R2R

Because "Credibility is the cornerstone of deterrence… "

We affirm, resolved: the United States should accede to the United Nations Convention on the Law of the Sea.

Our first contention is restoring American credibility.

Galdorisi of the Naval war College predicted in 96: Continued opposition to the law of the sea would be seen as an implicit rejection of the very goal of the world order through international law. It might be construed as a belief that unilateralism is a viable policy when backed by military force. Full participation in the Convention offers an opportunity to exercise world leadership.

Unfortunately this prediction has come true. A lack of commitment to international institutions such as the TPP or Iran Deal, the US is losing its international credibility and allies. According to a Gallup global poll in 2018, confidence in US leadership is dropping to historic lows.[1]

Thus, Cronin of the Diplomat writes in June:
Adopting UNCLOS would bolster American leadership at a time when many question its reliability and staying power.

Galdorisi furthers in 07'
U.S. refusal to ratify this Convention, widely regarded as one of the most important international agreements ever negotiated, raises fundamental questions regarding not only the future of legal regimes applicable to the world's oceans, but also U.S. leadership in promoting international law and order. This, in turn, makes the United States little more than an outsider

Bolstering US credibility is crucial in deterring Russia.

[1] https://news.gallup.com/poll/225761/world-approval-leadership-drops-new-low.aspx

In order to deter Russian Expansion, Tobey of Harvard University writes in 2014:

The most urgent matter is to re-establish the American credibility so regrettably squandered over the past several years - Credibility is the coin of the realm in international politics. Allies and adversaries need to know again that America will defend its interests.

A lack of commitment has only exasperated the crisis: Krasner of Stanford University writes in 2017: Trump's rhetoric lowered the constraints on risky actions that the Russian leadership might take in the Baltics and in other former-communist areas in Europe. Increasing the Defense Department budget cannot by itself undo that.

Thus, Hendrix of the National Review writes in February:

It's clear that Putin's grand strategy is to rebuild Russia's empire of buffer states in an attempt to assuage his nation's cultural paranoia regarding outside invaders. He is playing a vast chess game with NATO, and his next move will be to invade the Baltic nations of Estonia, Latvia, and Lithuania.

Our second contention is securing a renewable future.

Renewable energy is losing out against fossil fuels. Raval 18 at the Financial Times reports: Investment in renewable power declined last year by its largest amount ever and is likely to keep falling this year, threatening global climate goals.

This is because renewable technologies will only become widely adopted if it is cheaper than fossil fuels, and to be cheaper, the metals that make these technologies will need to be readily available. Apergis 17 at the University of Kent explains: the impact of rare earth prices, the metals that make solar panels and wind turbines, are crucial in determining future renewable consumption.

However, investment is falling in renewables because there aren't currently enough rare earths to make renewables economically viable. Baggaley 17 at NBC writes: these metals are becoming more expensive to acquire on land. These days, land-based miners are heading deeper into the earth for lower grade mineral deposits. The solution is to turn to the sea, where these metals are far more abundant. For example, Carrington 17 at the Guardian writes that tellurium, a key metal for high performance solar panels, is 50,000 times more concentrated in deep sea deposits than in land ores.

Specifically to the US, according to CBC in 2011: rare earth elements are so abundant on the bottom of the ocean that just one square kilometre of ocean floor in the South Pacific Ocean could supply one-fifth of the current annual world consumption.

This is where affirming the law of the sea comes in. Rogers at the Center for a New American Security explains in 2012: U.S. companies increasingly seek to engage in seabed mining for rare earth elements. However, as long as the United States remains outside the international legal protections afforded by the law of the sea, the private sector remains hesitant to invest in seabed mining. Allowing US companies to mine the seabed gives them access to a wealth of resources that will ensure that renewables become cost-competitive.

More Green Tech is crucial Liddle of York University quantifies in 2016

A 1% increase in non-fossil fuel electricity generation reduces CO2 emissions by 0.75%

This switch will save millions of lives. In just just one specific example, Mills at Michigan Technological University estimates in 2017: by transitioning to solar power in the US, nearly 52,00 American lives would be saved from air pollution-related deaths each year.

Ultimately, Lomberg 13 concludes that for every dollar you invest in green technology development, you save $11 in climate damage.

Thus, we affirm.

Cards

World Order

Grossman, Yale, 2018, The Case for US Global Leadership, https://yaleglobal.yale.edu/content/case-us-global-leadership (NK)

Since the conclusion of the Second World War, the United States and its allies have led in building multiple international institutions that promote trade, security and diplomacy – including the United Nations, the World Trade Organization and NATO. Yet too many Americans do not understand the careful diplomacy and many benefits behind the liberal rules-based international order. "**Today, that order – created by Americans and our allies and friends and supported and upheld by US military and diplomatic power – is under attack at home and abroad**," explains Marc Grossman, former Under Secretary of State for Political Affairs with the US State Department and now a vice chairman with the Cohen Group. "The urgent challenge is to convince a larger audience that the international system the United States created and defended remains a crucial foundation of Americans' wealth and power." **The alternative to cooperative international order is nationalism and unending conflict as strongmen try to outdo one another.** Grossman offers talking points for defending the order, including emphasizing the benefits of clear international rules and the influence and power that come with cooperating with other democracies. – YaleGlobal

China

Second is China.

Decreasing US credibility In South East Asia has allowed for the unrestricted rise China. This is problematic, as Legarda of The Center For American Progress explains in November:

The Trump administration's unclear approach to countering Chinese maritime aggression is allowing China to capitalize by quietly bullying neighbors. When the United States fails to stand up for rules-based dispute resolution, China can secure narrow benefits for themselves while harming the interests of smaller countries and the international norms that help prevent disputes from escalating into conflict

However, affirming restores our credibility and in turn our allies faith in us. Cardin of the Diplomat writes: Joining UNCLOS would communicate that for the United States, resolution of maritime disputes in the South China Sea is about being on the side of international law, institutions, and norms.

James Kraska Furthers for Foreign Policy in 2012 furthers:
Beijing has repeatedly challenged the legal right of the United States to maintain an offshore naval presence in the region's inner seas. the Law of the Sea protects the freedom of navigation of the United States. The treaty can thus help prevent China from standing between the United States and its treaty allies.

Thus the impact is. Preventing Chinese bullying

Tham of the Diplomat reports this May that on the current course,
as Beijing accrues naval dominance in the SCS, the rules meant to regulate its behavior are likely to matter less and less. there would be nothing stopping China from 'teaching its neighbors a lesson' – like how it taught Vietnam painful lessons during 1979 Third Indochina War

Even if a full-scale invasion does not happen, China will still pursue forms of economic coercion such as sanctions, as the National Interest explains they did to South Korea in 2016 when they put in new Missile Defense.

Law of the sea and US leadership (Galdorisi - Naval War College)

George Galdorisi, US Naval War College, 1996, https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=3116&context=nwc-review (NK)
The Clinton administration realized that US. refusal to accede to a Convention widely regarded as one of the most important international agreements ever negotiated would raise fundamen tal questions regarding not only the future legal regime applicable to the world's oceans but also the overall role of the United States. By actively promoting "leadership for peace" in the politically and economically important matter of rationalizing maritime laws and regulations, the United States hoped to be able to ensure itself a major role in shaping a posthegemonic global order.61 Conversely, the White House recognized that if the United States remained outside the Convention, it would not be in a position to

influence the treaty's further development and interpretation, transition, and refinement.62 More broadly, **continued mute opposition seemed likely not only to jeopardize important national interests in the law of the sea but also to be seen as an implicit rejection ofthe very goal ofworld order through international law.** In even less charitable eyes, **it might be construed as a belief that unilateralism is a viable policy when backed by military force.63 It appeared that full participation in the Convention offered an opportunity to exercise world leadership in a context far broader than had been possible during the Cold War.** Clearly, the totality of these ten factors support the decision that accession to the 1982 United Nations Convention on the Law of the Sea was in the best interests of the nation politically, economically, and strategically. The nation crossed a tremendous policy chasm in the decade between Ambassador Malone's attack on the Convention and its submission by President Clinton to the Senate for advice and consent. This action was taken only after exhaustive interagency review, and it represented a true consensus of the executive branch, particularly the departments of State and Defense. Now it is up to the "world's greatest

UNCLOS bolsters global leadership (Cronin - Diplomat)

Patrick M. Cronin and Melodie Ha, The Diplomat, 6-22-2018, "Toward a New Maritime Strategy in the South China Sea," Diplomat, https://thediplomat.com/2018/06/toward-a-new-maritime-strategy-in-the-south-china-sea/ (NK)

Finally, it's time to deny China the hollow claim that Beijing follows international maritime law, while Washington flouts it. The opposite is true. China has ratified the United Nations Convention on the Law of the Sea (UNCLOS) but adheres to it selectively by privileging domestic law and unilaterally asserting historical rights. In contrast, the United States Department of Defense abides by UNCLOS as a matter of customary international law, even though the United States has never ratified the treaty. The United States should at long last ratify UNCLOS to advance America's interests by reinforcing favorable rules for the governance of the world's oceans on which we depend. **Adopting UNCLOS would bolster American leadership at a time when many question its reliability and staying power**. These four steps are not a substitute for a comprehensive Indo-Pacific strategy. But collectively, these steps could be the beginning of a stronger network of partners and provide the means of preventing any single nation from unilaterally determining the rules for the world heading into the 21st century.

Stephen D. Krasner, June 2017, "Why We Need Foreign Aid," American Interest, https://www.the-american-interest.com/2017/06/19/need-foreign-aid/ (NK)

Hard military power is clearly essential for addressing some of the security challenges facing the United States, especially those coming from hostile and potentially hostile foreign powers, notably Russia and China. These challenges are fairly straightforward, but even in these cases military power is necessary but not sufficient. Short of major war, policy aims to prevent hostile powers from jeopardizing U.S. interests and those of its allies. **Containment and deterrence require clarity, and clarity is a function of the orchestration of words and deeds—otherwise known as diplomacy**. Consider one case to illustrate the point: Would the United States really defend the Baltic States if one or more of them were invaded or subverted by Russia? Would it put New York or Washington at risk for Tallinn or Riga? Having the military power to credibly do such things is the backbone of a policy intended to obviate war without sacrificing interests. The complementary non-military components of deterring hostile or potentially hostile great powers are just as critical, but less tangible and more fragile. **The United States has in the past tried to make its commitments to Estonia, Latvia, and Lithuania clear through treaty obligations and presidential rhetoric, but Donald Trump has already undermined the credibility of these commitments by questioning the value of U.S. alliances, however much he has tried to backpedal. Trump's rhetoric lowered the constraints on risky actions that the Russian leadership might take in the Baltics and in other former-communist areas in Europe. Increasing the Defense Department budget cannot by itself undo that.** The other major security challenges confronting the United States are less traditional and less straightforward but arguably not less important. They include defending against transnational terrorism, pandemic diseases, and the effects of massive migration—challenges that cannot be adequately addressed using the resources of the Department of Defense alone. This is something the current Secretary of Defense knows quite well and has often said. All three threats have a common source: poorly governed, failing, and weak or malign states.

William H. Tobey, 3-3-2014, "Responding to Russian Aggression in Ukraine and Restoring U.S. Credibility," Belfer Center for Science and International Affairs, https://www.belfercenter.org/publication/responding-russian-aggression-ukraine-and-restoring-us-credibility (NK)
What has Barack Obama's administration done to respond? The first statement by the U.S. president failed to deter the Russians. His key sentence was "The United States will stand with the international community in affirming that there will be costs for any military intervention in Ukraine." Russian forces blew past that warning like tanks at an unguarded checkpoint. A later 90-minute phone call between Obama and Russian Vladimir Putin yielded no better results. **The most urgent matter is to re-establish the American credibility so regrettably squandered over the past several years** -- in Afghanistan by simultaneously announcing a surge and a retreat, in Iran with unenforced and ever-moving red lines, and in Syria with incomprehensible vacillation that left Syrian President Bashar al-Assad in a stronger position after American threats. **Credibility is the coin of the realm in international politics. Allies and adversaries need to know again that America will defend its interests.** When the president speaks of "consequences" and "costs" associated with violations of international law and failure to comply with arms control and nonproliferation agreements, the country cannot afford to have other nations doubt his resolve.

Jerry Hendrix, 2-5-2018, "When Putin Invades the Baltics," National Review, https://www.nationalreview.com/magazine/2018/02/05/vladimir-putin-invade-baltics/ (NK)

Vladimir Putin is playing a vast chess game with NATO, and his next move will be to invade the Baltic nations of Estonia, Latvia, and Lithuania. When this happens, the United States will need to move armored forces quickly to Europe, via Poland, in order to prevent NATO from being checkmated, and it's going to have a problem doing that. Note that I said "when" Putin invades rather than "if." **It's clear that his grand strategy is to rebuild Russia's empire of buffer states in an attempt to assuage his nation's cultural paranoia regarding outside invaders.** It is equally clear, given his stated intention to seek another term, that he can afford to be patient. So far, Putin has done everything he can do without provoking a NATO response, a line that's easy to toe because the United States and its allies have been more than transparent about their approach to conflicts. Beginning in the early 1990s, after the Desert Shield–Desert Storm campaign, the U.S. articulated a doctrine according to which there are six phases of war: "shaping" the pre-war environment (phase zero), "deterring" the enemy (phase one), "seizing the initiative" (phase two), "dominating" the battlespace (phase three), "stabilizing" the post-battle environment (phase four), and after-action enabling of civil authority (phase five). It has since become clear that the first two phases, shaping and deterrence, are the arenas where the United States and NATO prefer to operate, and Putin has taken advantage of this tendency. He has waged nearly constant cyber, economic, and military combat against the West but has always stopped short of actions that would trigger phase-three operations, such as a recognizable military incursion across a defined border.

