean energy overall plummeted** **in** the first quarter of **2012** to just $27 billion — **down 28 percent** from the previous quarter. So instead of creating a “bridge” to renewables, what shale gas has done is allow us to substitute one dirty fuel (coal) for another (fracked gas), likely making climate change even more costly and destructive in the coming decades. Meanwhile, renewables have proven that they can forge ahead when policies are in place to support them. Germany is a renewable energy leader, getting 10 percent of the country’s power from renewables. It reached a record this year when on one day 50 percent of the country’s midday energy needs came from solar energy alone. Texas leads the United States in installed wind capacity and had days in 2012 where wind was responsible for a quarter of the state’s power. Likewise, wind energy delivered 20 percent of the Iowa’s energy from January through April 2011. But it’s like none of these statistics even exist for those who tout natural gas as a fait accompli. Some, like New York Mayor Michael Bloomberg, are supporting the development of fracking, saying that it’s better than coal and that renewables aren’t viable. Not only is the renewables revolution happening, particularly in regions where strong policies support their development, but, as comedian Bill Maher recently noted on his show, stating that wind and solar aren’t viable is like saying 100 years ago that cars aren’t going to replace horses.

4. China’s inability to meet its own energy demands bolsters relationships rather than causing war. Energy agreements are the lynchpin of US-Sino-Russian relations. Blackwill and O’Sullivan[[29]](#footnote-29) ‘14

