1.

Energy Security

CAPITALIZING ON AMERICA'S ENERGY ABUNDANCE AND IMPROVING ENERGY SECURITY

Key Takeaways:

- The United States is rich in natural resources and American energy producers are global leaders in supplying families and businesses with affordable, reliable energy. Energy policy should allow price signals to guide energy investments to create a true, diversified, all-of-the-above approach to energy.
- Policies and regulations that restrict natural resource extraction and energy infrastructure will not only cost American jobs and economic growth but will likely have the unintended environmental consequence of increasing pollution and global greenhouse gas emissions.
- Increasing energy supplies, easing supply chain constraints and securing processed minerals will best be achieved by opening domestic and international markets to extraction, processing, and trade.

Russia's invasion of Ukraine was a stark wakeup call for policymakers that energy affordability and security is indispensable for American families, the economy, and America's allies. Households and businesses need affordable, reliable power from stable, friendly suppliers. They cannot be dependent on geopolitical adversaries that manipulate energy markets to exert political muscle. As an example, 77 percent of Americans were in favor of sanctions on Russian oil and gas with 63 percent still in support even if it meant higher prices at the pump (including majority support from Democrats, Republicans, and Independents).[1]

At the same time, governments around the world are pursuing efforts to reduce the risks of climate change. The goals of energy security, capitalizing on energy abundance, affordable, dependable energy, and climate progress do not have to conflict with one another. In fact, if there is conflict, there is also a good chance the proposed policy will fail economically and environmentally. Energy policy pragmatism must recognize the need for natural resource extraction for fossil fuels, nuclear energy, renewables, and batteries. **Achieving energy security will occur through the development of diverse, cost-competitive technologies that meet the needs of consumers.**

The United States has a diverse resource portfolio for electricity generation. Sources include natural gas, coal, nuclear, wind, hydropower, solar, biomass, and geothermal.[2] Petroleum is the dominant source of the transportation sector in the U.S., but fully electric vehicle, plug-in hybrid, and hybrid vehicle purchases have noticeably grown the past few years. In the fourth quarter of 2021, EVs and hybrids made up 11 percent of all light-duty vehicles.[3] Biofuels, natural gas, and propane also serve as alternatives to gasoline and diesel.[4]

The key to a stable, affordable energy supply is to open access to America's abundance of natural resources and allow markets and price signals to drive energy innovation. Price signals communicate information to investors and energy suppliers that there is a need for more of a certain resource, or that the suppliers should pivot to alternative technologies. When price information is available, it informs the behavior of consumers in the short run (by conserving energy) and in the intermediate to longer run (switching to a more fuel-efficient or hybrid vehicle).

> ***"Achieving energy security will occur through the development of diverse, cost-competitive technologies that meet the needs of consumers."***

Businesses and investors also need regulatory certainty. Markets will deliver dependable energy while making environmental progress if policies and regulatory frameworks allow it to happen. Opening access to resource development and, to domestic and international markets, and modernizing regulations will empower innovative companies to build cleaner and faster and provide American households with the affordable, secure energy choices they need.

DOMESTIC OIL PRODUCTION HAS ECONOMIC, ENVIRONMENTAL, AND GEOPOLITICAL ADVANTAGES

High gas prices are a major concern for families and businesses. In May, prices hit record highs as the national average surpassed $4.50 per gallon.[5] Several states surpassed $5 per gallon and California eclipsed $6 per gallon.[6] The price of a barrel of crude oil makes up the largest share (53.6 percent) of the price of a gallon of gasoline.[7] Federal and state taxes (16.4 percent), distributing and marketing (15.6 percent) and refining costs and profits (14.4) make up the rest. (These percentages are for the 2021 retail price of gasoline, which tracks closely with the 2012-2021 average).[8]

The triple digit per barrel oil prices after Russia's invasion of Ukraine was the result of geopolitical risk added onto a convergence of factors. Global production was lower, because production had plummeted during the 2020 pandemic. Demand outpaced supply as countries lifted Covid-19 restrictions. The lack of spare capacity, which the U.S. Energy Information Administration (EIA) defines as "the volume of production that can be brought on within 30 days and sustained for at least 90 days,"[9] also caused quicker spikes prices as markets could not respond as quickly.[10]

"The key to a stable, affordable energy supply is to open access to America's abundance of natural resources and allow markets and price signals to drive energy innovation.

For nearly half a century, Democrat and Republican presidents have pledged to make the United States energy independent and eliminate America's dependence on foreign oil.[11] The reality is that oil is a globally traded commodity; therefore, U.S. households will incur higher prices if demand increases in China or there is a supply disruption in Saudi Arabia.

That is not to suggest, however, that Americans are helpless and at the complete mercy of state-owned oil producers like OPEC and Russia. In fact, smart extraction technologies unleashed an energy revolution in the U.S. that dramatically increased domestic supply, created millions of jobs, and lowered energy bills for households and businesses. U.S. producers have changed the global landscape for oil. The U.S. is now the largest oil and gas producer in the world, having increased production from just above 5 million barrels per day in 2007 to 12.3 million barrels per day before the Covid-19 pandemic struck.[12] Dependence on OPEC for crude oil decreased from 85 percent of total petroleum imports in the 1970s to 14 percent in 2020.[13] It is also worth noting that 72 percent of crude oil imports come from Canada (61 percent) and Mexico (11 percent). Increased domestic supplies acted as a market cushion to prevent prolonged price spikes from supply shocks caused either by natural disasters or disruptions in Middle Eastern production.[14] The EIA projects that U.S. production will increase to a record 12.8 million barrels per day in 2023.[15]