Helena **Legarda**, 11-29-2017, "As Trump Withdraws America from the World, Xi's China Takes Advantage," Center for American Progress, https://www.americanprogress.org/issues/security/reports/2017/11/29/443383/trump-withdraws-america-world-xis-china-takes-advantage/ (NK)

The Trump administration's approach to Asia to date has been mostly focused on North Korea and addressing perceived trade problems[4]—resulting in a diminution of U.S. leadership in the region. **The absence of the United States from the TPP sent shockwaves through Asia: It damaged U.S. credibility by ripping up an agreement painstakingly negotiated with the United States over years and for which many countries made significant domestic political sacrifices of their own**; it withdrew the potential for the region to foster closer economic relations with the world's largest economy; and it left the United States out of the regional conversations about trade as Asian markets integrate.[5] Further, **Trump's criticism of allies has also damaged U.S. credibility in Asia, making U.S. allies and partners nervous and fueling conversations in capitals across Asia about whether countries need to adjust their regional policies accordingly.** In Australia, a veteran journalist said that Trump's foreign policy decisions had "pressed fast-forward on the decline of the United States."[6] One South Korean publisher wrote an op-ed in *The New York Times* stating that "it now looks like America could bring our doom."[7] Japanese foreign policy commentator Yoichi Funabashi said, "The U.S. withdrawal from T.P.P. was the biggest shock to the alliance since Nixon went to China."[8] The list goes on. **As the closest partners of the United States in this region increasingly view the United States as untrustworthy and unreliable, hedging their bets and decreasing the weight they give to U.S. preferences in their own decision-making are the logical next steps if these trends continue**. And in Asia today, that means also thinking through any necessary accommodations to Beijing as its

power grows. In the meantime, the region's long-held fears of a distracted United States and rising Chinese influence are quietly coming true. The U.S. withdrawal from the TPP has shifted the region's economic attention to the Regional Comprehensive Economic Partnership (RCEP) and a TPP-11 deal, neither of which includes the United States.9 The United States will be unable to influence the content of either of these agreements, missing out both on the potential benefits of increased access to these markets and on the opportunity to mitigate the negative side effects of trade and their potentially negative effects on the U.S. economy and on vulnerable societies in the region. While the Trump administration criticizes the U.S.-Korea Free Trade Agreement and focuses on addressing bilateral trade deficits, the rest of Asia is moving ahead to write the rules of regional trade and gain advantages in the world's second-largest economy. China—as the region's largest economy and with growing economic ties with its neighbors10—is the biggest beneficiary of the lack of a U.S. economic strategy in Asia because it can eat up larger shares of markets in the region, while undermining principles such as upholding labor rights and environmental protections that the United States often pushes in economic engagement abroad. Likewise, **the Trump administration's unclear approach to countering Chinese maritime aggression is allowing China to capitalize by quietly bullying neighbors**. **When the United States** and Europe **fail to stand up for rules-based dispute resolution, China**—and other powerful states that tend to behave similarly—**can secure narrow benefits for themselves while harming the interests of smaller countries and the international norms that help prevent disputes from escalating into conflict**. While the U.S. Department of Defense has appeared to adopt a more regular schedule of freedom of navigation operations in the South China Sea11—a positive move—it is unclear whether the South and East China Sea maritime disputes have registered as a priority on the Trump administration's agenda. There is no sign that President Trump has raised the issue with President Xi, without which no U.S. approach to the South China Sea can be effective. Meanwhile, China has continued to fortify its new military bases on its outposts in the South China Sea and to extract resources from disputed areas with impunity.12 China's neighbors are also much more worried as China's assertiveness is meeting less U.S. resistance. In one case this summer, for instance, Vietnam gave in to Chinese pressure over Vietnamese oil drilling that irked China, supposedly because Hanoi realized that the United States would not push back against Beijing.13 **Without the United States battling on behalf of international norms in the South China Sea, China's divide and conquer strategy is increasingly successful in bullying individual Southeast Asian countries that cannot push back without U.S. support, and by dividing the ability of the Association of Southeast Asian Nations to unify in response to China's assertiveness**. Likewise, in the East China Sea, reports indicate another spike in Chinese exploration for gas—along with Chinese vessels—in disputed waters in 2017.14 A rise in activity in the East China Sea could spike tensions with U.S. ally Japan, as happened in 2012 and 2013,15 and once again pull the United States into the dispute on behalf of its allies. China's influence in Asia has been rising for years, but without a coherent U.S. or European strategy to work with China where possible and push back against China when necessary, the Trump administration and the European Union are allowing regional challenges to fester. Trump's myopic focus on North Korea and trade in Asia is blinding the U.S. administration to the broader changes taking place in Asia and to the moves that China is making that could harm U.S. interests.

Brian Moore, 9-8-2016, "Why China's 'Bully' Strategy in the South China Sea (and Beyond) Has Failed," National Interest, https://nationalinterest.org/blog/the-buzz/why-chinas-bully-strategy-the-south-china-sea-beyond-has-17621 (NK)

It's time to put that shibboleth aside. After misjudging the balance of power following the Great Recession of the late 2000s -- overestimating the decline of the United States -- **China has engaged in a series of confrontations in the East and South China Sea**. These engagements have produced more problems than successes. Moreover, **Beijing has doubled-down on this behavior, unleashing a barrage of threats and practicing high-handed diplomacy toward its neighbors**. This is not visionary or strategic genius; in fact, it looks downright dumb. S**outh Korea was one target of China's offensive rhetoric. In response to Seoul's decision to implement the US-manufactured Terminal High Altitude Area Defense system (THAAD) -- a missile defense system that aims to counter North Korean capabilities -- China has vented its displeasure, using economic and political tools to hammer home its point**. China opposes any deeper US-ROK defense cooperation, and missile defense is a focus of its displeasure. China has blocked South Korea's media exports, including popular television dramas and pop music known as Hallyu. A recent article in Global Times, a hardline Chinese news outlet, reported that programs involving South Korean stars would be blocked, and that exporting of South Korean culture will inevitably feel the chill in China if Seoul sticks to THAAD deployment. The article concluded, ominously, that "South Korea is asking for trouble."

https://www.nytimes.com/interactive/2018/03/09/world/asia/china-us-asia-rivalry.html

REMs

Our second contention is supporting the renewable revolution.

Renewable energy is in danger of losing the war against fossil fuels. Than writes in Stanford Earth in 2018: green technologies like electric cars and solar panels rely on Critical and rare metals — which include lithium, copper, uranium, gold, and so-called rare earth elements.

Than 18 Ker Than, 1-17-2018, "Critical minerals scarcity could threaten renewable energy future," Stanford Earth, https://earth.stanford.edu/news/critical-minerals-scarcity-could-threaten-renewable-energy-future //DF

As population and standards of living rise in the coming decades, finding and developing sustainable sources of the critical and rare minerals crucial for modern electronics and **renewable energy technologies will be one of the "most important topics facing humanity**." That was the consensus of experts from industry, government agencies, and academia speaking at a mineral resources conference held at Stanford University last month. "Due to the rapidly increasing need for mineral resources as Earth's human population continues to grow exponentially and the need to minimize the environmental and social impacts of mining, it's essential that Stanford be involved in the field of economic geology — the study of the formation, exploration, and utilization of mineral resources," said conference organizer Gordon Brown, the Dorrell William Kirby Professor of Geological Sciences at the university's School of Earth, Energy & Environmental Sciences (Stanford Earth). **Critical and rare metals — which include lithium, copper, uranium, gold, and so-called rare earth elements** (REEs) — are prized for their electronic and magnetic properties and play a crucial role in the production of modern electronics. They are important for everything from smartphones and batteries to advanced weapons systems. Ravenous consumption of metals Rare metals **are especially vital for renewable energy technologies, such as electric cars and solar panels. For example,** a single Tesla vehicle requires about 15 pounds, or a bowling ball's worth, of lithium, and **thin, cheap solar panels need tellurium, one of the rarest elements on Earth**. Lawrence Meinert, the acting deputy associate director of the Energy and Minerals Division of the United States Geological Survey (USGS), called humanity's consumption of metals over the last century "truly mind-boggling." People now use six times more iron per person than 100 years ago, which has required iron ore production to ramp up by a factor of 26.

The demand for these metals to produce renewable energy is fast outpacing their supplies, which could significantly inhibit their adoption. Abraham at Yale explains in 2015: we could be condemned to a fossil fuel world, if we can-not bolster the rare metal supply lines we need to support our green technologies.

Abraham 15 David S. Abraham, 10-28-2015, "The Elements of Power: Gadgets, Guns, and the Struggle for a Sustainable Future in the Rare Metal Age,"Yale University Press, https://books.google.com/books?id=8hGhCgAAQBAJ&source=gbs_navlinks_s //DF

Green applications are far more than just wind turbines and solar panels; they are energy-efficient cars, lights, and even elevators. And just about all these technologies, from ocean tide turbines to battery packs, require rare metals in their infrastructure. But green technologies are more than the products. Some rare metals themselves should also be considered green because many of them, like niobium, drastically reduce

the amount of other metals that are used, meaning a smaller overall carbon dioxide (CO2) footprint. And as abhorrent as this may sound to some environmentalists, green goals require increased mining and more processing of rare metals. Mining is not antithetical to a green economy; it's a necessity. And studies show we are going to need more of them—a lot more of them—to curb global warming. According to the UN Intergovernmental Panel on Climate Change, renewables must supply about 50 percent of the world's energy by 2050, thereby reducing the importance of fossil fuels in our energy mix. The study concludes that the world must nearly eliminate fossil fuel use by 2100. The road to change is not simply about switching to new technologies. It's about ensuring rare metal resources. In a joint study in 2011, the Materials Research Society and the American Physical Society issued a warning that should be of grave concern. It states, "A shortage of these 'energy critical elements' could significantly inhibit the adoption of otherwise game-changing energy technologies."3 This means that we could be condemned to a fossil fuel world, if we can-not bolster the rare metal supply lines we need to support our green technologies.4 The International Energy Agency (IEA) predicts that to keep global warming to an increase of no more than 2 degrees Celsius, in twenty years renewable energy must generate half the electricity on the planet. To meet this goal, the IEA assumes in one of its likely scenarios that combined solar and wind power must produce over 6,000 terawatt (TWh) hours. That's an enormous increase compared to the combined 750 TWh that the world produced in 2013. What's more, car manufacturers must increase production of electric vehicles by 80 percent annually from eighty thousand produced to seven million so that at least twenty million will be on the road by 2020.5

U.S. ratification to the Law of the Sea is the solution to this crisis. Rogers at the Center for a New American Security explains in 2012: U.S. companies increasingly seek to engage in seabed mining for rare earth elements. However, as long as the United States remains outside the international legal protections afforded by the law of the sea, the private sector remains hesitant to invest in seabed mining.

Rogers 12 Will Rogers [Research Associate at the Center for a New American Security], 4-2012, "Security at Sea
The Case for Ratifying the Law of the Sea Convention," Center for a New American Security, https://s3.amazonaws.com/files.cnas.org/documents/CNAS_SecurityAtSea_Rogers_0.pdf?mtime=20160906081931 //DF

Seabed mining, in the Arctic and elsewhere, is also becoming an important strategic interest for the United States. **U.S. companies increasingly seek to engage in seabed mining for minerals such as rare earth elements** and cobalt that are critical to the broad U.S. economy and used in producing defense assets. **However, as long as the United States remains outside the international legal protections afforded by LOSC, the private sector remains hesitant to invest in seabed mining** – investments that would reduce U.S. vulnerabilities to external pressure and supply disruption. Indeed, since few suppliers provide such minerals and they are prone to intentional or unintentional disruptions and price spikes, increasing U.S. production will help prevent suppliers from exerting political and economic leverage over the United States and its allies.2

The deep seabed is a treasure trove of rare earths that accession will allows us to access. According to CBC in 2011: rare earth elements are so abundant on the bottom of the ocean that just one square kilometre of ocean floor in the Pacific Ocean could supply one-fifth of the current annual world consumption.

CBC 11 7-4-2011, "Rare earth metals abundant in deep-sea mud," CBC, https://www.cbc.ca/news/technology/rare-earth-metals-abundant-in-deep-sea-mud-1.1096717 //DF

China currently controls 97 per cent of the world's production of rare earth elements and the metal yttrium, which are used in energy-efficient batteries and power sources for devices such as flat-screen televisions, electric cars and smartphones. As demand for the elements grows, China has been hiking taxes and putting restrictions on exports. Prices of **rare earth elements** have increased roughly 700 per cent over

the past decade. It turns out that those elements **are so abundant on the bottom of the ocean that the mud covering just one square kilometre of ocean floor in the Pacific Ocean could supply one-fifth of the current annual world consumption**, according to a new study published online Sunday in Nature Geoscience. Researchers led by Yasuhiro Kato at the University of Tokyo's department of systems innovation also found that extracting the elements from the mud was easy — almost all of them came out after being mixed with solutions of hydrochloric or sulphuric acid that are considered dilute (roughly five times the concentration of acid in your stomach). Much of it is found in the accessible surface layer of mud. Scientists had previously known that rare earth elements and yttrium are found in some kinds of deep-sea mud, but they knew little about the distribution of those deposits. Kato and his colleagues drilled and sampled more than 2,000 sediments from the sea floor at 78 sites around the Pacific Ocean, and found especially high concentrations of rare-earth elements and yttrium in the eastern South Pacific, west of Peru and Ecuador, and the central North Pacific, near Hawaii. The deposits in the eastern South Pacific are nearly twice as rich as the land deposits in China. They are also much higher in heavy rare earth elements — the kind that are more important in technology products — than those in China. At the moment, China has only one third of global reserves of rare earth elements, but most of the world's reserves of heavy earth elements. Deposits of light rare earth elements are found in other countries, such as the U.S. and Australia. In Canada, exploration is underway in several provinces.

A 1% increase in non-fossil fuel electricity generation reduces CO2 emissions by 0.75% (Liddle - York University)

Brantley **Liddle**, York University, 2016 "How much does increasing non-fossil fuels in electricity generation reduce carbon dioxide emissions?", http://www.usaee.org/usaee2016/submissions/OnlineProceedings/co2%20displacement%20july%202016%20wp.pdf (NK)
We investigate how much increasing non-fossil fuels in electricity reduces CO2 emissions By considering a large panel data set of 117 countries Long-run displacement elasticities for non-fossil fuel consumption per capita are -0.33 But are -0.75 for the share of non-fossil fuels in electricity generation **A 1% increase in non-fossil fuel electricity generation reduces CO2 emissions by 0.75%.** 3 1. Introduction This paper addresses the question by how much does increasing non-fossil fuels in electricity generation reduce the subsequent carbon dioxide emissions, and does so by empirically examining cross-sectional time-series data. This question is a timely one: (i) increasing the use of renewable energy sources is a popular policy goal, e.g., the UN's "Sustainable Energy For All" goal of doubling the share of renewable energy in the global energy mix by 20301 , and the Asia-Pacific Economic Cooperation (APEC) economies' goal of doubling the 2010 share of renewables in the energy supplies across APEC members by 20302 ;

Facilitating the shift from fossil fuels to renewables is a life-saving decision. For example, Mills at Michigan Technological University estimates in 2017: by transitioning to solar power in the US, nearly 52,000 American lives would be saved from air pollution-related deaths.

Mills 17 Allison Mills, 6-1-2017, "Saving Lives and Money: The Potential of Solar to Replace Coal," Michigan Technological University
https://www.mtu.edu/news/stories/2017/june/saving-lives-money-potential-solar-replace-coal.html
//DF

Tens of thousands of Americans die prematurely **each year** from air pollution-related diseases associated with burning coal. **By transitioning to solar photovoltaics** (PV) **in the US, up to 51,999 American lives would be saved** at $1.1 million invested per life. "Unlike other public health investments, you get more than lives saved," says Joshua Pearce, a professor of materials science and electrical engineering at Michigan Tech. "In addition to saving lives, solar is producing electricity, which has economic value." Using a sensitivity analysis on the value of electricity, which examines the different costs of electricity that varies by region throughout the country, saving a life by using solar power also showed potential to make money—sometimes as much as several million dollars per life, says Pearce. "Everybody wants to avoid wasting money. Just based off the pure value of electricity of the sensitivities we looked at, it's profitable to save American lives by eliminating coal with solar," he explains.

FRONTLINES

REMS

R/T In EEZ

Nahhhhhhh (Timmons - 2012)

Jay Timmons, 2012, National Association of Manufacturers, "on The Law of the Sea Convention: Perspectives from Business and Industry" https://www.foreign.senate.gov/imo/media/doc/NAM%20Testimony1.pdf (NK)

They are also used as catalysts for petroleum refining. Until a decade ago, the United States was 100 percent self-reliant for rare earth production, with domestic companies producing enough to supply U.S. manufacturers. Over time, however, U.S. production was halted as it became economically and environmentally cost prohibitive. Companies in various countries – including the United States – are looking at reopening closed mines and developing new deposits, but these efforts could take a number of years to fully come on line. The deep seabed offers a new opportunity for the United States to gain steady access to these vital rare earth minerals. Polymetallic nodules are located on the deep ocean floor. These nodules typically contain manganese, nickel, copper, cobalt and rare earth minerals. However, **U.S. companies cannot actively pursue claims in the areas where these nodules are dense unless the U.S. ratifies the Law of the Sea Treaty**. 4 Deep Seabed Development There is no doubt the world is very different today. We are a global economy, and countries are working feverishly to take our mantle of economic leadership away from us.