Only five years ago, the world’s supply of oil appeared to be peaking, and as conventional gas production declined in the United States, it seemed that the country would become dependent on costly natural gas imports. But in the years since, those predictions have proved spectacularly wrong. Global energy production has begun to shift away from traditional suppliers in Eurasia and the Middle East, as producers tap unconventional gas and oil resources around the world, from the waters of Australia, Brazil, Africa, and the Mediterranean to the oil sands of Alberta. The greatest revolution, however, has taken place in the United States, where producers have taken advantage of two newly viable technologies to unlock resources once deemed commercially infeasible: horizontal drilling, which allows wells to penetrate bands of shale deep underground, and hydraulic fracturing, or fracking, which uses the injection of high-pressure fluid to release gas and oil from rock formations.The resulting uptick in energy production has been dramatic. Between 2007 and 2012, U.S. shale gas production rose by over 50 percent each year, and its share of total U.S. gas production jumped from five percent to 39 percent. Terminals once intended to bring foreign liquefied natural gas (LNG) to U.S. consumers are being reconfigured to export U.S. LNG abroad. Between 2007 and 2012, fracking also generated an 18-fold increase in U.S. production of what is known as light tight oil, high-quality petroleum found in shale or sandstone that can be released by fracking. This boom has succeeded in reversing the long decline in U.S. crude oil production, which grew by 50 percent between 2008 and 2013. Thanks to these developments, the United States is now poised to become an energy superpower. Last year, it surpassed Russia as the world’s leading energy producer, and by next year, according to projections by the International Energy Agency, it will overtake Saudi Arabia as the top producer of crude oil.Much has been written lately about the discovery of new oil and gas deposits around the world, but **other countries will no**t find it easy to **replicate the U**nited **S**tates’ **success**. The fracking revolution required more than just favorable geology; it also took financiers with a tolerance for risk, a property-rights regime that let landowners claim underground resources, a network of service providers and delivery infrastructure, and an industry structure characterized by thousands of entrepreneurs rather than a single national oil company. Although many countries possess the right rock, **none**, with the exception of Canada, **boast**s **an industrial environment as favorable as that of the U**nited **S**tates.The American energy revolution does not just have commercial implications; it also has wide-reaching geopolitical consequences. Global energy trade maps are already being redrawn as **U.S.** imports continue to decline and **exporters find new markets**. Most West African oil, for example, now flows to Asia rather than to the United States. And as U.S. production continues to increase, it will put downward pressure on global oil and gas prices, thereby diminishing the geopolitical leverage that some energy suppliers have wielded for decades. Most energy-producing states that lack diversified economies, such as Russia and the Gulf monarchies, will lose out, whereas energy **consumers, such as China**, India, and other Asian states, **stand to gain**.The biggest benefits, however, will accrue to the United States. Ever since 1971, when U.S. oil production peaked, energy has been construed as a strategic liability for the country, with its ever-growing thirst for reasonably priced fossil fuels sometimes necessitating incongruous alliances and complex obligations abroad. But that logic has been upended, and the newly unlocked energy is set to boost the U.S. economy and grant Washington newfound leverage around the worldTHE PRICE IS RIGHT Although it is always difficult to predict the future of global energy markets, the main effect the North American energy revolution will have is already becoming clear: the global supply of energy will continue to increase and diversify. Gas markets have been the first to feel the impact. In the past, the price of gas has varied greatly across the three largely distinct markets of North America, Europe, and Asia. In 2012, for example, U.S. gas prices stood at $3 per million BTU, whereas Germans paid $11 and Japanese paid $17. But as the United States prepares to generate and export greater quantities of LNG, those markets will become increasingly integrated. Already, investors have sought government approval for more than 20 LNG export projects in the United States. However many end up being built, the exports flowing from them will add to major increases in the flow of LNG that are already occurring elsewhere. Australia is soon set to surpass Qatar as the largest global supplier of LNG; by 2020, the United States and Canada together could export close to Qatar’s current LNG capacity. Although the integration of North American, European, and Asian gas markets will require years of infrastructure investment and the result, even then, will not be as unified as the global oil market, the increased liquidity should help put downward pressure on gas prices in Europe and Asia in the decade ahead.The most dramatic possible geopolitical consequence of the North American energy boom is that the increase in U.S. and Canadian oil production could disrupt the global price of oil -- which could fall by 20 percent or more. Today, the price of oil is determined largely by the Organization of the Petroleum Exporting Countries, which regulates production levels among its member states. When there are unexpected production disruptions, OPEC countries (primarily Saudi Arabia) try to stabilize prices by ramping up their production, which reduces the global amount of spare production capacity. When spare capacity falls below two million barrels per day, the market gets jittery, and oil prices tend to spike upward. When the market sees spare capacity rise above roughly six million barrels a day, prices tend to fall. For the past five years or so, OPEC’s members have attempted to balance the need to fill their public coffers with the need to supply enough oil to keep the global economy humming, and they have managed to keep the price of oil at around $90 to $110 per barrel. As additional North American oil floods the market, OPEC’s ability to control prices will be challenged. According to projections from the U.S. Energy Information Administration, between 2012 and 2020, the United States is expected to produce more than three million barrels of new petroleum and other liquid fuels each day, mainly from light tight oil. These new volumes, plus new supplies coming on line from Iraq and elsewhere, could cause a glut in supply, which would push prices down -- especially as global oil demand shrinks due to improved efficiency or slower economic growth. In that event, OPEC could have a hard time maintaining discipline among its members, few of which are willing to curb their oil production in the face of burgeoning social demands and political uncertainty. Persistently lower prices would create shortfalls in the revenues they need to fund their expenditures. WINNERS AND LOSERSIf oil prices fall and stay low, every government in the world that relies on hydrocarbon revenues will find itself under stress. Countries feeling the pinch will include Indonesia and Vietnam in Asia; Kazakhstan and Russia in Eurasia; Colombia, Mexico, and Venezuela in Latin America; Angola and Nigeria in Africa; and Iran, Iraq, and Saudi Arabia in the Middle East. These countries’ abilities to endure such fiscal setbacks vary and would depend in part on how long low prices lasted. Even with a more moderate drop in prices, the increased volume and diversity of the oil supply would benefit energy consumers worldwide. Countries that like to use their energy supplies for foreign policy purposes -- usually in ways that run counter to U.S. interests -- will see their influence shrink. Of all the governments likely to be hit hard, Moscow has the most to lose. Although Russia possesses large reserves of shale oil that it could eventually develop, the global supply shift will weaken the country in the short term. The influx of North American gas to the market will not entirely free the rest of Europe from Russia’s influence, since Russia will remain the continent’s largest energy supplier. But additional suppliers will give European customers leverage they can use to negotiate better terms with Russian producers, as they managed to do in 2010 and 2011. Europe will gain most from the change if it further integrates its natural gas market and builds more LNG terminals to import gas; such moves could help it ward off crises like those that occurred when Russia cut off gas supplies to Ukraine in 2006 and 2009. The development of Europe’s own considerable shale resources would help even more.A sustained drop in the price of oil, meanwhile, could destabilize Russia’s political system. Even with the current price near $100 per barrel, the Kremlin has scaled back its official expectations of annual economic growth over the coming decade to around 1.8 percent and begun to make budget cuts. If prices fall further, Russia could exhaust its stabilization fund, which would force it to make draconian budget reductions. Russian President Vladimir Putin’s influence could diminish, creating new openings for his political opponents at home and making Moscow look weak abroad.Although the West might welcome the thought of Russia under such strain, a weaker Russia will not necessarily mean a less challenging Russia. Moscow is already trying to compensate for losses in Europe by making stronger inroads into Asia and the global LNG market, and it will have every reason to actively counter Europe’s efforts to develop its own resources. Indeed, Russia’s state-run media, the state-owned gas company Gazprom, and even Putin himself have warned of the environmental dangers of fracking in Europe -- which is, as*The Guardian*has put it, “an odd phenomenon in a country that usually keeps ecological concerns at the bottom of its agenda.” To discourage European investment in the infrastructure needed to import LNG, Russia may also preemptively offer its European customers more favorable gas deals, as it did for Ukraine at the end of 2013. More dramatically, should low energy prices undermine Putin and empower more nationalist forces in the country, Russia could seek to secure its regional influence in more direct ways -- even through the projection of military power. Energy producers in the Middle East, meanwhile, will lose influence, too. As the longtime regulator of OPEC’s spare capacity and a regional leader, Saudi Arabia merits special attention. The country is already facing growing fiscal constraints. It responded to the Arab Spring by boosting public spending at home and offering generous economic and security assistance to other Sunni regimes in the region. As a result, since 2008, the kingdom’s fiscal breakeven oil price (the level needed to ensure its budget balances) jumped over $40 per barrel to nearly $90 in 2014, according to the International Monetary Fund. At the same time, more pressure is coming from the country’s extremely young population, which is demanding better education, health care, infrastructure, and jobs. And as its enormous domestic energy demand continues to grow, the country will begin consuming more energy than it exports by around 2020, should current trajectories hold. Riyadh is already trying hard to diversify its economy. But a prolonged decline in the price of oil would test the regime’s ability to maintain the public services on which its legitimacy rests. Other Middle Eastern countries -- including Algeria, Bahrain, Iraq, Libya, and Yemen -- are already living beyond the limits of their fiscal breakeven prices. Iran, already staggering under the weight of economic sanctions and years of economic mismanagement, could face even more severe challenges. The country ranks fourth in the world in oil and gas production, and it depends on its energy supplies to project regional influence. But of all OPEC’s members, it has the highest fiscal breakeven price: over $150 per barrel. Although it is possible that lower prices might further diminish the legitimacy of the regime and thereby pave the way for more moderate leaders, the fate of the recent revolutions in the Middle East, as well as Iran’s own ethnic, religious, and other cleavages, caution against such optimism. The net implications for Mexico are less clear. Given its declining oil production and heavy reliance on oil revenues for its budget, the country could well suffer if the price of oil drops. The recent push for energy reforms could allow Mexico to increase production enough to outweigh the effects of lower global prices. Doing so, however, would require the government to follow up on the reform law passed in December. It would have to implement legislation more conducive to private investment in Mexico’s energy sector -- including its own shale resources -- and accelerate its reform of Pemex, the state-owned oil company. Unlike energy producers, consumers should welcome the energy revolution. Increased North American production has already helped buffer markets by providing much-needed additional production during recent disruptions of exports from Libya, Nigeria, and South Sudan. Lower energy prices will be a particular boon for China and India, which are already major importers and which, according to the International Energy Agency, will see their demand for oil imports grow by 40 percent (for China) and 55 percent (for India) from 2012 to 2035. As the two countries import more energy from the Middle East and Africa, they will take ever-greater interest in these regions.**China** also stands to benefit in another way: its **relations with Russia could improve** markedly. For decades, history and ideology have kept these two countries from finding common cause, despite the obvious benefits that would accrue from a closer partnership between the world’s largest energy producer and its largest consumer, which happen to share a 2,600-mile border. But **as more** and more **North American energy comes on line**, **energy demand in the developed world remains flat, and demand continues to increase in the developing economies** of Asia, **Russia** **will** increasingly **seek** to **secure markets in the East**. **Moscow and Beijing could** well **move closer** together **on** long-stalled energy deals and pipelines and collaborate more on **energy issues in Central Asia**. Once clinched, **such arrangements could form the basis for** **a more extensive geopolitical relationship** -- one in which China would have the upper hand. As for India and other Asian economies, the benefits will also go beyond the purely economic. **A surge in** the quantity of **gas** and oil **transported** **through the South China Sea will provide common cause** **to** all **countries seeking to combat piracy** and other risks to the free flow of energy shipments, **giving China greater incentives to cooperate on security matters**. At the same time, U.S. allies in East Asia, such as Japan, the Philippines, and South Korea, will have the opportunity to increase their energy imports directly from the United States and Canada. Their ability to rely on North American partners, shipping oil and LNG via shorter, more direct sea routes, should also give these countries greater peace of mind. THE U.S. ADVANTAGE The biggest beneficiary of the North American energy boom, of course, will be the United States. The most immediate effect will be the continued creation of new jobs and wealth in the energy sector. But beyond that, since U.S. gas is among the cheapest in the world, U.S. industries that rely primarily on gas for feedstock, such as petrochemicals and steel, will continue to see their competitive advantages grow. The energy boom is also providing an economic fillip by fueling investments in U.S. infrastructure, construction, and services. The McKinsey Global Institute estimates that by 2020, unconventional oil and gas production could boost the United States’ annual GDP by between two and four percent, or roughly $380–$690 billion, and create up to 1.7 million new permanent jobs. Furthermore, since energy imports account for roughly half of the more than $720 billion U.S. trade deficit, declining energy imports are already leading to a more favorable U.S. trade balance.A diminished reliance on energy imports should not be confused with full energy independence. But the U.S. energy windfall should help put to rest declinist thinking about the United States. Moreover, the end of U.S. dependence on overseas energy supplies -- and on the producer countries with which Washington has often had prickly relations -- will grant the United States a greater degree of freedom in pursuing its grand strategy. But the United States will remain firmly linked to globalized energy markets. Any dramatic disruption of the global oil supply, for instance, would still affect the price at the pump in the United