R/T Substitutes

Substitutes would be worse

Economist 12 5-17-2012, "In a hole?," Economist, https://www.economist.com/science-and-technology/2012/03/17/in-a-hole //DF

MANY plans for reducing the world's emissions of carbon dioxide—at least, those plans formulated by environmentalists who are not of the hair-shirt, back-to-the-caves persuasion—involve peppering the landscape with wind turbines and replacing petrol-guzzling vehicles with electric ones charged up using energy gathered from renewable resources. The hope is that the level of CO2 in the atmosphere can thus be kept below what is widely agreed to be the upper limit for a tolerable level of global warming, 450 parts per million. Wind turbines and electric vehicles, however, both rely on dysprosium and neodymium to make the magnets that are essential to their generators and motors. These two elements, part of a group called the **rare-earth metals, have unusual configurations of electrons orbiting their nuclei, and thus unusually powerful magnetic properties. Finding substitutes would be hard. Motors or generators whose magnets were made of**

other materials would be heavier, less efficient or both. At the moment, that is not too much of a problem. Though a lot of the supply of rare earths comes from China, whose government has recently been restricting exports (a restriction that was the subject of a challenge lodged with the World Trade Organisation by America, Europe and Japan on March 13th), other known sources could be brought into play reasonably quickly, like the Mountain Pass mine in California, pictured above, which re-opened for business in February. At current levels of demand any problem caused by the geographical concentration of supply would thus be an irritating blip rather than an existential crisis.

Church 18 Clare Church, Alec Crawford, 8-2018, "Green Conflict Minerals," International Institute for Sustainable Development, https://www.iisd.org/story/green-conflict-minerals/ //DF

The terms "rare earths" refers to 17 different elements, often found together in the Earth's crust. Of the 17, three are of particular importance to the development of green energy technologies: dysprosium, neodymium and praseodymium.14 These minerals are necessary for the production of specialized magnets used in both EVs and energy storage technologies as well as in wind turbines. The magnets are favoured for EVs because they are generally lighter, stronger and more efficient than induction motors that rely on copper coils (Desai, 2018). Similarly, use of these magnets has significant advantages in the production of wind turbines, cited for their efficiency, weight, size and maintenance properties (Pavel, et al., 2017). The World Bank notes that the use of these magnets in wind turbines is preferred, particularly for offshore turbines, due to their reliability and capacity to handle higher wind speeds (Arrobas et al., 2017). Some **substitutions** are available for rare earths; however, most of these are still in the research phase and in general **have been found to be less effective.** The prices of wind turbines and EVs are increasingly competitive, making the deployment of both a rapid reality. The demand for rare earths to meet this reality, and for neodymium and praseodymium in particular, is expected to surge in the coming years with this transition. The global demand for neodymium last year was approximately 31,700 tonnes, outstripping supply by 3,300 tonnes (Desai, 2018). And without viable substitutions, demand for neodymium will need to increase by more than 250 per cent through 2050 for the international community to meet its Paris Agreement goals (Arrobas etal., 2017).

R/T Companies Won't Mine

Failure to accede has killed the deep seabed industry because their investments have gone to waste

Moore 04 John Norton Moore [Walter L. Brown Professor of Law at the University of Virginia School of Law and Director of the Center for Oceans Law and Policy. He formerly served as the Chairman of the National Security Council Interagency Task Force on the Law of the Sea, which formulated United States international oceans policy for the law of the sea negotiations, he headed D/LOS, the office which coordinated both State Department and Interagency Policy on the law of the sea, and he served in the international negotiation as a Deputy Special Representative of the President and a United States Ambassador to the Third United Nations Conference on the Law of the Sea], 5-12-2004, "UNITED STATES ADHERENCE TO THE LAW OF THE SEA CONVENTION: A COMPELLING NATIONAL INTEREST," House Committee on International Relations, http://colp.virginia.edu/sites/colp.virginia.edu/files/house-testimony.pdf //DF

It is no accident that the representatives of the National Oceans Industries Association, the American Petroleum Institute, the Chamber of Shipping of America, the Chemical Manufacturers Association, and the Congressionally established National Commission on Oceans Policy support United States adherence to this Convention. The Convention provides a strong legal basis for development of ocean resources and it provides strong guarantees of navigational freedom so vital to United States trade around the world. To my knowledge, no United States industry association has opposed moving forward with the Convention. With respect to our oil and gas and deep seabed mining industries, however, there are especially compelling reasons why the United States needs to promptly adhere to the Convention. Our oil and gas industry

is simply unlikely to move forward in development of the continental margin of the United States in areas beyond 200 nautical miles until United States adherence solidifies the legal regime for them in such areas. And **our deep seabed mining industry is now moribund, and will remain so, absent United States adherence to the Convention.** The United States led the world toward development of the technology for the recovery of deep seabed minerals. Our industry collectively expended more than $200 million to identify and obtain international recognition for five prime mine sites. At present three of those sites lie abandoned and the other two are on hold with zero chance of activity absent United States adherence. The Congress should clearly understand that accepting the arguments of the critics and opposing moving forward with the Convention is to permanently put the innovative United States deep seabed mining industry out of business, and to accept a reality that only the firms of other nations will be able to mine the deep seabed.

R/T Chinese Deep Seabed Mining

1. They're looking in Japanese waters which are too deep for them to access

Chao 18 Sunny Chao, 4-18-2018, "China's Vessels Enter Japan's Waters to Steal Rare-Earth Minerals," Epoch Times, https://www.theepochtimes.com/chinas-vessels-enter-japans-waters-to-steal-rare-earth-minerals_2498136.html //DF

China's vessels have consistently violated Japan's exclusive economic zone (EEZ) for a nefarious purpose. The EEZ is an area of ocean around a country's coastline over which the country has exclusive rights and jurisdiction, according to the U.N. Convention on the Law of the Sea. Japanese newspaper Yomiuri Shimbun reported on April 14 that the Chinese regime sent vessels into the Japanese EEZ repeatedly without the Japanese government's consent, in the name of conducting surveys of the ocean floor. The Chinese ships then collected rare-earth minerals and specimens of rare deep sea creatures, according to the report. According to a paper published in the scientific journal Nature on April 10, a team of Japanese researchers has newly uncovered a reserve of about 16 million tons of rare-earth minerals lying beneath Minamitorishima island, about 1,150 miles from Tokyo.

Kuo 18 Frederick Kuo, 4-1-2018, "Is Japan's rare earth discovery fool's gold?," Lowy Institute, https://www.lowyinstitute.org/the-interpreter/japan-s-rare-earth-discovery-fool-s-gold //DF

This recent discovery could therefore be a consequential event that provides resource security for Japan and other nations dependent on China's rare earth exports. Harvesting challenges Despite the news-grabbing headlines, it may be too soon to celebrate this discovery as Japan's rare earth El Dorado. **The minerals are buried 6000 metres deep in the ocean.** While the Japanese researchers who discovered the deposits claim they have also created an efficient method to extract these minerals, questions remain as to how this method could be scaled. **Currently, there are no profitable methods of producing rare earth minerals embedded more than 5 kilometres below the seabed.** Based on current methods, producing only 1000 tons of metals would require mining more than one million tons of mud.

2. This can't be true because even now their exports are decreasing annually

Kuo 18 Frederick Kuo, 4-16-2018, "Can Japan's Subsea Mineral Discovery be Mined?," Maritime Executive, https://www.maritime-executive.com/editorials/can-japan-s-subsea-mineral-discovery-be-mined //DF

China's production of rare earth metals began in the 1980s and accelerated in the 1990s, and today it dominates the industry. Enabled by government policy and lax environmental standards around the heavy environmental fallout from mining and producing of these metals, China

has come to control 95% of global supply, and China's massive stockpile has placed it in a position of supremacy as the supplier of this critical technological production component to a wide array of industrialised countries. During periods of geopolitical tension, China has not shied away from cutting its rare earth exports to Japan. During the territorial disputes in the East China Sea in 2010, for example, China's actions set-off alarm bells that brought the dispute before the WTO. Most recently, as the country begins to face the consequences of decades of unfettered pollution and apply stricter standards on environmental waste, **China has begun to reduce its exports of rare earth metals to preserve its own supply. This has contributed to a recent nine percent drop in its exports of these materials.** Japan's rare earth breakthrough China's monopoly on such a critical ingredient in global industry has understandably spurred some of its rivals, such as Japan, to search for alternative sources of rare earth minerals. Recently, the discovery of what Japanese research indicates is a deposit of 16 million tons of rare earth materials hidden beneath the seabed in the western Pacific Ocean yielded a potential breakthrough.

R/T Not Profitable

Uniqueness: companies see the deep seabed as profitable

Struck 18 Doug Struck, 8-13-2018, "Treasures of the Deep: Tapping a Mineral-Rich Ocean Floor," Pew Trusts, https://magazine.pewtrusts.org/en/archive/summer-2018/treasures-of-the-deep-tapping-a-mineral-rich-ocean-floor //DF

Companies, and countries from China to the Cook Islands, are eager to start. Last year, Japan maneuvered a robot to mine zinc a mile deep in its waters off Okinawa. A Canadian company is poised to explore the seabed off Papua New Guinea. But the big prize is in the unclaimed deep sea. The International Seabed Authority (ISA)has approved 29 exploration contracts in international waters, and more are pending. It is busily writing rules for commercial mining; miners expect to move after the rules are finished in the next two years or so. "Many hundreds of millions of dollars are being invested around the world," says Duncan Currie, a New Zealand lawyer and member of the Deep Sea Conservation Coalition, a group of about 70 environmental organizations. "There is no doubt companies see money that can be made." But before mining begins on a commercial scale, Pew and other groups are urging the seabed authority to ensure that science plays a role in the guidelines for the underwater work to protect ocean life and mitigate environmental damage. "We are extremely fortunate to have this opportunity. To write the rulebook to govern an extractive activity before it begins would be a first in human history," says Conn Nugent, who directs Pew's seabed mining project. But it's important to act quickly and keep pace with the burgeoning demand. "We're only beginning to understand what's on the bottom of the ocean," says Nugent. As the would-be miners roll out seabed charts and plot mining grids, "the scientists are working hard to keep one step ahead. But time is short and the data are limited. Which is why the regulations have to be precautionary. And why setting aside large no-mining areas is the price to pay for our ignorance."

More highly concentrated, so easy to make money

"Deep Sea Mining," MIT, http://web.mit.edu/12.000/www/m2016/finalwebsite/solutions/oceans.html //DF

Environmental cost is currently the biggest issue with deep sea mining. There are numerous controversies about whether or not testing deep sea mining is worth the damage it could cause to biodiversity in the ocean. The first step towards making deep sea mining into a feasible option would be to ensure the protection of "sensitive ecosystems and minimize the potential environmental impact of this industry" (Terradaily). These environmental costs come primarily from the intrusive nature of mining. Deposits are located near deep sea thermal vents, which sustain very unique ecosystems. There are thousands of previously undiscovered species first seen around these vents, and many more presumably to be discovered. Many are filter feeders, and many fear that the sediment stirred up by mining activities may not allow them to obtain enough nutrients. However, this problem is not be nearly as troublesome as it may at first appear. Sea floor deposits are much more concentrated than those on land, meaning a significantly smaller volume of earth must be moved to extract the same amount of usable minerals. Less materials consequently have to be processed, which is what causes most of the environmental problems in the first place. Also, current technologies are able to minimize the actual sediment being thrown about, mitigating enough of the initial concern to justify further usage of these techniques (Begley, 2010). **The extremely rich deposits near these vents mean that mining in these areas is very**

economically viable, and the environmental costs are minimal enough to warrant a further application of deep sea mining.

Even in the worst case they would become profitable within six years (Knodt - 2016)

Steven **Knodt**, University of Alberta, "Development and Engineering of Offshore Mining Systems - State of the Art and Future Perspectives", 2016, https://sci-hub.tw/https://www.researchgate.net/publication/300077862_Development_and_Engineering_of_Offshore_Mining_Systems_-_State_of_the_Art_and_Future_Perspectives (NK)

The economic feasibility of manganese nodule mining has been assessed in 2012 by examining different scenarios for a period of twelve production years. In order to provide realistic results, it was assumed that mining systems will not reach its full capacity in the first two production years due to possible difficulties in system launch, technical problems and other time consuming issues. During the start-up phase the production capacity was assumed to be 50 % in the first, 75 % in the second and 100 % in the third year. In order to investigate the differences between three economic scenarios, the influence factors have been selected. Based on cost and revenue analysis, an economic feasibility of subsea manganese nodule mining was calculated. **Even in the worst case scenario, the return on investment (ROI) would be achieved after six years of operation. In the best-case scenario the mining would already be profitable after three production year**s. Total expenditures (TOTEX) of the project for a twelve year production phase were estimated. The ROI can be reached in 3 to 6 years after the production start. In general it is concluded, that though the investment necessary to conduct deep sea mining at a commercial level is large, this type of operations is indeed feasible from an economic perspective. However, among the topics for which no feasible solution has yet been presented in large scale is metallurgical processing of the mined nodules. Estimates do at the time being indicate, that the costs related to extraction of metals are approximately 65 % of capital expenditures. While concepts for subsea mining in general are ready for long term testing under field conditions, additional future research is needed in order to resolve the remaining issues related to the metallurgical processing [40].

It'll inevitably become economically viable

Stone 16 Maddie Stone, 4-5-2016, "The Future of Technology Is Hiding on the Ocean Floor," Gizmodo, https://gizmodo.com/the-future-of-technology-is-hiding-on-the-ocean-floor-1764122967 //DF

Any company hoping to pull it off will first need to invest heavily in R&D, and prospect to find the regions of seafloor where nodules are most concentrated. And depending on how strict the ISA's environmental regulations are, companies may not see a return on investment for a long time. Still, many experts believe **a deep ocean mining industry is inevitable. "It's a technical challenge, but we started developing this equipment when a Russian sub sank in 1974," Wiltshire said. "It's an environmental and investment delay rather than a fundamental technology delay**." Johnston agrees. "**From where we sit, if I had an open checkbook, we could be up and trial mining in the Clarion Clipperton Zone in a few years**," he said. "Financing it is the big issue." Forty years ago, the US government poured hundreds of millions into an audacious endeavor to dredge up a piece of military technology from the bottom of the ocean. Will private companies take the same plunge to bring us the metals behind the technologies we've grown to depend on?

R/T Recycling

Demand is rising too fast; we're gonna need to mine eventually

Stone 16 Maddie Stone, 4-5-2016, "The Future of Technology Is Hiding on the Ocean Floor," Gizmodo, https://gizmodo.com/the-future-of-technology-is-hiding-on-the-ocean-floor-1764122967 //DF

Six years on, fears of China's rare earth dominance wound up being unfounded. The scare motivated other countries to ramp up their rare earth production, breaking China's stranglehold. In late 2014, the World Trade Organization ruled against China for improper trade practices,

compelling the government to abolish its rare earth quotas entirely. Prices plummeted. Nevertheless, fear of a future rare earth shortage has had lasting effects on US policy, prompting the Department of Energy to pour millions into basic research on reducing our use of rare earths and recovering them from existing products. Some industries have cut back—Tesla doesn't use rare earths in its batteries or motors—but for other applications, that isn't yet feasible. And demand for these metals is only going to grow. "In an economy where the use of rare earths is growing, you cannot recycle your way out of trouble," King said. "Eventually, there will have to be new mines." In the shadowy fringes of the US intelligence community, tensions were running high. It was the summer of 1974, and after six years of preparation, the CIA's submarine salvage operation was finally on. The Hughes Glomar Explorer, a 36,000-ton beast of a ship designed to pull an entire submarine to the surface from 20,000 feet under, was like nothing anyone had ever built. Trap doors opened below the water line into the middle of the ocean. A three-mile retractable pile system, outfitted with a claw-like capture vehicle, would descend to the seafloor and haul up the Soviet vessel.