States and derail growth. Washington will therefore maintain an interest in preserving the stability of international markets. Nowhere is that truer than in the Middle East, where vital U.S. interests -- in preventing terrorism, countering nuclear proliferation, and promoting regional security to protect allies such as Israel and ensure the flow of energy -- will endure. So will the need to police the global commons, such as the major sea-lanes through which trade in energy and other goods flows. These truths remain poorly understood, however. U.S. policymakers need to start explaining to both domestic and foreign audiences that although the energy landscape is changing, U.S. national interests are not. Newfound oil and gas will not cause Washington to disengage from the world. To be sure, the United States will remain, by almost any measure, the most powerful country on the planet. Yet it will never be able to insulate itself from shocks to the global economy, and so it will remain deeply involved overseas. This message requires particular emphasis in the Middle East, given Washington’s exit from Afghanistan and Iraq and its announced pivot toward Asia. U.S. policymakers will also need to make sure they protect the sources of the country’s energy wealth. Even though private-sector players have driven nearly all the advances that unleashed the boom, their success has depended on a supportive legal and regulatory environment. Leaders at both the state and the federal levels will have to strike the right balance between, on the one hand, addressing legitimate concerns over the environmental and other risks associated with fracking and, on the other hand, securing the economic benefits of production. Likewise, leaders in the U.S. energy sector should work with public authorities to establish standards of transparency, environmental protection, and safety that can help build public confidence and address the risks of developing shale resources. And the country as a whole will have to update and expand its energy infrastructure to fully harness developments in unconventional oil and gas -- a transformation that will require substantial investments in building and modifying pipelines, railroads, barges, and export terminals.OIL AND GAS DIPLOMACY In addition to bolstering the U.S. economy, the energy boom promises to sharpen the instruments of U.S. statecraft. When it comes to levying economic sanctions, a diversified energy supply confers distinct advantages. It would have been nearly impossible to put in place the unprecedented restrictions on Iran’s oil exports, for example, absent the increase in North American supply. Unlike the sanctions against Iran, Iraq, Libya, and Sudan in the recent past, which were imposed during global oil gluts, the current sanctions on Iran were put in place when the oil market was tight and prices were high. Getting the support of other countries reluctant to impose such strict measures on Tehran required Washington to make a credible case that removing Iranian oil from the international market would not cause a price spike. The sanctions that Congress passed in December 2011 conditioned the imposition of certain strictures on the administration’s determination that there was enough oil in the global market to ask other countries to reduce their imports. While this provision gave the White House an effective waiver, it never used it, thanks to steadily increasing U.S. production of light tight oil, which compensated for the more than one million barrels a day of Iranian oil that the sanctions forced off the market. That U.S. oil allowed Washington to assuage other governments’ fears of a price spike and thereby win international support for rigid and exacting sanctions. These measures did major damage to the Iranian economy and helped push Tehran to the negotiating table. Absent new U.S. supplies, the sanctions would likely never have been approved. The energy revival is also providing U.S. trade negotiators with newfound leverage as other countries compete for access to U.S. LNG. Washington is currently negotiating two major multilateral trade deals: the Transatlantic Trade and Investment Partnership (with the 28 countries of the EU) and the Trans-Pacific Partnership (with 11 countries in the Asia-Pacific and the Americas). When it comes to LNG exports, U.S. law grants automatic approval to applications for terminals intended to ship gas to countries that have signed free-trade agreements with Washington. Applications for LNG terminals designed to send gas elsewhere, by contrast, must go through a review process that determines whether such trade is in the U.S. national interest. For the many countries in Asia and Europe that want to add U.S. natural gas imports to their energy mix, achieving this special trade status holds extra value. In fact, this incentive proved crucial in convincing Japan -- hungry for gas in the wake of the Fukushima disaster, which took its entire nuclear power infrastructure offline -- to join the talks for the Trans-Pacific Partnership.The shift in global energy also gives Washington a new way of reinforcing its alliances. Many countries now hope to follow the United States’ lead and start tapping their own unconventional gas and oil resources, and the U.S. government has started to integrate the country’s energy experience into its diplomacy. Two State Department projects -- the Unconventional Gas Technical Engagement Program and the Energy Governance and Capacity Initiative -- are bringing technical expertise from across the government to help other countries (so far, small developing ones) build up their own oil and gas industries.The government should expand on these initial efforts and link them to its broader alliance strategy by supporting such countries as Poland and Ukraine as they work to capitalize on their domestic shale reserves. New production in these and other countries would not only lessen the risk of conflict over scarce resources but also help states produce and consume more climate-friendly energy without sacrificing the economic growth they need. Washington should work to help them understand the particular policies that allowed the boom to occur on U.S. soil and, where welcome, offer advice on how to create similar environments. The United States should also begin using its new energy resources to prevent allies from being bullied by less friendly suppliers. As it reviews applications for LNG export licenses and assesses their national security implications, the Department of Energy should consider whether the proposed projects support U.S. allies -- a move that could encourage U.S. energy companies to export to such countries, helping those countries resist pressure from Russia or elsewhere. The U.S. government and its partners should also support regular forums that bring together private-sector energy experts and investors to help other countries develop their own shale resources. Although such expanded public-private dialogues would not result in increased production right away -- even in the most favorable environments, development takes years -- they would nonetheless serve as a public symbol of American solidarity. In a similar vein, the U.S. government should use its own expertise on unconventional energy to engage directly with foreign governments -- especially Beijing. The United States shares many diverse interests with China. Both countries are massive energy consumers. Both desire a stable and growing global economy, which depends on the reliable flow of reasonably priced energy. Both want to minimize climate change. And both want to diversify their energy supplies.Such an overlap of interests between the world’s top two energy consumers creates ample room for collaboration. In December, **the U**nited **S**tates **and China** reaffirmed their shared interest in “secure and well-supplied energy markets” and **discussed cooperating to develop** China’s energy resources, including **shale gas**. Chinese companies are already investing billions in shale developments at home and in the United States. But **Washington and Beijing should accelerate progress** on this front **by** broadening the U.S.-China Strategic and Economic Dialogue to include light tight oil and by **committing** real **resources** **to** the joint development of techniques for **exporting shale oil** and gas in an efficient and environmentally responsible manner. **If U.S.-Chinese relations improve, the two** sides **could work** **together** with other energy consumers **to enhance global energy security** -- for example, by extending antipiracy operations around the Horn of Africa.

## A2 Warming DA

1. The case turns the DA. Cross apply Coleman from the air pollution advantage. Fracking and burning natural gas release methane into the atmosphere which holds 105 times more heat than the C02 released by coal. In addition, Fracking causes huge increases in other air pollutants. Empirically verified by the experience of Colorado fracking sites that Coleman mentions.

2. Don’t let the neg try to nonunique the warming impact. Scientists know exactly how much methane must be leaked in order to completely offset reductions in C02 from burning natural gas instead of coal. Leakage rates higher than 2% offset any warming reduction. Romm[[30]](#footnote-30) ’11.

But what **NCAR’s new study** adds is more detailed modeling of all contributors to climate change from fossil fuel combustion — positive and negative. The study is here [they just eliminated the subscription requirement], the news release is here. It’s **by** senior research associate **Tom Wigley, one of the country’s leading experts on climate modeling.** “**Relying more on natural gas would reduce** emissions of **carbon dioxide, but** it **would do little to help solve the climate problem,**” says Wigley, who is also an adjunct professor at the University of Adelaide in Australia. “It would be many decades before it would slow down global warming at all, and even then it would just be making a difference around the edges.” **Wigley’s analysis** is the first to include all of the relevant climate factors: We **consider a scenario where a fraction of coal usage is replaced by natural gas** (i.e., methane, CH4) over a given time period, **and where a percentage of the gas production is assumed to leak into the atmosphere**. The additional CH4 from leakage adds to the radiative forcing of the climate system, offsetting the reduction in CO2 forcing that accompanies the transition from coal to gas. We also consider the effects of methane leakage from coal mining; changes in radiative forcing due to changes in the emissions of sulfur dioxide and carbonaceous aerosols; and differences in the efficiency of electricity production between coal- and gas-fired power generation. **On balance, these factors more than offset the reduction in warming due to reduced CO2 emissions**. In the main scenario in the paper, natural gas use soars and coal use drops from 2010 to 2050 before rising again slowly. In the “Supplementary Material,” Wigley runs a sensitivity analysis where natural gas actually replaces coal entirely by 2050. The results are virtually identical — there’s extra warming through 2050 and by 2100 the total reduction in warming is slightly under 0.1°C.Wigley’s warming in 2100 is “only” 3°C (though it just keeps warming and hits 4°C a few decades later). Other models show 2100 warming closer to 4°C or 5°C (see M.I.T. doubles its 2095 warming projection to 10°F — with 866 ppm and Arctic warming of 20°F). Either way, the switch to gas accomplishes little or nothing. **A key finding of the** NCAR **study is**: In summary, our results show that the substitution of gas for coal as an energy source results in increased rather than decreased global warming for many decades — out to the mid 22nd century for the 10% leakage case. This is in accord with Hayhoe et al. (2002) and with the less well established claims of Howarth et al. (2011) who base their analysis on Global Warming Potentials rather than direct modeling of the climate…. The most important result, however, in accord with the above authors, is **that, unless leakage rates for new methane can be kept below 2%, substituting gas for coal is not an effective means for reducing the magnitude of future climate change.**

But Methane leakage at natural gas field are between 6% and 12%. Romm 2

**A major new study** in Geophysical Research Letters by 19 researchers — primarily from NOAA and the Cooperative Institute for Research in Environmental Sciences (CIRES) — suggests natural gas may be more of gangplank than a bridge. Scientists **used a research aircraft to measure leakage** and found: The measurements show that on one February day in the Uintah Basin, **the natural gas field leaked 6 to 12 percent of the methane produced, on average**, on February days. The Environmental Defense Fund (EDF) called the emissions rates “alarmingly high.” While the researchers conducted 12 flights, “they selected just one as their data source for this paper,” ClimateWire reports**. Researchers actually measured higher emissions on other flights, but atmospheric conditions during those flights “gave the data more uncertainty.”** **The Uinta Basin** is of particular interest because it “**produces about 1 percent of total U.S. natural gas” and fracking has increased there over the past decade**. This study confirms earlier findings of high rates of methane leakage from natural gas fields. If these findings continue to be replicated elsewhere, they would utterly vitiate the direct climate benefit of natural gas, even when it is used only to switch off coal.

AND estimates of US leakage will underestimate leakage at Chinese fracking sites. Cross apply McMahon and Franco. Chinese firms have less knowledge of the fracking process and the technology necessary to extract it without harm. China shale gas is also located in regions that make it harder to mine and Chinese firms and face far fewer environemental regulations. My Bradhser evidence points out that Chinese energy firms specifically operate in secrecy and avoid regulations. Leakage rates are therefore likely to be far higher than 12%.