R/T Environmental Harms

More highly concentrated, so less harm

"Deep Sea Mining," MIT, http://web.mit.edu/12.000/www/m2016/finalwebsite/solutions/oceans.html //DF

Environmental cost is currently the biggest issue with deep sea mining. There are numerous controversies about whether or not testing deep sea mining is worth the damage it could cause to biodiversity in the ocean. The first step towards making deep sea mining into a feasible option would be to ensure the protection of "sensitive ecosystems and minimize the potential environmental impact of this industry" (Terradaily). These environmental costs come primarily from the intrusive nature of mining. Deposits are located near deep sea thermal vents, which sustain very unique ecosystems. There are thousands of previously undiscovered species first seen around these vents, and many more presumably to be discovered. Many are filter feeders, and many fear that the sediment stirred up by mining activities may not allow them to obtain enough nutrients. However, this problem is not be nearly as troublesome as it may at first appear. **Sea floor deposits are much more concentrated than those on land, meaning a significantly smaller volume of earth must be moved to extract the same amount of usable minerals. Less materials consequently have to be processed, which is what causes most of the environmental problems in the first place. Also, current technologies are able to minimize the actual sediment being thrown about, mitigating enough of the initial concern to justify further usage of these techniques** (Begley, 2010). The extremely rich deposits near these vents mean that mining in these areas is very economically viable, and the environmental costs are minimal enough to warrant a further application of deep sea mining.

Companies are figuring out ways to do it safely

Baggaley 17 Kate Baggaley, 2-27-2017, "These fearsome robots will bring mining to the deep ocean," NBC News, https://www.nbcnews.com/mach/innovation/these-fearsome-robots-will-bring-mining-deep-ocean-n724901 //DF

Mining will also kick up plumes of sediment that could blanket or bury animals. The plumes might also release toxic metals such as lead. One way to protect sensitive habitats is to set aside networks of protected areas. Mining could be carried out in patterns that leave space for larvae from other areas to come in and recolonize, and the still-active hydrothermal vents that are colonized by vibrant communities of tubeworms and other animals could be avoided in favor of dead ones. Nautilus Minerals is considering strategies to lessen the damage from deep-sea mining, such as moving animals to safety or planting crates to give displaced creatures an alternative home. Figuring out what kinds of impacts deep-sea mining will have could help guide people deciding where to mine and what regulations should govern mineral extraction. Researchers are investigating how

experiments that simulate deep-sea mining affect the surrounding ecosystems. Jones and his colleagues recently reported that most of the areas considered have fewer animals and species than untouched land, even decades later.

CCZ (where we would be mining) has an environment protection program (Woody - Oceans Deeply)

Todd Woody, July 2018, "A High-Stakes Week for Deep-Sea Mining," Oceans, https://www.newsdeeply.com/oceans/articles/2018/07/16/a-high-stakes-week-for-deep-sea-mining (NK)

So watch this this week for a vigorous discussion of regional environmental management plans. The plans are likely to be the main vehicle for balancing exploitation and preservation, and conservation groups and scientists are calling for them to be put in place before the ISA issues any mining licenses. **Only one environmental management plan has been approved so far. That was in 2012 for the Clarion-Clipperton Zone (CCZ), a vast abyssal plain that stretches between Hawaii and Mexico. The CCZ has been targeted for the mining of polymetallic nodules, potato-sized rocks that cover the seabed in the millions and are rich in manganese with concentrations of nickel, iron, cobalt and other valuable metals.** The CCZ environmental management plan designated Areas of Particular Environmental Interest (APEI) that prohibited extraction of nodules in nine 160,000 square-km (62,000 square-mile) blocks of the ocean floor. Earlier this month, a group of prominent deep-sea scientists published a paper in the journal Science Advances proposing a design for a network of uniformly sized marine reserves that would protect hydrothermal vent ecosystems along the Mid-Atlantic Ridge that contain deposits of copper and zinc

R/T Goes to Military

Really none of it does. Only 800/15,000 tons, which is 5%

Siciliano 18 John Siciliano, 9-25-2018, "Coal industry could be in store for a 'rare earth' reboot," Washington Examiner, https://www.washingtonexaminer.com/coal-industry-could-be-in-store-for-a-rare-earth-reboot //DF

"To the extent that the administration is interested in and regards national defense as a strong national priority, I would think that they are very interested in securing a secure supply of rare earth elements that don't rely on China," said Paul Ziemkiewicz, West Virginia University's water research director, who is at the forefront of transitioning the coal industry into a source of raw materials and mineral security. **The U.S. uses about 15,000 tons of rare earth elements every year, with about 800 tons of that going to the defense industry**, he said. "And that's for high-performance radars, sensors, magnets, some very specialized applications that [should] rely on a strategic reserve in this country." In 2016 alone, the U.S. imported more than one-half of its supply of 50 types of minerals, eight of which are identified as rare earth elements critical to the economy, according to the U.S. Geological Survey. Of those 50 minerals, the U.S. was 100 percent dependent on imports for 20 of them, including all eight critical and rare earth minerals. New data released this year showed that rare earth mining was nonexistent in the U.S. in 2016, while China continued to expand its market and dominate the global supply chain. On top of the defense applications, rare earths are important in building consumer electronics such as smartphones, which most people now are dependent on.

R/T Goes to Oil Refining

https://www.theguardian.com/business/2016/may/05/oil-firms-environment-energy-climate-change

1. Actually better for the environment because they reduce the harmfulness of unrefined crude

No Author, xx-xx-xxxx, "," No Publication, https://www.degruyter.com/downloadpdf/j/gospo.2016.32.issue-4/gospo-2016-0039/gospo-2016-0039.pdf //DF

REEs play an important role in petroleum refining, high-efficiency lighting, and hybrid electric vehicles, which in turn are important for energy conservation, developing a low- -carbon economy, and reducing carbon emissions. REE production and consumption are typically expressed in terms of rare earth oxide (REO). Global REE consumption was 113,250 tons REO in 2012, and the percentage of consumption for magnets, batteries, phosphors, and catalysts out of total consumption was 20%, 8%, 7%, and 20% respectively (EC 2016). Table 2 shows the main usages of REEs and their percentages of total consumption (EC 2016; US DoE 2011). La and Ce can be used in auto catalysts and as additives for fluid catalytic cracking; they transform heavy molecules into lighter compounds, increase gasoline output, and reduce emissions caused by refining (US DoE 2011). REEs are also essential to catalytic converters in cars, enabling them to run at high temperatures, and increasing their effectiveness and decreasing costs by reducing the amount of platinum and other precious metals required (BGS 2010). REEs can emit light in the visible range due to their special chemical and physical properties; thus they play an important role in high-efficiency lighting, mainly for compact fluorescent bulbs (CFLs) and light-emitting diode bulbs (LEDs) (Machacek et al. 2015; Wilburn 2012). CFLs are about four times more efficient than the equivalent energy of incandescent light bulbs, while LEDs are about 20% more efficient than CFLs and have a longer service life (Machacek et al. 2015). The global LED market is estimated to total USD 94 billion by 2020, representing approximately 60% of the global lighting market.

"Chemical Production, Oil Refining and Manufacturing," Rare Earth Technology Alliance, http://www.rareearthtechalliance.com/Applications/Chemical-Production-Oil-Refining-and-Manufacturing.html //DF

Growth in the use of REEs in the chemical, manufacturing and oil refining sectors will occur in a number of different ways. REEs are also integral in the refinement process used to turn crude oil into gasoline. It is expected that society's increasing consumption of petroleum will drive demand for rare earth catalysts, as will the tightening environmental standards around pollution. REEs will also continue to be critical ingredients in the production of alloys used to make permanent magnets. As demand for such magnets rises, REEs will remain at the forefront of metallurgical developments. Rare Earths as Catalysts REEs are fundamental ingredients in fluid catalytic cracking (FCC) catalysts. FCC is the process whereby crude oils are converted into gasoline and other products. The use of rare earth-containing catalysts facilitates FCC, resulting in higher yields and purer end products than could otherwise be achieved. Around 11 percent of REEs are used in the creation of these catalysts. They are also central to efforts to reduce automotive emissions, as REEs catalyze the conversion of carbon monoxide and hydrocarbon to carbon dioxide and water. Rare Earths in Metallurgical Processes Many metals cannot be extracted directly from the environment. Examples include copper and aluminum, used in electronic wires and utensils, and iron which is used in various industries, such as transportation. REEs, when used in a metallurgical context, are employed in the development of these metals. REEs can: Manage the effects of sulfur, oxidizers and other elements Extract valuable metals from their ores safely Refine them into their pure forms Provide important magnetic characteristics REEs form stable compounds, meaning they can be easily melted and mixed with other chemicals. As such, they play a key role in the manufacture of products such as ductile iron and compacted graphic iron, high-strength low-alloy (HSLA) stainless and specialty steels, hardened magnesium and special copper, nickel and aluminum alloys. Many of these products strengthen our cars, medical devices and buildings.

No because green tech requires more REMs than fossil fuels

Muncdahl 17 Erin Mundahl, 8-8-2017, "Why a Low-Carbon Economy Drives the Need for Rare Earths – InsideSources," InsideSources, https://www.insidesources.com/world-bank-study-points-to-future-growth-rare-earth-metals/ //DF

"It is clear that meeting the Paris climate target of not exceeding 2 degrees Celsius (2°C) (and making best efforts to reach 1.5°C) global warming over this century will require a radical (that is, to the root) restructuring of energy supply and transmission systems globally," the researchers found. At the same time, even these relatively modest gains will come at substantial materials costs. "Furthermore, the technologies assumed to populate the clean energy shift (wind, solar, hydrogen and electricity systems) are in fact significantly MORE material intensive in their composition than current traditional fossil-fuel-based energy supply systems," the report continued. In this, the report acknowledges the difficulties that countries will face attempting to reach the lofty goals set by the Paris Climate Accord. Extrapolating out today's technology predicts that demand for certain needed metals will increase dramatically. The World Bank estimates that the demand for lithium, for instance, will surge by 1,480 percent and demand for indium by 146 percent. If demand were to reach these levels, the price of the necessary materials would doubtless become prohibitive. The details are outside of the scope of the analysis. At the end of the day, the report is constrained by the difficulty of predicting where technology will stand thirty years from now. Today, our best predictions presume a mix of wind and solar, using new battery technology to store energy for future use. However, in the decades to come, new research could shift clean energy technology in unexpected directions. In the field of clean and green energy, there are a great many unknown unknowns.

It is widely acknowledge that a swift ramp up of low-carbon technologies will be needed in order for the world to meet the Paris Agreement's goals of limiting warming to "well below 2C" and to strive for 1.5C. This low-carbon future would see strong demand for a wide range of base and precious metals, the World Bank report said. Alongside the usual suspects of cobalt, lithium and REEs, this includes aluminum, silver, steel, nickel, lead and zinc. The report said: "It would be reasonable to expect that all low-carbon energy systems are more likely than not to be more metal intensive than high-carbon systems. In fact, all literature examining material and metals implications for supplying clean technologies agree strongly that building these technologies will result in considerably more material-intensive demand than would traditional fossil fuel mechanisms." A separate 2017 report from the UN Environment Programme (UNEP) had a similar finding. It calculated low-carbon technologies would need over 600 million tonnes (Mt) more metal resources up to 2050 in a 2C scenario, compared to a 6C scenario where fossil fuels use continues on its current path. However, it also said the 2C scenario would save more than 200bn cubic metres of water a year and use nearly 150,000 square kilometres less land overall.

Also the demand is shifting

R/T Killing Phytoplankton

1. No harm: Phytoplankton recover quickly because they've become highly resistant over time

David Hambling, 2-13-2018, "Giant Robots Are the Future of Underwater Mining," Popular Mechanics, https://www.popularmechanics.com/technology/robots/a16674275/underwater-robot-mining-nautilus-solwara-1-papua-new-guinea/ (NK)
Then these pipes carry the ore to the hold of a vessel moored alongside, a fifty-thousand-ton bulk ore carrier known as a "Handymax," which the sets sail for China for smelting On land, an operation like this would involve a vast pit with a fleet of trucks in constant movement, a cloud of dust, and plenty of safety hazards. At sea, there is nothing to see on the surface as the ore is pumped on board. Having done several environmental impact analyses with universities and environmental institutions, Nautilus says their mining operation will cause little disturbance compared to terrestrial mines. Using a commonly used measure of impact, the Nautilus project will cause around one-tenth as much disruption as an equivalent terrestrial mine. **Environmental concerns have been a key factor in pushing oil**

exploration offshore, and opening a new mine underwater may prove much easier than getting the necessary permits on land. Studies suggest that the seabed recovers rapidly, new chimneys start forming almost immediately and are recolonised by marine wildlife after all the machinery moves on. Of course no one has tried this type of mining before, and whether it will become the future of mining remains an open question. But if it's successful, it would mean the creation of a whole new mining industry, largely invisible, offshore, and underwater— with a workforce of giant robots hard at work on the seabed.

2. Non-unique: Phytoplankton are dying off left and right because of warming, renewables are the best chance to stop that

Watts 17 Sarah Watts, 12-29-2017, "Global Warming Is Putting the Ocean's Phytoplankton in Danger," Pacific Standard, https://psmag.com/environment/global-warming-is-putting-phytoplankton-in-danger //DF

For decades, researchers have pointed to phytoplankton as one of the planet's most valuable resources. They form the basis of the marine food chain and provide half the ocean's oxygen (while trees, shrubs, and grasses provide the other half). Hurricanes churn the ocean, bringing up nutrients like nitrogen, phosphate, and iron from the depths of the ocean and introducing them to the surface levels where plankton live. In turn, the phytoplankton bloom and spread, and marine life grows with it. But even as hurricanes are increasing and intensifying, scientists say that **phytoplankton is** still **in serious danger of dying out**. "Over the next 100 years, the climate will warm as greenhouses gases increase in our atmosphere," says Andrew Barton, oceanographer and associate research scholar at Princeton University. **As the climate warms, Barton says, so will the oceans—bad news for phytoplankton, since warm waters contain less oxygen, and therefore less phytoplankton, than cooler areas. Already, gradually warming ocean waters have killed off phytoplankton globally by a staggering 40 percent since 1950**. But it's not just phytoplankton death that's concerning scientists. Because phytoplankton thrive better in cooler waters, these organisms migrate to cooler patches of the ocean when other parts become too warm. In 2015, Barton and a team of fellow oceanographers tracked environmental changes like temperature and salinity to approximate where phytoplankton will migrate over the course of the next century. They predict that phytoplankton along the North Atlantic coast will migrate toward cooler waters off the coast of Greenland, lessening the food source for fish and other marine life.

R/T Japan

1. It's too deep to be profitable

Kuo 18 Fredrick Kuo, 4-20-2018, "Can Japan's Subsea Mineral Discovery be Mined?," Maritime Executive, https://www.maritime-executive.com/editorials/can-japan-s-subsea-mineral-discovery-be-mined //DF

Despite the news-grabbing headlines, it may be too soon to celebrate this discovery as Japan's rare earth El Dorado. **The minerals are buried 6000 metres deep in the ocean**. While the Japanese researchers who discovered the deposits claim they have also created an efficient method to extract these minerals, questions remain as to how this method could be scaled. **Currently, there are no profitable methods of producing rare earth minerals embedded more than 5 kilometres below the seabed**. Based on current methods, producing only 1000 tons of metals would require mining more than one million tons of mud. In addition, questions remain as to whether a timeline which allows Japan to wean itself off its dependence on Chinese rare earth materials within the foreseeable future is feasible. Currently, it takes an average of ten years to advance a rare earth discovery on land to a producing mine. **The fact that the newly discovered rare earth deposit is embedded in deep seabed, combined with unproven methods of profitable extraction of such minerals, means Japan's rare earth ambitions will not come to fruition soon.** The status quo remains While Japan's recent discovery of rare earth minerals is noteworthy for its

unprecedented size, it is premature to suggest this is a watershed moment that will unravel China's dominance of the global supply. It is one thing to be in possession of an unrivalled deposit of unmined ore, and quite another to create a profitable chain of production that allows its vast potential to be unlocked. Therefore, considering the limitations of existing methods of production, as well as the lengthy timeline of bringing rare earth projects to fruition, China's rare earth monopoly will unlikely be challenged in the near future. While Japan certainly possesses a veritable El Dorado beneath its territorial waters, the benefits of such an inheritance is out of reach for now.