3. T/Measures of Natural Gas emissions don’t take into account the emissions created from the expansion of industries that rely on natural gas. Horn[[31]](#footnote-31) ’13.

Meanwhile, **a report recently published by the Environmental Integrity Project** sounds the alarm bell on fracking's climate change footprint. The report **evaluates federal government data for industries utilizing gas as a feedstock.** “**The shale gas boom has unleashed a tidal wave of proposals to build new** compressors and **pipelines, and expand chemical, fertilizer, and petroleum plants that depend on natural gas for f**eedstock or **fuel,**” that report explains. “Since January 1, 2012, **these industries have proposed** or already obtained…**permits that authorize a 91 million ton increase in greenhouse gas emissions** — **as much as the output from twenty large** (500 megawatt) **coal-fired power plants.”** The report's caveats, though, make the findings all the more alarming. “**The total does not include new emissions from proposed gas-fired power plants** or the multitude of smaller wells, **gas processing plants,** compressor stations, **and flares springing up** across the landscape in shale-rich states like North Dakota, Pennsylvania, and Texas,” the report goes on to explain.

4. Internal link terminally nonunique- SNG plants are being built in the status quo, which is far worse for C02 emissions, outweighs any residual effect fracking has on the environment. Bhuiyan[[32]](#footnote-32) ‘13

If[images](http://www.nytimes.com/2013/04/02/world/asia/air-pollution-linked-to-1-2-million-deaths-in-china.html?_r=0)of the smog and smoke-covered cities in China aren't a clear enough indication of China's pollution problems, then consider this: These levels of pollution will cause[500 million people to lose an aggregate 2.5 billion years from their lives](http://www.theguardian.com/environment/2013/jul/08/northern-china-air-pollution-life-expectancy). Fortunately, at the beginning of September, **China announced it was working to cut** back on **coal use**. These[**plans include ruling out any construction of**](http://www.bbc.co.uk/news/world-asia-china-24068519)**new coal power plan**ts in and around China's major cities. **However**, according to an[essay](http://people.duke.edu/~cy42/SNG.pdf)in the journal Nature Climate Change,**China is planning to build 40** **new** synthetic natural gas **(SNG) plants**. **These** plants **will convert coal into natural gas**, which would ideally burn more cleanly and clear the air in major cities.But in an attempt to clear the urban air, China is blowing smoke, so to speak, into its countryside. These SNG plants will be built in places like Mongolia or Xianjian, hidden away from the cities. Making matters worse, **the plants aren't environmentally friendly**. **They will create** an estimated[**36-82%**](http://www.washingtonpost.com/blogs/wonkblog/wp/2013/09/26/chinas-efforts-to-clean-up-air-pollution-could-be-a-climate-disaster/?a)**more greenhouse ga**s emissions **than burning coal**. SNG has a carbon footprint that is roughly **seven times that of conventional natural gas**. Cleaning up the pollution in cities may drive up[foreign tourism in China](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&ved=0CDcQFjAB&url=http%3A%2F%2Fwww.forbes.com%2Fsites%2Fsimonmontlake%2F2013%2F08%2F13%2Fchinas-crazy-bad-air-pollution-deters-tourists-and-traders%2F&ei=c2JEUpyGK_as4AOEqYDwCA&usg=AFQjCNFJOS-ICGTC9e9IQxEwQM_bthIpmw&bvm=bv.53217764,d.eWU), but it's only adding to greenhouse emissions. Does China actually care about the environment?As of now, China has approved nine of these plants. On their own, **these plants will create**[**21 billion tons of carbon dioxide over 40 years**](http://www.washingtonpost.com/blogs/wonkblog/wp/2013/09/26/chinas-efforts-to-clean-up-air-pollution-could-be-a-climate-disaster/?a)**, according to Professors** Chi-Jen **Yang** **and** Robert B. **Jackson** **of Duke** University, authors of the piece in Natural Climate Change. **Yang and Jackson suggest Chinese policymakers** either delay the construction of these plants or, better yet, **cancel them**. Yang and Jackson argue that fracking for shale gas is a less damaging alternative for the climate and the economy. But, like many energy options, it's a double-edge sword. Not only does fracking have its own[environmental pitfalls](http://www.dangersoffracking.com/), which include pumping dangerous chemicals into water supplies, but China also has to get through[both geographic and bureaucratic challenges](http://www.washingtonpost.com/world/china-struggles-to-tap-its-shale-gas/2013/04/30/33f8c19a-b0f1-11e2-9fb1-62de9581c946_story.html). As of right now, natural gas makes up only about[4%](http://www.eia.gov/countries/cab.cfm?fips=CH)of China's energy consumption while coal weighs in at about 70%.  Needless to say, China is in a rather difficult situation, environmentally, politically and economically. If all else fails, tourists can always pretend Hong Kong's skyline is[picture perfect](http://www.theatlantic.com/china/archive/2013/08/hazy-skies-in-hong-kong-just-pose-with-a-fake-skyline/278997/).