R/T Reserves on Land

Indeed, current trends indicate that we have to move away from land-based extraction and to the sea. Struck 18 writes:

Struck 18 Doug Struck, 8-13-2018, "Treasures of the Deep: Tapping a Mineral-Rich Ocean Floor," No Publication, https://magazine.pewtrusts.org/en/archive/summer-2018/treasures-of-the-deep-tapping-a-mineral-rich-ocean-floor //DF

"There's a couple of billion people trying to get into the middle class. It's requiring a vast amount of new metals," says James Hein, a veteran geologist who has been studying undersea minerals for 42 years for the U.S. Geological Survey in Santa Cruz, California. "All their new homes need metals, not only in the building itself, but in all the things you put into a home." Many of the high-grade seams on land have been dug out, and prospectors must go deeper or to more remote places. Added to that is a surge in demand for metals for high technology, and—counterintuitively—for so-called "clean" energy. "**Green tech, moving from hydrocarbons to renewable resources, is requiring a vast amount of rare metals. For some of the green technologies, there is not enough to go around" on land**, says Hein. "**But there is tons of it in the oceans**." Wind turbines, for example, evoke the vision of a clean, pollution-free future. But the wind-nudged turbine blades make electricity by turning powerful magnets made of rare metals. A typical 2-megawatt turbine has about 900 pounds of neodymium and dysprosium, which make magnets hundreds of times more powerful than steel magnets. The turbine also contains 6 tons of copper.

Land is running out and becoming more expensive, need to move to the sea

Baggaley 17 Kate Baggaley, 2-27-2017, "These fearsome robots will bring mining to the deep ocean," NBC News, https://www.nbcnews.com/mach/innovation/these-fearsome-robots-will-bring-mining-deep-ocean-n724901 //DF

We may not be able to keep up with the need for scarce materials without turning to the sea. "We now have an increasing demand for metals that are becoming more expensive to acquire on land," Hannington says. These days, land-based miners are heading deeper and deeper into the earth for lower grade mineral deposits, says James Hein, a geologist with the United States Geological Survey. In many cases, "The really rich, high-grade deposits on land have already been mined," he says. It's unlikely we'll completely replace land-based mines by plumbing the deep sea. However, the deposits in the ocean are vast and sit right on the seafloor. "There's tremendous amounts of metal," Hein says. "The question is how much of it's going to be economically extractable." Some of the mining will be needed to improve the standard of living in developing countries like China, India, Indonesia, and Brazil, but Hein says is going to require an "unbelievable amount" of minerals. These deposits will also play a valuable role in green industries. "Wind turbines and electric cars and hybrid cars and solar cells and all these

things are requiring the mining of vast new quantities of rare metals," Hein says. "These are also abundant in deep ocean mineral deposits."

REMs are much more concentrated in the sea than on land

Carrington 17 Damian Carrington, 6-4-2017, "Is deep sea mining vital for a greener future – even if it destroys ecosystems?," Guardian, https://www.theguardian.com/environment/2017/jun/04/is-deep-sea-mining-vital-for-greener-future-even-if-it-means-destroying-precious-ecosystems //DF

Most of the people involved in deep sea mining expect large-scale commercial production in about a decade, with companies seeking to benefit from the experiences of Nautilus. "Everyone is racing to be second," says Fjellroth. Whether the scientific knowledge and regulations are in place by then to ensure deep sea mining does not repeat the devastation of many mines on land remains to be seen, although the G7 leaders say: "We are committed to taking a precautionary approach." For Murton, **tellurium is a good example. It is a key metal for high performance solar panels and is 50,000 times more concentrated in deep sea deposits than in land ores**. "Because the grades are so much higher, there is much less impact. Deep sea mining is the lesser of two evils."

More highly concentrated

"Deep Sea Mining," MIT, http://web.mit.edu/12.000/www/m2016/finalwebsite/solutions/oceans.html //DF

Environmental cost is currently the biggest issue with deep sea mining. There are numerous controversies about whether or not testing deep sea mining is worth the damage it could cause to biodiversity in the ocean. The first step towards making deep sea mining into a feasible option would be to ensure the protection of "sensitive ecosystems and minimize the potential environmental impact of this industry" (Terradaily). These environmental costs come primarily from the intrusive nature of mining. Deposits are located near deep sea thermal vents, which sustain very unique ecosystems. There are thousands of previously undiscovered species first seen around these vents, and many more presumably to be discovered. Many are filter feeders, and many fear that the sediment stirred up by mining activities may not allow them to obtain enough nutrients. However, this problem is not be nearly as troublesome as it may at first appear. **Sea floor deposits are much more concentrated than those on land, meaning a significantly smaller volume of earth must be moved to extract the same amount of usable minerals**. Less materials consequently have to be processed, which is what causes most of the environmental problems in the first place. Also, current technologies are able to minimize the actual sediment being thrown about, mitigating enough of the initial concern to justify further usage of these techniques (Begley, 2010). The extremely rich deposits near these vents mean that mining in these areas is very economically viable, and the environmental costs are minimal enough to warrant a further application of deep sea mining.

Stone 16 Maddie Stone, 4-5-2016, "The Future of Technology Is Hiding on the Ocean Floor," Gizmodo, https://gizmodo.com/the-future-of-technology-is-hiding-on-the-ocean-floor-1764122967 //DF

Since the 1960s, mining companies have been attracted to manganese nodules mainly for their nickel, copper, and cobalt. But along the way, geologists learned that the rocks also contain rare earth oxides—in particular, the very rare and very expensive ones. "All the big land-based deposits in the world are almost solely light rare earths," Jim Hein, an ocean minerals specialist with the US Geological Survey, told Gizmodo. "Deep ocean deposits have a much higher percentage of heavy rare earths. That's the key difference." At first blush, the concentration of rare earths in manganese nodules—roughly 0.1 percent—seems too low for commercial viability. But according to Mike Johnston, CEO of the deep ocean mining company Nautilus Minerals, rare earths can be co-extracted along with other valuable ores. "What these rocks are is essentially a manganese sponge that has soaked up a bunch of other metals," Johnston told Gizmodo. "To extract those other metals out, you have to break bonds, either chemically or with high heat. Once you've done that, you can theoretically just extract each of the different metals, including rare earths." Today, the global rare earth industry is producing a little over 100,000 tons of metals a year. In the

Clarion Clipperton Zone alone, there are an estimated 15 million tons of rare earth oxides locked away in manganese nodules. The question is not whether the seafloor has rare earths. It's whether we can get at them in a way that makes business sense.

R/T CCZ Not in the US

Just for clarification, the CCZ is in US accessible area

PewTrusts 17 12-15-2017, "The Clarion-Clipperton Zone," Pew Trusts, https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2017/12/the-clarion-clipperton-zone //DF

The Clarion-Clipperton Zone (CCZ) spans 4.5 million square kilometers (1.7 million square miles) between Hawaii and Mexico, an abyssal plain as wide as the continental United States and punctuated by seamounts. Lying atop the muddy bottom or embedded just beneath it are trillions of potato-size polymetallic nodules. These rocklike deposits contain nickel, manganese, copper, zinc, cobalt, and other minerals. At these depths—completely dark but for occasional flashes of bioluminescence—the nodules are often the only hard substrate on a seabed of soft clay, which makes them attractive homes for creatures in need of anchor or habitat. The sediment surrounding the nodules also harbors remarkably high biodiversity. The International Seabed Authority (ISA), the organization responsible for writing the rules for mining in seabed areas beyond national jurisdictions, has awarded 16 exploration contracts to state sponsors and contractors allowing them to assess mining opportunities within the CCZ. Mining the nodules would involve scraping off the top layer of the ocean floor, separating the nodules from the mud, using a giant tube to pump them to a surface ship, and returning the water and fine particles through another tube. Many marine scientists are concerned about the potential impacts of disturbing the seabed in this manner. Nodules form over millions of years and cannot be replaced in any meaningful way.1 And scientists are just beginning to study some of the array of species that live at these depths, from sponges and sea anemones to shrimps and octopods. Little is known about how far they range, how populations are connected, and what damage may be caused by the spread of sediment plumes and other effects of mining. Scientific monitoring of experimental dredge sites in deep-sea sediment has shown that decades after a site is disturbed, few if any communities of organisms have recovered.2

R/T Not Drilling on Land

(Rest of Article talks about all the new mining tech)

David Hambling, 2-13-2018, "Giant Robots Are the Future of Underwater Mining," Popular Mechanics, https://www.popularmechanics.com/technology/robots/a16674275/underwater-robot-mining-nautilus-solwara-1-papua-new-guinea/ (NK)

Then these pipes carry the ore to the hold of a vessel moored alongside, a fifty-thousand-ton bulk ore carrier known as a "Handymax," which the sets sail for China for smelting **On land, an operation like this would involve a vast pit with a fleet of trucks in constant movement, a cloud of dust, and plenty of safety hazards. At sea, there is nothing to see on the surface as the ore is pumped on board.** Having done several environmental impact analyses with universities and environmental institutions, Nautilus says their **mining operation will cause little disturbance compared to terrestrial mines**. Using a commonly used measure of impact, **the** Nautilus **project will cause around one-tenth as much disruption as an equivalent terrestrial mine**. **Environmental concerns have been a key factor in pushing oil exploration offshore, and opening a new mine underwater may prove much easier than getting the necessary permits on land. Studies suggest that the seabed recovers rapidly, new chimneys start forming almost immediately and are recolonised by marine wildlife after all the machinery moves on**. Of course no one has tried this type of mining before, and whether it will become the future of mining remains an open question. But if it's

successful, it would mean the creation of a whole new mining industry, largely invisible, offshore, and underwater— with a workforce of giant robots hard at work on the seabed.

EXTRAS

UQ – Companies are Shifting

Even Oil companies are investing in green tech (Hirnstein - Bloomberg)
Anna Hirtenstein, 10-24-2017, "Big Oil Is Investing Billions to Gain a Foothold in Clean Energy," Bloomberg, https://www.bloomberg.com/news/articles/2017-10-24/big-oil-is-investing-billions-to-gain-a-foothold-in-clean-energy (NK)
The world's biggest oil companies are closing more clean energy deals as pressure to diversify their businesses mounts and growth accelerates among green technologies. **Oil majors more than doubled the number of acquisitions**, project investments and venture capital stakes, **to 44 in 2016 from 21 the year before**, according to research published Tuesday by Bloomberg New Energy Finance. In the last 15 years, they've completed 428 transactions and spent $6.2 billion building stakes in clean energy companies. "This reflects their underpinning strategy to test out new ideas and businesses," said Richard Chatterton, one of the London-based analysts that authored the report. "The international oil companies are identifying opportunities and building expertise, and when a commercial opportunity becomes clear, they will invest at scale."

UQ – Renewables Beating Fossil Fuels

Renewable sources of energy are becoming dramatically cheaper. Hoium 17 writes:

Hoium 17 Travis Hoium, 11-24-2017, "How Renewable Energy Will Destroy Fossil Fuels," Motley Fool, https://www.fool.com/investing/2017/11/24/how-renewable-energy-will-destroy-fossil-fuels.aspx //DF
There's an energy revolution taking place before our eyes, but it doesn't seem to be getting a lot of attention from the media or investors. **Over the past decade, energy from wind and solar has become so cheap that it's making new fossil fuel plants nearly obsolete**. This isn't just happening in the U.S. but in China and India as well, where coal plants are being shut down in favor of wind and solar energy. Close behind renewable energy is improving battery technology that's making electric vehicles and energy storage viable options for consumers and businesses. As this combination of technologies improves and grows, it will slowly but surely replace fossil fuel use as we know it today. Let me be clear about what I'm saying: **The conditions for the demise of fossil fuels are already in place and a massive disruption of the fossil fuel industry is on the horizon**. Electric grid disruption has already begun Renewable energy changes the energy paradigm for the electric grid, and there will be a lot of casualties in the old world of energy. For example, ever since Thomas Edison invented the light bulb, people have relied on electricity from their electric grid to power their homes and any electric devices they own. For the first time ever, over a million homes are now their own mini-power plants with solar panels on their roofs. Given another year or two, energy storage will begin to be commonplace and removing yourself from the grid altogether will be a viable option for consumers. Utilities, power generators, and companies supplying fuel will all be disrupted in the process. Gasoline will go the way of the horse and buggy Rapid advances in battery technology are likely to make gasoline vehicles all but obsolete in a decade or two. Electric vehicles are already cheaper to fuel and maintain than traditional vehicles. The obstacle to a complete takeover of the auto market is the

vehicle's range and the lifecycle of batteries. Tesla (NASDAQ:TSLA) has made the biggest strides in range and lifecycle, offering a 337-mile range for the 100D model. Its warranty also runs for eight years and unlimited miles for new vehicles.

Leary 18 Kyree Leary, 2, 1-17-2018, "Renewable energy will be cheaper than fossil fuels by 2020, according to a new report," Business Insider, https://www.businessinsider.com/renewable-energy-will-be-cheaper-than-fossil-fuels-by-2020-2018-1 //DF

Renewable energy may not be completely replacing fossil fuels just yet, but it's undeniable that society is warming to the idea of using solar and wind power in place of coal. In some parts of the world we're already beginning to see the effects of such a paradigm shift: Last year, Britain began generating twice as much electricity from wind than coal, which contributed to 2017 being the greenest year ever for the United Kingdom. **In the United States, solar and wind power accounted for nearly 95 percent of all new electricity capacity added last year**, according to Engadget. That success can also be partially attributed to the closures of fossil fuel plants. In the coming years, we're sure to see renewable energy become a real competitor in the fossil fuel industry. A new report recently published by the International Renewable Energy Agency (IRENA), predicts the cost of renewable energy will experience a noticeable drop by 2020, putting it on par with, or cheaper than, fossil fuels. The report, titled "Renewable Power Generation Costs in 2017," read: "[By 2020,] all the renewable power generation technologies that are now in commercial use are expected to fall within the fossil fuel-fired cost range, with most at the lower end or undercutting fossil fuel."Fossil fuel generation today costs between $0.05 - $0.17 per kilowatt hour in G20 countries, including the U.S., the U.K., Russia, Japan, India, and Germany. By 2020, however, renewables are expected to cost $0.03 - $0.10 per kilowatt hour, with the price of onshore wind power and solar photovoltaic (PV) projects expected to be as low as $0.03 per kilowatt hour by 2019. Presently, offshore wind projects and solar thermal energy can still be quite costly, but they too are expected to drop in price between 2020 and 2022 — to $0.06 - $0.10 per kilowatt hour. "This new dynamic signals a significant shift in the energy paradigm," said Adnan Z. Amin, IRENA Director-General, in a statement. "These cost declines across technologies are unprecedented and representative of the degree to which renewable energy is disrupting the global energy system."

UQ – Renewables Need REMs

Nicola **Jones**, 11-18-20**13**, "A Scarcity of Rare Metals Is Hindering Green Technologies," **Yale** E360, https://e360.yale.edu/features/a_scarcity_of_rare_metals_is_hindering_green_technologies //AM

Now you can make a more reliable wind turbine that doesn't need a gearbox at all, King points out, but you need a truckload of so-called "rare earth" metals to do it, and there simply isn't the supply. **Likewise, we could all be using next-generation fluorescent light bulbs that are twice as efficient as the current standard. But when the U.S. Department of Energy (DOE) tried to make that switch in 2009, companies like General Electric cried foul: they wouldn't be able to get hold of enough rare earths to make the new bulbs. The move toward new and better technologies** — from smart phones to electric cars — **means an ever-increasing demand for exotic metals** that are scarce thanks to both geology and politics. Thin, cheap solar panels need tellurium, which makes up a scant 0.0000001 percent of the earth's crust, making it three times rarer than gold. High-performance batteries need lithium, which is only easily extracted from briny pools in the Andes.