5. Neg has no risk of offense- he can’t fiat China stops using coal which is turned into natural gas by SNG plants- at best he wins fracking removes demand for natural gas from SNG plants, but that has a near zero probability considering China is already invested in building the plants and that every piece of 1AC evidence indicates the timeframe in which fracking would solve means uniqueness overwhelms the link.

## Studies FLs

***A2 UT Methane Study***

Voluntary nature of the UT study’s data collection biases the results and dramatically underestimates industry leakage. Prefer my Romme evidence that cites an NCAR study with unbiased data collection. Romm[[33]](#footnote-33) ’13.

Physicians Scientists & Engineers for Healthy Energy called the study “fatally flawed,” and posted a detailed critique.

I think **there are two key**, related **issues**. First, the EDF FAQ notes: **Nine natural gas companies, out of thousands of producers in the U.S**., **volunteered for** this study. **The UT study collected data** that characterized the practices **at particular sites** operated by the participating companies, **not industry at large.** In 2011, the participants accounted for roughly 12% of all U.S. gas wells, 16% of gross gas production and almost half of all new well completions. Bill Chameides, Dean of Duke University’s Nicholas School of the Environment, explains what this means in his HuffingtonPost piece: **It could be that this subset of companies** — the ones **willing to have their sites measured** — **are the ones that are most careful to limit leakage and thus** are **not representative of the industry**.

You may recall that **a major study** this August in Geophysical Research Letters from 19 researchers led **by NOAA** suggested natural gas may be more of gangplank than a bridge. Scientists **used a research aircraft to measure leakage and found:** The measurements show that on one February day in the Uintah Basin, **the natural gas field leaked 6 to 12 percent of the methane produced**, on average, on February days. Ouch. The Uinta Basin is of particular interest because it “produces about 1 percent of total U.S. natural gas” and fracking has increased there over the past decade. **How to explain the discrepancy** in measured leakage rates**?** Energy Wire talked to Colm Sweeney, who co-authored the NOAA-led study that found high leakage. He “drove around for an hour in a basin in Texas recently, measuring methane emissions from 23 well pads.” The result: He found nine wells were clean. Eight wells had emissions enhanced by 20 percent above background. And five wells showed enhancements of methane 100 percent over background. Those are the super-emitters. **The super-emitters are lost in** a study released this week by scientists at **the U**niversity of **T**exas, Austin, and the Environmental Defense Fund. Sweeney believes that explains the discrepancy: **The 0.42 percent is the average of a bunch of good actors but not necessarily representative of the real world, Sweeney cautioned.** He compared the exercise to doing a Nielsen survey, in which a poll worker calls 100 people to see how much television they watch. The worker would miss someone in the mountains without a phone who is watching 24 hours of television a day. “**You got your average** from those 100, **but you are missing the big guys**,” he said.

***A2 2014 Journal of Science Study***

Study Bias – organized by a pro-fracking organization. Bowen[[34]](#footnote-34) ’14.

**A new study published in the Journal of Science** found that the EPA is under estimating the amount of methane emitted in the United States by about 50 percent. Much of that excess is due to leaks of natural gas in fracking. Still other leaks are occurring as utilities switch from coal to gas. Methane is a greenhouse gas, which is recognized by nearly all legitimate scientists as the major cause of climate change. The new study determined that 1.5 percent of America’s natural gas system is leaking. This latest study **was funded by the Cynthia and George Mitchell Foundation, a philanthropic organization founded by the pioneer of hydraulic fracturing, the late George Mitchell.**

***A2 Muller “Why every Environmentalist should support Fracking” article***

Mullers and their co-authors are intimately connected to the drilling industry. Coleman[[35]](#footnote-35) ‘13

The report comes as **Muller, along with co-author and daughter Elizabeth**, **are starting a new venture called the China Shale Fund,** which seeks to promote shale drilling and fracking in China. **The third member of China Shale Fund is Marlan Downey, a longtime Shell executive who specializes in opening up oil and gas operations in developing countries.** Downey currently serves on the board of Roxana, a shale gas drilling company and Berkeley Earth, the nonprofit by whom Richard and Elizabeth Muller are currently employed. Through his connections with Downey, **Richard Muller has made several trips to meet with Shell in Texas, and has visited Shell’s drilling sites** in China.

Wigley/NCAR methodology

“Coal to gas: the influence of methane leakage.” Tom Wigley, National Center for Atmospheric Research. Journal of Cliamtic Change. August 2011.

**We begin with a standard “no-climate-policy” baseline emissions scenario, viz. the MiniCAM Reference scenario** (MINREF below) from the CCSP2.1a report (Clarke et al. 2007). (Hayhoe et al. used the MiniCAM A1B scenario, Nakićenović and Swart 2000.) We chose MINREF partly **because it is a more recent “no-policy” scenario,** but **also** because **there is an extended version** of MINREF **that runs beyond 2,100 out to 2,300 (**Wigley et al. 2009). **The longer time horizon is important because of the long timescales involved in the carbon cycle** where changes to CO2 emissions made in the 21st century can have effects extending well into the 22nd century. (A second baseline scenario, the MERGE Reference scenario from the CCSP2.1a report, is considered in the Electronic Supplementary Material).

In MINREF, coal combustion provides from 38% (in 2010) to 51% (in 2100) of the emissions of CO2 from fossil fuels. (The corresponding percentages for gas are 19 to 21%, and for oil are 43 to 28%.) **For our coal-to-gas scenario we start with their contributions to energy**. It is important here to distinguish between primary energy (i.e., the energy content of the resource) and final energy (the amount of energy delivered to the user at the point of production). **For a transition from coal to gas, we assume that there is no change in final energy**. As electricity generation from gas is more efficient than coal-fired generation, the increase in primary energy from gas will be less than the decrease in primary energy from coal — the differential depends on the relative efficiencies with which energy is produced.

To calculate the change in fossil CO2 emissions for any transition scenario we use the following relationship relating CO2 emissions to primary energy (P)...

ECO2 1⁄4 A PcoalþB PoilþC Pgas ð1Þ

where A, B and C are representative emissions factors (emissions per unit of primary energy) for coal, oil and gas. The emissions factors relative to coal that we use are 0.75 for oil and 0.56 for gas, based on information in EPA’s AP-42 Report (EPA 2005). Using the MINREF emissions for CO2 and the published primary energy data give a best fit emissions factor for coal of 0.027 GtC/exajoule, well within the uncertainty range for this term.

To determine the change in CO2 emissions in moving from coal to gas under the constraint of no change in final energy we use the equivalent of Eq. (1) expressed in terms of final energy (F). This requires knowing the efficiencies for energy production from coal, oil and gas (i.e., final energy/primary energy). If F=P×(efficiency), then we have

ECO2 1⁄4 ðA=aÞFcoal þ ðB=bÞFoil þ ðC=cÞFgas ð2Þ

where a, b and c are the efficiencies for energy production from coal, oil and gas. For changes in final energy (ΔF) in the coal-to-gas case, ΔFoil is necessarily zero. To keep final energy unchanged, therefore, we must have ΔFgas = −ΔFcoal. Hence, from Eq. (2) ...

or ...

ΔECO2 1⁄4 ðΔFcoalÞðA=a C=cÞ ð3Þ ΔECO2 1⁄4 A ΔPcoal1⁄21 ðC=AÞ=ðc=aÞð4Þ

As ΔPcoal is negative, the first term here is the reduction in CO2 emissions from the reduction in coal use, while the second term is the partially compensating increase in CO2

Climatic Change

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Climatic Change

￼emissions from the increase in gas use. Our best-fit value for A is 0.027 GtC/exajoule, and C/A=0.56. To apply Eq. (4) we need to determine a reasonable value for the relative gas-to- coal efficiency ratio (c/a), which we assume does not change appreciably over time. For electricity generation, the primary sector for coal-to-gas substitution, Hayhoe et al. (2002, Table 2) give representative efficiencies of 32% for coal and 60% for gas. Using these values, Eq. (4) becomes ...

ΔECO2 1⁄4 0:027 ΔPcoal1⁄21 0:299ð5Þ

for ΔECO2 in GtC and ΔP in exajoules. Thus, for a unit reduction in coal emissions, there is an increase in emissions from gas combustion of about 0.3 units.

To complete our calculations, we need to estimate the changes in methane, sulfur dioxide and black carbon emissions that would follow the coal-to-gas conversion. Consider methane first. Methane is emitted to the atmosphere as a by-product of coal mining and gas production. Although these fugitive emissions are relatively small, they are important because methane is a far more powerful forcing agent per unit mass than CO2.

For coal mining we use information from Spath et al. (1999; Figs. C1 and C4). A typical US coal-fired power plant emits 1,100 gCO2/kWh, with an attendant release of methane of 2.18 gCH4/kWh, almost entirely from mining. Thus, for each GtC of CO2 emitted from a coal-fired power plant, 7.27 TgCH4 are emitted from mining. Spath et al. give other information that can used to check the above result. They give values of 1.91 gCH4 released per ton of coal mined from surface mines, and 4.23 gCH4 per ton from deep mines. As 65% of coal comes from deep mines, the weighted average release is 3.42 gCH4/ ton. Since 1 ton of coal, when burned, typically produces 1.83 kgCO2, the amount of fugitive methane per GtC of CO2 emissions from coal-fired power plants is 6.85 TgCH4/ GtC, consistent with the previous result. For our calculations we use the average of these two results, 7.06 TgCH4/GtC; i.e., if CO2 emissions from coal-fired power generation are reduced by 1 GtC, we assume a concomitant decrease in CH4 emissions of 7.06 TgCH4. We assume that this value for the USA is applicable for other countries.

For leakage associated with gas extraction and transport we note that every kg of gas burned produces 12/16 kgC of CO2. If the leakage rate is “p” percent, then, for any given increase in CO2 emissions from gas combustion, the amount of fugitive methane released is (p/100) (16/12) 1000=13.33 (p) TgCH4/GtC. For a leakage rate of 2.5%, for example (roughly the present leakage rate for conventional gas extraction), this is 33.3 TgCH4/GtC. Because the CO2 emissions change from gas combustion is much less than that for coal (about 30%; see Eq. (5)), for the 2.5% leakage case this would make the coal mining and gas leakage effects on CH4 quite similar (but of opposite sign), in accord with Hayhoe et al. (2002, Table 1).

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