Apergis 17 Emmanuel Apergis [University of Kent, UK] and Nicholas Apergis [University of Piraeus, Greece], 2-2017, "The role of rare earth prices in renewable energy consumption: The actual driver for a renewable energy world," Journal of Energy Economics, https://www.sciencedirect.com/science/article/pii/S0140988316303619 //DF

The attention to the determinants of renewable energy consumption has increased over the last few years. The current paper received insights from the political drive that pushes forward a green economy, inaugurating a new era for the renewables with steps being taken by the Declaration of Stockholm, the Convention of Rio, the Kyoto Protocol and the promising Paris Agreement. It becomes evident that the

impact of rare earth prices, which are the materials needed for building renewable energy equipment, such as wind turbine magnets and phosphor light- ings, are crucial in determining future renewable diffusion and, in particular, future consumption, given that the main stimulus for investors to develop renewable energy sources is the cost of production. This study investigated the relationship between rare earth prices and energy consumption from renewables for thirteen regional categories. Cointegration relationships denoted that in the long-run, rare earth prices drove energy consumption for renewables in the majority of regions and the income classification regions under investigation.

Access to REM resources key to securing a renewable future

Moss 18 Jacques Moss, 8-1-2018, "Renewable Energy's Deep Sea Mining Conundrum," No Publication, https://knect365.com/energy/article/9c1b0a6e-e73e-4360-9485-adf5cf141b33/renewable-energys-deep-sea-mining-conundrum //DF

One of the best ways to understand the nature of the energy transition is as a shift from a resource driven model of energy production to a manufacturing driven model. It's a useful description, because it demonstrates why – over the long haul – renewables are destined to win in the battle between competing energy sources. Manufactured products become progressively cheaper over time, and solar panels, wind turbines, and batteries are no different in this respect. Cost declines are partly due to greater economies of scale, and partly because the more of a product we produce, the better we get at doing so. And once a solar panel or a wind turbine has been manufactured, it continues to generate energy at very little additional cost for over two decades. An industry that relies solely on the extraction and consumption of a finite pool of resources, like the fossil fuels industry, simply won't be able to keep up. That's good news for the climate. Of course, manufacturing also needs a strong resource base to sustain it. This is particularly true of clean energy technologies, which rely on some of the world's rarest and most valuable raw materials to manufacture. As scientists discover new energy efficient semiconductors, new ultra-light composites for wind turbines, and new ways of improving battery performance, access to valuable resources is likely to become more, rather than less important for the renewable energy industry. Take into consideration this recent breakthrough made by researchers at the University of Surrey, which may make comparatively inexpensive perovskite solar cells competitive in performance terms with the crystalline silicon solar cells that currently dominate the market. Or this new supercapacitor polymer, which could cut electric car charging times down to a matter of minutes. They're neat ideas, and without access to valuable natural resources, they'll remain nothing but that. If we're going to bring off the transition to a low carbon future, we're going to need these materials, and we're going to need them in ever greater quantities. So where are they going to come from?

Abraham 15 David S. Abraham, 10-28-2015, "The Elements of Power: Gadgets, Guns, and the Struggle for a Sustainable Future in the Rare Metal Age,"Yale University Press, https://books.google.com/books?id=8hGhCgAAQBAJ&source=gbs_navlinks_s //DF

Green applications are far more than just wind turbines and solar panels; they are energy-efficient cars, lights, and even elevators. And just about all these technologies, from ocean tide turbines to battery packs, require rare metals in their infrastructure. But green technologies are more than the products. Some rare metals themselves should also be considered green because many of them, like niobium, drastically reduce the amount of other metals that are used, meaning a smaller overall carbon dioxide (CO_2) footprint. And as abhorrent as this may sound to some environmentalists, green goals require increased mining and more processing of rare metals. Mining is not antithetical to a green economy; it's a necessity. And studies show we are going to need more of them—a lot more of them—to curb global warming. According to the UN Intergovernmental Panel on Climate Change, renewables must supply about 50 percent of the world's energy by 2050, thereby reducing the importance of fossil fuels in our energy mix. The study concludes that the world must nearly eliminate fossil fuel use by 2100. The road to change is not simply about switching to new technologies. It's about ensuring rare metal resources. In a joint study in 2011, the Materials Research Society and the American Physical Society issued a warning that should be of grave concern. It states, "A shortage of these 'energy critical elements' could significantly inhibit the adoption of otherwise game-changing energy technologies."3 This means that we could be condemned to a fossil fuel world, if we can-not bolster the rare metal supply lines we need to support our green technologies.4 The International Energy Agency (IEA) predicts that to keep global warming to an increase of no more than 2 degrees Celsius, in twenty years renewable energy must generate half the electricity on the planet. To meet this goal, the IEA assumes in one of its likely scenarios that combined solar and wind power must produce over 6,000 terawatt (TWh) hours. That's an enormous increase compared to the combined 750

TWh that the world produced in 2013. What's more, car manufacturers must increase production of electric vehicles by 80 percent annually from eighty thousand produced to seven million so that at least twenty million will be on the road by 2020.5

However, these sources of energy require rare earth metals. Than 18 at Stanford University explains:

Than 18 Ker Than, 1-17-2018, "Critical minerals scarcity could threaten renewable energy future," Stanford Earth, https://earth.stanford.edu/news/critical-minerals-scarcity-could-threaten-renewable-energy-future //DF

As population and standards of living rise in the coming decades, finding and developing sustainable sources of the critical and rare minerals crucial for modern electronics and **renewable energy technologies will be one of the "most important topics facing humanity.**" That was the consensus of experts from industry, government agencies, and academia speaking at a mineral resources conference held at Stanford University last month. "Due to the rapidly increasing need for mineral resources as Earth's human population continues to grow exponentially and the need to minimize the environmental and social impacts of mining, it's essential that Stanford be involved in the field of economic geology — the study of the formation, exploration, and utilization of mineral resources," said conference organizer Gordon Brown, the Dorrell William Kirby Professor of Geological Sciences at the university's School of Earth, Energy & Environmental Sciences (Stanford Earth). **Critical and rare metals — which include lithium, copper, uranium, gold, and so-called rare earth elements** (REEs) — are prized for their electronic and magnetic properties and play a crucial role in the production of modern electronics. They are important for everything from smartphones and batteries to advanced weapons systems. Ravenous consumption of metals Rare metals **are especially vital for renewable energy technologies, such as electric cars and solar panels. For example,** a single Tesla vehicle requires about 15 pounds, or a bowling ball's worth, of lithium, and **thin, cheap solar panels need tellurium, one of the rarest elements on Earth**. Lawrence Meinert, the acting deputy associate director of the Energy and Minerals Division of the United States Geological Survey (USGS), called humanity's consumption of metals over the last century "truly mind-boggling." People now use six times more iron per person than 100 years ago, which has required iron ore production to ramp up by a factor of 26.

Current reserves of these metals are declining now. Moss 18 explains:

Moss 18 Jacques Moss, 8-1-2018, "Renewable Energy's Deep Sea Mining Conundrum," No Publication, https://knect365.com/energy/article/9c1b0a6e-e73e-4360-9485-adf5cf141b33/renewable-energys-deep-sea-mining-conundrum //DF

Presently, around 90% of the world's production of rare earth minerals takes place in China. It's a market the country has had cornered since the early 1990's. This has given China immense sway over the development of the renewable energy industry and over other high-tech forms of manufacturing. The geopolitical implications in a world dependent on renewables to meet the majority of its energy needs are obvious. If that concerns you, the good news is that by then we may not need to worry about a repeat of Chinese embargoes of rare earths. **China's stocks are depleting quickly**. According to a whitepaper released by the Chinese government in 2012, **the country's reserves are likely to last only another 20 years, based on current patterns of consumption. The richest seams have already been mined, which means that the remaining reserves will be more expensive to extract**. So the question remains – where are the resources needed to bring about the energy transition going to come from?

Demand outstripping supply

Crawford 18 Alec Crawford, 8-2018, "Green Conflict Minerals," International Institute for Sustainable Development, https://www.iisd.org/story/green-conflict-minerals/ //DF

The terms “rare earths” refers to 17 different elements, often found together in the Earth’s crust. Of the 17, three are of particular importance to the development of green energy technologies: dysprosium, neodymium and praseodymium.14 These minerals are necessary for the production of specialized magnets used in both EVs and energy storage technologies as well as in wind turbines. The magnets are favoured for EVs because they are generally lighter, stronger and more efficient than induction motors that rely on copper coils (Desai, 2018). Similarly, use of these magnets has significant advantages in the production of wind turbines, cited for their efficiency, weight, size and maintenance properties (Pavel, et al., 2017). The World Bank notes that the use of these magnets in wind turbines is preferred, particularly for offshore turbines, due to their reliability and capacity to handle higher wind speeds (Arrobas et al., 2017). Some substitutions are available for rare earths; however, most of these are still in the research phase and in general have been found to be less effective. The prices of wind turbines and EVs are increasingly competitive, making the deployment of both a rapid reality. The demand for rare earths to meet this reality, and for neodymium and praseodymium in particular, is expected to surge in the coming years with this transition. The global demand for neodymium last year was approximately 31,700 tonnes, outstripping supply by 3,300 tonnes (Desai, 2018). And without viable substitutions, demand for neodymium will need to increase by more than 250 per cent through 2050 for the international community to meet its Paris Agreement goals (Arrobas etal., 2017).

Economist 17 5-17-2017, "In a hole?," Economist, https://www.economist.com/science-and-technology/2012/03/17/in-a-hole //DF

At the moment, that is not too much of a problem. Though a lot of the supply of rare earths comes from China, whose government has recently been restricting exports (a restriction that was the subject of a challenge lodged with the World Trade Organisation by America, Europe and Japan on March 13th), other known sources could be brought into play reasonably quickly, like the Mountain Pass mine in California, pictured above, which re-opened for business in February. At current levels of demand any problem caused by the geographical concentration of supply would thus be an irritating blip rather than an existential crisis. But what if the environmentalists' dream came true? Could demand for dysprosium and neodymium then be met? That was the question Randolph Kirchain, Elisa Alonso and Frank Field, three materials scientists at the Massachusetts Institute of Technology, asked themselves recently. Their answer, just published in Environmental Science and Technology, is that if wind turbines and electric vehicles are going to fulfil the role environmental planners have assigned them in reducing emissions of carbon dioxide, using current technologies would require an increase in the supply of neodymium and dysprosium of more than 700% and 2,600% respectively during the next 25 years. At the moment, the supply of these metals is increasing by 6% a year. To match the three researchers' projections it would actually have to increase by 8% a year for neodymium and 14% for dysprosium. That will be hard, particularly for dysprosium. Incremental improvements to motors and generators might be expected to bring demand down a bit. But barring a breakthrough in magnet technology (the discovery of a room-temperature superconductor, for example) the three researchers' figures suggest that the world's geologists would do well to start scouring the planet for rare-earth ores now. If they do not, the mood of the Chinese government may be the least of the headaches faced by magnet manufacturers.

Dwindling supplies endanger the future of renewables. Bourzac 11 at the MIT Technology Review reports:

Bourzac 11 Katherine Bourzac, 4-19-2011, “The Rare-Earth Crisis,” MIT Technology Review, https://www.technologyreview.com/s/423730/the-rare-earth-crisis/ //DF

If the supply of rare earths falls short of demand in the coming years and no substitutes that approach their performance are found, makers of hybrid and electric cars will probably try to develop new motor designs that rely on induced rather than permanent magnetism, says Eric Rask, a researcher at Argonne National Laboratory. Before joining Argonne two years ago, Rask worked on the power-train system for General Motors' electric Volt, which uses a rare-earth permanent magnet. But, he says, "the reason permanent-magnet motors are used is that their efficiency is almost always higher in the range where you use it a lot—typically you can get more torque for a given supply of current." **Few experts express optimism that there will be enough rare-earth materials to sustain significant growth of clean energy technologies like electric cars and wind power, which need every possible cost and efficiency advantage to compete**. "The writing is already on the wall," says Patrick Taylor, director of the Kroll Institute for Extractive Metallurgy at the Colorado School of Mines. "You want to develop this big new energy economy, but there's a limited supply and an ever-increasing demand." Asked how China gained its edge over the rest of the world, Taylor points out that most of the necessary expertise and industry began moving to that country nearly two decades ago. Back then, he adds, no one was even paying attention.

Good card

Muncdahl 17 Erin Mundahl, 8-8-2017, "Why a Low-Carbon Economy Drives the Need for Rare Earths – InsideSources," InsideSources, https://www.insidesources.com/world-bank-study-points-to-future-growth-rare-earth-metals/ //DF

"It is clear that meeting the Paris climate target of not exceeding 2 degrees Celsius (2°C) (and making best efforts to reach 1.5°C) global warming over this century will require a radical (that is, to the root) restructuring of energy supply and transmission systems globally," the researchers found. At the same time, even these relatively modest gains will come at substantial materials costs. "Furthermore, the technologies assumed to populate the clean energy shift (wind, solar, hydrogen and electricity systems) are in fact significantly MORE material intensive in their composition than current traditional fossil-fuel-based energy supply systems," the report continued. In this, the report acknowledges the difficulties that countries will face attempting to reach the lofty goals set by the Paris Climate Accord. Extrapolating out today's technology predicts that demand for certain needed metals will increase dramatically. The World Bank estimates that the demand for lithium, for instance, will surge by 1,480 percent and demand for indium by 146 percent. If demand were to reach these levels, the price of the necessary materials would doubtless become prohibitive. The details are outside of the scope of the analysis. At the end of the day, the report is constrained by the difficulty of predicting where technology will stand thirty years from now. Today, our best predictions presume a mix of wind and solar, using new battery technology to store energy for future use. However, in the decades to come, new research could shift clean energy technology in unexpected directions. In the field of clean and green energy, there are a great many unknown unknowns.

Renewables are extremely sensitive to price fluctuations

Purdue University 17 10-11-2017, "Innovation could provide inexpensive, clean way for US to enter $4 billion market to recover rare earth elements," Purdue University, https://phys.org/news/2017-10-inexpensive-billion-recover-rare-earth.html //DF

"REEs have many important applications in things such as permanent magnets in power generation and electric cars, batteries, petroleum refining catalysts, phosphors in color televisions, and many electronics including cellphones. The demand for REEs is predicted to grow dramatically over the next several decades," said Linda Wang, inventor of the technology and Purdue's Maxine Spencer Nichols Professor of Chemical Engineering. "REEs used in the U.S. are primarily imported from China, which controls over 90 percent of the supply, with wide implications on the U.S. economy and national security. "For example, after China reduced the export quotas in 2010, the costs of rare earth magnets for one wind turbine increased from $80,000 to $500,000. After China relaxed the export restrictions 18 months later, the prices returned to lower levels than in 2010," she said. "It's highly desirable to develop the capacity to produce REEs in the U.S. and to become independent of foreign suppliers." Separating rare earth elements is extremely difficult because the elements have the same ionic charge and are similar in size, Wang said. Read more at: https://phys.org/news/2017-10-inexpensive-billion-recover-rare-earth.html#jCp

Jones 13 Nicola Jones, 11-18-2013, "A Scarcity of Rare Metals Is Hindering Green Technologies," Yale E360, https://e360.yale.edu/features/a_scarcity_of_rare_metals_is_hindering_green_technologies //DF
Platinum, needed as a catalyst in fuel cells that turn hydrogen into energy, comes almost exclusively from South Africa. Researchers and industry workers alike woke with a shock to the problems caused by these dodgy supply chains in 2011, w**hen the average price of "rare earths" — including terbium and europium, used in fluorescent bulbs; and neodymium, used in the powerful magnets that help to drive wind turbines and electric engines — shot up by as much as 750 percent in a year**. The problem was that China, which controlled 97 percent of global rare earth production, had clamped down on trade. A solution was brokered and the price shock faded, but the threat of future supply problems for rare earths and other so-called "critical elements" still looms. That's why the Critical Materials Institute, located at the DOE's Ames Laboratory, was created. The institute opened in June, and the official ribbon-cutting was in September. Its mission is to predict which materials are going to become problems next, work to improve supply chains, and try to invent alternative materials that don't need so many critical elements in the first place. The institute is one of a handful of organizations worldwide trying to tackle the problem of critical elements, which organizations like the American Physical Society have been calling attention to for years. "It's a hot topic in Europe right now," says Olivier Vidal, coordinator of a European Commission project called ERA-MIN — one of a handful of European initiatives that are now ramping up.

Raval 18 Anjli Raval,, 7-17-2018, "Fall in renewable energy investment threatens climate goals," Financial Times, https://www.ft.com/content/20af1fea-898a-11e8-bf9e-8771d5404543 //DF
Investment in renewable power declined last year by its largest amount ever and is likely to keep falling this year, threatening global climate goals. Capital spending in renewable power generation fell 7 per cent in 2017 compared with the previous year, owing to declines in onshore wind and hydropower investment, according to a report from the International Energy Agency. The world's leading energy watchdog reported that overall global energy investment dropped 2 per cent in the same period. Fatih Birol, the IEA's executive director, said the declines in clean power and energy efficiency were "worrying". "The current investment trends are insufficient both in terms of addressing security of supply concerns and environmental concerns," Mr Birol told the Financial Times. Following the Paris climate agreement in 2015 more than 170 countries agreed to try limiting global warming to well below 2C, an effort that will require huge investments in low-carbon energy systems. But with global carbon emissions rising again and investment in renewables falling, there are concerns about how the goals of the Paris agreement can be met. The IEA's report shows that renewable power investment fell to $298bn in 2017 from $318bn in 2016, representing the biggest absolute drop since the agency started keeping track of clean power in 2000. Investments in energy efficiency measures — such as improving systems for heating, cooling and lighting so that buildings consume less power — also saw weaker growth than in previous years

UQ – US Has REMs

Howbow dat?

Stone 16 Maddie Stone, 4-5-2016, "The Future of Technology Is Hiding on the Ocean Floor," Gizmodo, https://gizmodo.com/the-future-of-technology-is-hiding-on-the-ocean-floor-1764122967 //DF

"At the time, people didn't realize this was all a big ploy," oceanographer Frank Sansone of the University of Hawaii at Manoa told Gizmodo. "What's fascinating is that the CIA's cover story set up a whole line of research about manganese nodules." Over the years and decades to come, private industries would discover that manganese nodules contain tremendous quantities of rare earth metals—precious elements at the core of our smartphones, computers, defense systems, and clean energy technologies. We have an endless need for these metals, and limited land-based supplies. Now, forty years after that CIA plot, we're on the verge of an underwater gold rush. One that could, one day, allow us to tap into vast rare earth reserves at the bottom of the ocean. "You can basically supply all the rare earths you need from the deep sea," John Wiltshire, director of Hawaii's Undersea Research Lab told Gizmodo. "All of the technology needed to do so is now in some form of development."

US has lots of REMs generally

Bushong 13 Steven Bushong, 6-4-2013, "Rare earths, minerals used in windpower technology, could fall into short supply," Windpower Engineering & Development, https://www.windpowerengineering.com/business-news-projects/uncategorized/rare-earths-minerals-used-in-windpower-technology-could-fall-into-short-supply/ //DF

To address concerns of market dependence, industry, and governments are looking for ways to substitute the rarer, more expensive rare earths with less costly alternatives that have a lower supply risk. The elements neodymium, dysprosium, and samarium, found in rare earth permanent magnets, have been placed on a list of critical elements by the European Commission and the U.S. government. Leading up to 2012, there was practically no recycling of end-of-life magnets, but the issue of recycling the rare earth elements in these magnets has become a high priority issue. The Japanese government is committed to finding ways to decrease demand of rare earths from China, and has invested in rare earth projects in Vietnam and Kazakhstan to try and secure supply. The country announced a special budget in 2011 to reduce consumption and develop alternative materials, which includes projects in rare earth recycling and finding suitable substitutes for rare earths in applications such as in PMs. The U.S. has estimated rare earth reserves of more than 13 million metric tons, the largest reserve outside China and the CIS. The rare earth mine of Mountain Pass, Calif., which was reopened in 2012 after being closed for 10 years, is operated by Molycorp, and holds one of the major world reserves of rare earths. Other reserves of REOs are located primarily along the eastern seaboard of the U.S., in Florida, Georgia, and South Carolina. Rare earth minerals are also found in Wyoming, Colorado, Idaho, New Mexico, New York, and Tennessee.

The US offshore reserves are the largest outside of China. Schofield 13 explains:

Schofield 13 Clive Schofield, 2013, "New Marine Resource Opportunities, Fresh Challenges Panel 4: Emerging International Regimes to Control Environmental Impacts," University of Hawai'i Law Review, https://heinonline.org/HOL/LandingPage?handle=hein.journals/uhawlr35&div=28&id=&page= //DF

Such developments illustrate the potential for such novel developments among the Pacific island States more generally. 75 Analogous interest in seabed mining, including on areas of outer continental shelf, has been expressed by states such as the Cook Islands, the Federated States of Micronesia, Fiji, Kiribati and Palau. Some of the figures relating to potential reserves and associated potential financial benefits to these generally small developing Pacific Island nations are staggering. For example, in August 2013 it was reported that seabed mining of manganese nodules could yield "tens of billions" of dollars in earnings for the Cook Islands alone, potentially increasing gros domestic product "a hundredfold" and transforming the Cook Islands into "one of the richest in the world in terms of per capita income."76 While such statements appear, at first glance, more than a little far-fetched, it is nonetheless clear that interest in seabed mining opportunities is

sharply on the rise. Advances in deep sea resource exploration and exploitation technologies have also given rise to the prospect of accessing seabed resources not only within areas of outer continental shelf but in deeper waters and areas beyond national jurisdiction. While developments in the area are proceeding apace, notably in respect of the Clarion-Clipperton Zone in the Equatorial North Pacific Ocean and in the Central Indian Basin of the Indian Ocean,n areas of outer continental shelf subject to national jurisdiction are likely to be particularly attractive areas for development from the perspective of the coastal states, which hold sovereign rights over these areas. Indeed, it has been estimated that the Clarion-Clipperton Zone alone **holds more than 27 billion tonnes of nodules containing of the order of 7 billion tonnes of manganese, 340 million tonnes of nickel, 290 million tonnes of copper and 78 million tonnes of cobalt as well as rare earths needed for the production of many hi-tech products** such as smart phones.78 This led the International Seabed Authority's (ISA) Legal Counsel, Michael Lodge, to comment in May 2013 that "We are on the threshold of a new era of deep seabed mining."79 While the figures suggested may appear extraordinary, there seems little doubt that interest in the exploitation of these resources will be sustained so long as commodity prices remain high. The ISA's approval of exploration plans for the development of cobalt-rich manganese crusts by Chinese and Japanese concerns during its nineteenth session in July 2013 also appears to bear out the seriousness of this interest.so

Lots of REMs near Hawaii

Jones 11 Nicola Jones, 7-3-2011, "Sea holds treasure trove of rare-earth elements : Nature News," Nature, https://www.nature.com/news/2011/110703/full/news.2011.393.html //DF

It has long been known that the ocean might provide a wealth of rare earths. Sea-floor hydrothermal vents pump out rare-earth elements dissolved in their hot fluids. And these elements and others accumulate in potato-sized lumps, called manganese nodules, on the sea floor. The elements also build up in sea-floor mud; but only a few spot measures of this source of rare-earth elements have previously been made. Kato and his colleagues set out to perform a widespread assessment of this possible resource. They looked at 2,000 samples of sediments taken from 78 sites around the Pacific, and found rare-earth concentrations as high as 0.2% of the mud in the eastern South Pacific, and 0.1% near Hawaii. That might not sound like much, but those concentrations are as high as or higher than those at one clay mine currently in operation in China, they point out. And the deposits are particularly rich in heavy rare-earth elements — the rarer and more expensive metals. Some of the deposits are more than 70 metres thick. The authors estimate that an area of 1 square kilometre around a hotspot near Hawaii could hold 25,000 tonnes of rare earths. Overall, they say, the ocean floor might hold more than the 110 million tonnes of rare earths estimated to be buried on land.

Crazy amount of REMs

CBC 11 7-4-2011, "Rare earth metals abundant in deep-sea mud," CBC, https://www.cbc.ca/news/technology/rare-earth-metals-abundant-in-deep-sea-mud-1.1096717 //DF

China currently controls 97 per cent of the world's production of rare earth elements and the metal yttrium, which are used in energy-efficient batteries and power sources for devices such as flat-screen televisions, electric cars and smartphones. As demand for the elements grows, China has been hiking taxes and putting restrictions on exports. Prices of **rare earth elements** have increased roughly 700 per cent over the past decade. It turns out that those elements **are so abundant on the bottom of the ocean that the mud covering just one square kilometre of ocean floor in the Pacific Ocean could supply one-fifth of the current annual world consumption**, according to a new study published online Sunday in Nature Geoscience. Researchers led by Yasuhiro Kato at the University of Tokyo's department of systems innovation also found that extracting the elements from the mud was easy — almost all of them came out after being mixed with solutions of hydrochloric or sulphuric acid that are considered dilute (roughly five times the concentration of acid in your stomach). Much of it is found in the accessible surface layer of mud. Scientists had previously known that rare earth elements and yttrium are found in some kinds of deep-sea mud, but they knew little about the distribution of those deposits. Kato and his colleagues drilled and sampled more than 2,000 sediments from the sea floor at 78 sites around the

Pacific Ocean, and found especially high concentrations of rare-earth elements and yttrium in the eastern South Pacific, west of Peru and Ecuador, and the central North Pacific, near Hawaii. The deposits in the eastern South Pacific are nearly twice as rich as the land deposits in China. They are also much higher in heavy rare earth elements — the kind that are more important in technology products — than those in China. At the moment, China has only one third of global reserves of rare earth elements, but most of the world's reserves of heavy earth elements. Deposits of light rare earth elements are found in other countries, such as the U.S. and Australia. In Canada, exploration is underway in several provinces.

There are economically significant amounts of REMs beyond our EEZ that require UNCLOS ratification

Conathan 12 Michael Conathan, 6-13-2012, "Conservatives Disregard Traditional Allies to Oppose the Law of the Sea," Think Progress
http://thinkprogress.org/climate/2012/06/13/498060/conservatives-disregard-traditional-allies-to-oppose-the-law-of-the-sea/ //DF

And it's not just about oil and gas. Rare-earth metals are compounds integral to the production of modern devices including cell phones, hybrid cars, and even precision-guided missile systems. Currently more than 95 percent of rare-earth metals are produced in China, which has begun restricting its export. But nodules found on the deep seabed—well outside even extended continental shelves—have "economically significant" amounts of rare-earth metals, and Lockheed Martin and other companies would like to begin exploration to determine the viability of tapping this source. Access to these areas that are beyond any national claim of jurisdiction will have to be regulated by an international body—in this case, the ISA—which explains Lockheed Martin's support for U.S. ratification of the Law of the Sea. The United States has a clear choice: Agree to limited revenue sharing under the treaty and bankroll more than 93 percent of total revenue from extended continental shelf and high seas activities, or get nothing at all and lose the ability to challenge claims made by other nations.

Link – UNCLOS Permits REMs Mining

Ian **Coles**, **2014**, "Rare Earth Elements: Deep Sea Mining and the Law of the Sea," Mayer Brown, https://www.mayerbrown.com/Files/Publication/856c8826-2823-425a-b4df-b4603e4585b1/Presentation/PublicationAttachment/e45fc80e-0207-4e7a-8c13-b6a394ee776f/rare_earth_elements.pdf //AM

In the Area, activities in relation to seabed mining may only be carried out in accordance with the regulations, rules and processes laid down by the ISA (the "Mining Code"). Engaging in prospecting requires a satisfactory undertaking to be given to the ISA that the proposed prospector will comply with the UNCLOS and the Mining Code and will accept verification of compliance by the ISA. **Exploration and exploitation may only be carried out under a contract with the ISA, which may be awarded to state agencies and private mining enterprises sponsored by a State Party to the UNCLOS.** The element of state sponsorship is fundamental to this regime, as it is designed to ensure that a State Party to the UNCLOS is ultimately responsible for the activities of entities which contract with the ISA. To date, the ISA has awarded 19 exploration contracts, each valid for 15 years, with a further three contracts in the pipeline. The rapid increase in activity for the ISA in recent years reflects the renewed interest in deep seabed mining, especially from the private sector.

Link: ratification needed for exploration in the deep seabed

Martin 17 Eric Martin [Lawyer, partner at Stoel Rives LLP], 5-16-2017, "Mining the Deep Seabed for Renewable Energy," Mineral Law,
https://www.minerallawblog.com/mining/mining-the-deep-seabed-for-renewable-energy/ //DF

On Friday the China Minmetals Corporation signed a 15-year contract with the International Seabed Authority (ISA) for exploration of polymetallic nodules on the deep seabed of the Pacific Ocean. The ISA has now executed nearly 30 exploration contracts for polymetallic nodules, polymetallic sulphides, and ferromanganese in the Atlantic, Indian, and Pacific Oceans. These materials are rich in minerals – such as cobalt, lithium, and tellurium – used to produce batteries and solar panels. Last month British scientists announced the discovery of a deposit of tellurium deep in the Atlantic Ocean sufficient to make solar panels capable of generating 65% of the United Kingdom's electricity supply. Created under the United Nations Convention on the Law of the Sea of 1982 (UNCLOS), the ISA regulates seabed activities occurring more than 200 miles offshore (i.e., beyond countries' Exclusive Economic Zones). The mining part of UNCLOS (aka Part XI) was renegotiated in the early 1990s resulting in the 1994 Implementing Agreement. UNCLOS became effective later in 1994 when a 60th country (Guyana) ratified it. Over 160 countries have now ratified UNCLOS, but the United States has not. As a result, U.S. companies cannot pursue ISA contracts. U.S. companies can obtain exploration licenses for polymetallic nodules from the National Oceanic and Atmospheric Administration (NOAA) under the Deep Seabed Hard Mineral Resources Act of 1980 (DSHMRA), 30 U.S.C. §§ 1401-1473. NOAA is in the process of extending the two existing licenses, both held by Lockheed Martin, for another five years. 82 Fed. Reg. 18,613 (Apr. 20, 2017). However, according to Lockheed Martin, U.S. ratification of UNCLOS, as modified by the 1994 Implementing Agreement, must occur before at-sea exploration is feasible.

However, the US needs to ratify UNCLOS to access these. Rogers 12 writes: U.S. companies increasingly seek to engage in seabed mining for as rare earth elements. However, as long as the United States remains outside the international legal protections afforded by LOSC, the private sector remains hesitant to invest in seabed mining.

Rogers 12 Will Rogers [Research Associate at the Center for a New American Security], 4-2012, "Security at Sea
The Case for Ratifying the Law of the Sea Convention," Center for a New American Security, https://s3.amazonaws.com/files.cnas.org/documents/CNAS_SecurityAtSea_Rogers_0.pdf?mtime=20160906081931 //DF

Seabed mining, in the Arctic and elsewhere, is also becoming an important strategic interest for the United States. **U.S. companies increasingly seek to engage in seabed mining for minerals such as rare earth element**s and cobalt that are critical to the broad U.S. economy and used in producing defense assets. **However, as long as the United States remains outside the international legal protections afforded by LOSC, the private sector remains hesitant to invest in seabed mining** – investments that would reduce U.S. vulnerabilities to external pressure and supply disruption. Indeed, since few suppliers provide such minerals and they are prone to intentional or unintentional disruptions and price spikes, increasing U.S. production will help prevent suppliers from exerting political and economic leverage over the United States and its allies.2

UNCLOS accession required to get needed permits to mine

Liljestrand 18 Katherine Liljestrand, 2-8-2018, "The Deep-Sea Reasons for the Accession of the United States to the 1982 Convention on the Law of the Sea," Georgetown Environmental Law Review, https://gelr.org/2018/02/08/the-deep-sea-reasons-for-the-accession-of-the-united-states-to-the-1982-convention-on-the-law-of-the-sea/ //DF

The second important environmentally-related mechanism the United States is missing out on is the Council of the International Seabed Authority and its unique process.[13] The International Seabed Authority is the primary body that deals with the Area.[14] The Area, as defined in Article I of UNCLOS, includes **the seabed, ocean floor, and subsoil beyond the limits of national jurisdiction**.[15] **The International Seabed Authority** is the international body that **regulates and controls all mineral-related activities in the Area**, and only parties to UNCLOS can sit on the Council.[16] The United States has a reserved, permanent spot on the Council due to having the largest economy at the time of UNCLOS' ratification but is unable to take that spot unless it

becomes a party to UNCLOS.[17] As of currently, the United States is missing out on partaking in the Authority's defining of the future of seabed mineral mining. **The International Seabed Authority issues permits to** private parties – mainly **companies** – **for the exploitation and mining of deep seabed minerals**[18], such as the highly profitable polymetallic manganese nodules. It is the International Seabed Authority that determines how these permits are distributed and any restrictions on those with the permits.[19] **In order for a private company to get a permit for deep sea mining, the company must be sponsored by a country** to begin the application process with the International Seabed Authority. **Thus, United States companies have no access to this process or the permits for deep sea mining**. This hurts United States-based companies who could otherwise feasibly take part in the race for claiming highly valuable seabed minerals through excavation.

Internal Link – Renewables Solve Climate Change

The development of green tech is the best way to fight climate change.

Lomberg, (Abc News), 9-29-2013, "Renewable energy technology the key to climate change," ABC Rural, http://www.abc.net.au/news/rural/2013-09-30/renewable-energy-technology-not-emission-target/4988946 //DF

Sinking money into high-tech renewable energy technologies is the best way to reduce carbon emissions, according to a prominent environmental economist. Bjorn Lomborg, a climate policy sceptic from the global think-tank The Copenhagen Consensus Centre, says carbon taxes and emissions targets haven't worked. Mr Lomborg says the latest report from the Intergovernmental Panel on Climate Change (IPCC) should set the stage for a new approach. "We tried (emissions reduction) with the Kyto Protocol, we tried to get a big global agreement in Copenhagen in 2009 and it's just really hard to get people to cut their carbon emissions. "Remember we don't burn fossil fuels to annoy Al Gore, we burn them because they really power everything we like about society. "What we have to do is find a way to make green energy so cheap that eventually everyone, including China and India, will want to buy it. "So instead of these treaties where we say 'would you please burn a little less fossil fuels' we should focus on ramping up innovation so that green energy becomes so cheap that everybody wants to buy it." UN Secretary General Ban Ki Moon has called for countries to "bring strong pledges to cut emissions" to a UN Climate Summit next year which Mr Lomborg says ignores the reality of the situation. "This has been the UN's preferred solution for at least ten, maybe 20 years and I can understand they've decided they're not going to leave that (strategy). "Obviously it would be great if we could get everyone (around the world) but it's just not going to happen. "It has a significant cost for individual countries for only a tiny benefit for 100 years from now. "That's really why it's so hard to get countries to agree on this. "So why keep repeating the same pattern and make pledges that we don't keep, why not pledge to invest in renewables. "Our research shows that **for every dollar you invest in green technology development, you save $11 in climate damage**." Bjorn Lomborg says the emphasis needs to be on new, not existing technologies.

Impact – Climate Change Bad

The spread of green energy has already saved 12k lives in 9 years

Johnston 17 Ian Johnston [Environment Correspondent], 8-1-2017, "Wind and solar power helped prevent up to 12,700 deaths in US," Independent, https://www.independent.co.uk/environment/us-wind-power-solar-energy-renewables-prevent-12700-deaths-2015-clean-air-climate-change-a7894066.html //DF

The massive increase in wind and solar energy helped prevent the premature deaths of up to 12,700 people over a nine-year period in the US, according to new research which illustrates the wider benefits of ditching fossil fuels beyond limiting global warming. The lower carbon emissions were worth billions of dollars as a result of the avoidance of the range of problems caused by fossil fuels, according to a paper about the study published in the journal, Nature Energy. The UK Government has pledged that the sale of new petrol and diesel vehicles will be banned from 2040 – a deadline criticised by environmentalists as being too far in the future to make a difference. In contrast, Norway plans to phase out such vehicles by 2025.

Russia

R/T Russia Can't Attack Right Now

Obama did not take Russia seriously which led to the annexation of Crimea. Even the subsequent sanctions which were put in place, which my opponents are claiming are restraining them, have failed in deterring Russian aggression (Haddad - Brookings).

Benjamin Haddad and Alina Polyakova, 3-5-2018, "Don't rehabilitate Obama on Russia," Brookings, https://www.brookings.edu/blog/order-from-chaos/2018/03/05/dont-rehabilitate-obama-on-russia/ (NK)

But not everything is relative; we should not slip into collective amnesia over the Obama administration's weak and underwhelming response to Russian aggression. Throughout his presidency, **Obama consistently underestimated the challenge posed by Putin's regime. His foreign policy was firmly grounded in the premise that Russia was not a national security threat to the United States.** In 2012, Obama disparaged Mitt Romney for exaggerating the Russian threat—"the 1980s are now calling to ask for their foreign policy back because the Cold War's been over for 20 years," Obama quipped. **This breezy attitude prevailed even as Russia annexed Crimea, invaded eastern Ukraine, intervened in Syria, and hacked the Clinton campaign and the DNC. Obama's response during these critical moments was cautious at best, and deeply misguided at worst. Even the imposition of sanctions on Russia for its invasion of Ukraine was accompanied by so much propitiation and restraint elsewhere that it didn't deter Russia from subsequent aggression**, including the risky 2016 influence operation in the United States. Obama, confident that history was on America's side, for the duration of his time in office underestimated the damaging impact Russia could achieve through asymmetric means. Obama's cautious Russia policy is grounded in three conceptual errors: a failure to grasp the true nature of the Russian threat, most clearly visible in his administration's restrained response to Russia's annexation of Crimea in 2014; a "long view" of historical trends which in his view inexorably "bent" toward liberalism; and the perception that formidable domestic political obstacles stood in his way when it came to crafting a response to Putin's assault on the elections in 2016.

Russia can deal with sanctions - their economy is on the rise due to a booming agriculture sector and rising oil prices. Furthermore, they cannot give in to the sanctions as that would cause them to entirely change their foreign policy, which would never happen. If anything, sanctions strengthen Putin as they rally nationalism and catalyze Putin's agenda (Weir - Christian Science Monitor)

Christian Science Monitor, 8-29-2018, "Why Russia isn't flinching at snowballing US sanctions," https://www.csmonitor.com/World/Europe/2018/0829/Why-Russia-isn-t-flinching-at-snowballing-US-sanctions (NK)

Russians have been living with escalating US sanctions for more than four years. For many, it's become a dismal fact of life, like the Moscow weather. And this week, a new wave of US sanctions hit Russia, with more in the pipeline. But **while there's little sign that the American deluge will abate any time soon, Russia seems to be better prepared than ever before to weather the storm**. Many things have changed since the United States and its Western allies imposed comprehensive economic measures against Russia's Kremlin-friendly oligarchs and state corporations back in 2014. Those were meant to punish Moscow for its annexation of Crimea and force it to change its behavior in Ukraine, and the Europeans remain on board. But the US is basically going it alone with its new sanctions, which seem aimed at a wide variety of alleged Russian misdeeds. The latest salvo bans certain technology exports to Russia over the attempted nerve gas poisoningof former double agent Sergei Skripal and his daughter in England last March. It also promises much tougher measures if Russia doesn't certify that it has stopped using chemical weapons and allow on-the-ground inspections by November. A more serious battery of measures, which aims to punish Russia for its alleged election interference in the US, is pending. It would block US investments in Russian energy projects and effectively ban major Russian banks from conducting transactions in US dollars. Russian Prime Minister Dmitry Medvedev has admitted those measures might really hurt, calling them "a declaration of economic war" against Russia. "The Europeans can still tell the Kremlin that, if it changes certain behaviors connected with Ukraine, their sanctions will come off and things can return to normal," says Fyodor Lukyanov, editor of Russia in Global Affairs, a leading Moscow foreign policy journal. "But all these waves of US sanctions seem directed against just about everything Russia is doing, or allegedly doing, in every way. Basically, **if Russia wanted to convince the US that its behavior is changing enough to remove the sanctions, we would have to**

agree to totally overhaul our foreign policy, admit we were wrong about everything and, well, give up. That's probably too much to ask from any country, but particularly Russia." Mr. Lukyanov says that there is little Russia can do to retaliate against the US, despite brave talk of tit-for-tat sanctions from the Russian Foreign Ministry. But s**imultaneous US attempts to sanction Iran and Turkey, while threatening Europeans with "secondary sanctions" if they do not comply with US demands, does create many new opportunities for Russia to win sympathy from other countries and bypass US measures that did not exist four years ago. "The main mood in Moscow is that we need to be patient, we need to be wise, and we need to survive this,**" he says. The key Russian response appears to be the economic equivalent of circling the wagons. During the course of this year the Russian Central Bank has unloaded most of its US Treasury bonds, about $85 billion worth, and appears to be stockpiling gold as a hedge against future isolation. **Thanks to the rising price of oil, the Russian state's main source of international revenue, its foreign currency reserves are a healthy $450 billion. And Russia's once-depeleted National Wealth Fund is now reportedly back up to about $75 billion**. Long-suffering Russian consumers have paid the price for bolstering the country's war chest. The Central Bank has consistently declined to intervene to support the ruble, letting the national currency sink from around 30 per dollar before the crisis began five years ago to almost 70 today. High inflation rates, which threatened social stability early in the crisis, have been beaten down to near-historic lows – currently around 2.5 percent – again at the expense of average Russians. The Central Bank's base interest rate is just under 8 percent, but consumer loans start at upwards of 12 percent, making it very difficult to start a business or make home improvements. But government finances are in good order, and a new value-added tax intended to kick in next year will add about $50 billion in annual revenue. Other unpopular measures, such the controversial pension reform, may test the limits of public patience but will strengthen the Kremlin's ability to withstand any coming external storms. **Russia may be better prepared for a long-term economic standoff with the US in other ways too. The country's agricultural sector is booming in part due to the war of sanctions and counter-sanctions. To defend against the possibility of being cut out of the SWIFT international bank transfer system, Russia devised its own independent network to bypass international payment systems**. It's still a work in progress, and has zero traction outside of Russia, but millions of Russian pensioners and public employees now receive their payments via the new Mir card. **Available evidence suggests that Russians are willing to endure a fair amount of pain if they believe it's the patriotic thing to do. According to a new Pew poll, they are about evenly divided on whether the sanctions are hurting their economy or not. But the same poll found that eight in ten Russians have at least some confidence in Vladimir Putin's conduct of international affairs, with 58 percent expressing "a lot of confidence.**" "Russia has plenty of reasons for social unrest, but **sanctions only help Putin," says Sergei Markov, a former Putin adviser. "If history shows anything, it is that Russians will always unite to resist outside pressure. It's when we are at our best."**

Jerry Hendrix, 2-5-2018, "When Putin Invades the Baltics," National Review, https://www.nationalreview.com/magazine/2018/02/05/vladimir-putin-invade-baltics/

The alliance at present has two notable weaknesses. The first is that it is large and bureaucratically lethargic, even when responding to military aggression, as was evidenced during Russia's recent invasions of Crimea and Ukraine, when NATO struggled to find a consensus response. The second is that its members have underinvested in their own defense for the better part of a generation. On the former point, Putin expects to take advantage of NATO's noted preference for diplomatic or economic solutions as well as the regional schisms (north vs. south and east vs. west) that make it difficult for NATO to find a response agreeable to all 29 members. **Regarding the latter point, while many nations are now spending more on defense, both of their own volition and at the urging of President Trump, they have spent so little for so long that it will be difficult for them to prepare for war quickly. Many nations have eliminated whole segments of their militaries, from armored tanks to submarines to anti-submarine patrol aircraft. Some members no longer even have a viable domestic defense industry, and those that do find that their arms manufacturers are not up to the task of producing modern weapons**. Additionally, **the United States, long the strongest member of the NATO alliance, has spent years removing forces from Europe that had been permanently stationed there.** At the end of the Cold War, the United States had 14,000 main battle tanks and over 300,000 military personnel on the continent. In 2013, at the beginning of the Obama administration's second term, the last of those tanks left. Near the end of Obama's time in office, after Putin's illegal occupation of Crimea and war with Ukraine, the decision was made to send U.S. Army armored-brigade combat teams to Europe on a rotational basis, but none were to be permanently based on the contine

R/T Lost to Georgia

Russian Military has greatly improved since losing to Georgia, would destroy estonia, latvia etc now

David Brennan, 3-7-2018, "A new report has warned that Russia will overwhelm NATO defenses in a European war," Newsweek, https://www.newsweek.com/russia-would-overrun-nato-european-war-report-warns-835146 (NK)

But Russia is beginning to catch up. President Vladimir Putin has ploughed significant sums into creating a modern military capable of complex logistical planning and force projection. According to the Stockholm International Peace Research Institute, Russia spent $20.9 billion—3.6 percent of its gross domestic product (GDP)—on its armed forces in 2000, the year Putin was first elected president. In 2016, Russia spent $70.3 billion on its military; 5.3 percent of its GDP. **Poor Russian performance in the 2008 Russo-Georgian War, in particular, showed that upgrading military equipment and structures was vital to remain a potent force.** Russia now has "a growing number of volunteer soldiers, fielding of modernized weapons, improvements to readiness and experience gained from large-scale exercises and combat operations in Ukraine and Syria," Boston and colleagues explain. R**ussia's improved logistical network allows it to mass significant forces within its borders, the report continues, as shown in recent large-scale military exercises. Given that its Western Military District is already home to the country's elite ground and air forces, Estonia, Latvia and Lithuania have little chance of withstanding an all-out assault—even with the assistance of supplementary NATO units.** Russian firepower and home advantage means it could overrun and secure the Baltic region before the U.S. and its allies have a chance to strike back, by which time the war could already have been won—and not by NATO.

Economy

Moore 12 John Norton Moore [Director, Center for Oceans Law & Policy at the University of Virginia], 7-27-2012, "Restoring America's Oceans Leadership," HuffPost, https://www.huffingtonpost.com/john-norton-moore/restoring-americas-oceans_b_1712081.html //DF

Our economy is hurt when delimitation of our extended continental shelf is delayed and when legal uncertainties from non-membership prevent our oil and gas industry from exploiting the rich continental margin, especially in the Arctic. Development of resources in the Chukchi and Beaufort Seas off Alaska's coast would create approximately 54,700 jobs per year nationwide with a $145 billion payroll and would generate $193 billion in federal, state and local revenue according to a study done by the University of Alaska's Institute of Social and Economic Research. The delay in ratifying this treaty has already cost the loss of one of our four seabed mine sites, the richest in the world, and if we do not soon adhere the United States risks losing the remaining three, with billions in the strategic minerals manganese, copper, cobalt and nickel at stake. A single seabed mining operation would spur the economy with total capital purchases of close to one and a half billion dollars and would stimulate robust job creation. Further, for our nation to lose this new industry would cost millions in consumer losses and foregone tax revenues and billions in our balance of trade as the United States was forced to import rather than produce these strategic minerals. Undersea cables carry more than 95% of international Internet and telephonic transmissions. These crucial cables also transmit financial data and transactions worth trillions every day. The Convention establishes the legal underpinning for protecting and managing these cables. At a National Press Club event a spokesman for AT&T warned that not being a party places America's crucial communication links at risk