The consumption of oil as a dependable fuel and critical input for fertilizers, industrial processes and plastics is expected to continue for the foreseeable future. Petroleum products, which account for roughly a quarter of total U.S. energy consumption, made up 90 percent of total transportation sector energy use in 2020.[16] The EIA projects energy demand to grow nearly 50 percent by 2050.[17] Although EIA projects the largest growth to come from renewables, the agency projects that oil will still be the top energy source.[18]

Therefore, policymakers must reject policies that restrict domestic production and recognize the unintended environmental consequences of doing so. Samantha Gross of the Brookings Institute asserted:

> *Cutting back domestic oil and gas production without an equally ambitious focus on demand will just increase U.S. imports, rather than reduce consumption. The United States could lose the economic advantages of its oil and gas production without a commensurate reduction in GHG emissions. In fact, such an outcome could actually increase global emissions, depending on how replacement fuels are produced and the emissions produced in transporting them to the United States. We must remember that climate change is a global problem and that the measure that matters is global GHG emissions. Any 'solution' that reduces U.S. emissions, but increases global emissions, is no solution at all.*[19]

Instead, **policymakers should recognize America's global leadership in oil production is an economic, environmental, and geopolitical advantage.** Working with our allies, American producers can be a global leader in supply and continue to reduce

the industry's environmental and climate footprint. Domestic production can displace oil from dirtier producers and reduce the influence of political adversaries on the global market.

It is important to see that there is a difference between achieving independence from countries that are hostile to the U.S. and achieving complete energy self-sufficiency.[20] Given the connectedness of global markets and the value consumers derive from comparative advantages, attempts to achieve self-sufficiency would be extremely costly and ineffective.[21] Americans benefit through lower prices and increased economic activity when there is a more efficient global oil market. Moreover, a barrel of oil extracted in North Dakota is different from one extracted in Saudi Arabia. Crude oil ranges from very light to very heavy depending on its density, and sweet to sour depending on its sulfur content. In addition to the regulations and rule of law in the country where production occurs, the environmental and climate impacts vary by different types of crude. A continual flow of imports and exports allow countries to match refining capabilities to the different types of crude that are available. As a result, open markets create economic and environmental efficiencies that are better for American consumers and the U.S. economy.

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POLICY RECOMMENDATIONS TO EXPAND OIL AND GAS PRODUCTION

To open access to markets, provide secure supplies, and ease the pain at the pump driven by poor policies, Congress and the administration should:

- **Approve the Keystone XL pipeline.** Building the pipeline would deliver up to 830,000 barrels of oil per day from Canada to Gulf Coast refineries. Canadian crude would likely displace heavier crudes from Russia, Venezuela, and the Middle East.
- **Implement a 50/50 revenue share for states for production in federal waters.** To encourage states to allow offshore exploration and production, Congress should apply the same 50/50 revenue sharing program that exists between the federal and state governments on federal lands. Gulf Coast states receive 37.5 percent for offshore oil and gas development.[22] If states oversee the environmental review and permitting process, they should collect even more of the revenue.
- **Allow competitive bidding processes on federal lands for activities like conservation leasing.** When the federal government auctions public lands for oil and gas development, it is illegal for a private party to bid on a lease to conserve the land. This excludes market participants who may want to bid on the lease to protect the land. Congress should open the auction process to all interested bidders, which could open opportunities for conservation leasing.[23]
- **Reform the Outer Continental Shelf Leasing Program by Modernizing the 5-year program.** Rather than having access to offshore federal waters determined by the political whims of different administrations, Congress should reform existing laws so the Department of Interior, working with affected states, can conduct lease sales when commercial interests exist.[24] Conservation leasing opportunities should also exist for lease sales in federal waters.
- **Repeal the Renewable Fuel Standard (RFS).** A 2019 Government Accountability Office (GAO) study found the mandate was "associated with modest gas price increases in areas outside the Midwest" for "limited effect, if any, on greenhouse gas emissions."[25] Corn-based ethanol is an important oxygenate to make gasoline burn cleaner, but the use of it should be determined by market needs rather than government mandates.

ENDING EUROPE'S DEPENDENCE ON RUSSIAN GAS AND AMERICA'S ROLE AS A RELIABLE ENERGY ALLY

Russia's invasion of Ukraine was a reminder to Europeans that the continent is far too dependent on Russian natural gas. As domestic European natural gas production declined, Europe countries became increasingly reliant on natural gas imports, even as demand has been flat or declined.[26] Europe imports about 80 percent of its natural gas consumption and depends on Russia for roughly 40 percent. Some countries are almost exclusively reliant on Russian gas.[27] Encouragingly, Europe has

diversified its imports as well as infrastructure dependence from Russia. For instance, the amount of natural gas flowing through Ukraine decreased from 80 percent in 2006 to 18 percent today.[28]

Europe is importing more liquified natural gas (LNG) from the U.S. and Qatar. In 2020, LNG accounted for 26 percent of Europe's total natural gas imports.[29]The U.S. was the largest exporter of LNG to Europe in 2021, and American exporters nearly doubled supply from November to January to help Europe's winter energy crunch as natural gas inventories across Europe were low.[30] In fact, Europe was on the "receiving end of nearly 77% of U.S. LNG cargoes exported in January."[31]

Furthermore, the Biden administration's commitment to deliver more LNG to European consumers is a welcome pledge. The administration committed to shipping an additional 15 billion cubic meters of LNG to Europe in 2022 and 50 billion cubic meters of LNG through 2030, about one-third of Europe's imports from Russia in 2021.[32]

Relative to Europe's entire natural gas consumption, the LNG market is still rather small, but LNG has grown in importance and helped to diversify Europe's natural gas choices. Displacing all Russian gas with other sources would be incredibly challenging and it is unlikely LNG from other countries could displace the entirety of Russian gas any time soon. Nevertheless, Europe's expansion of LNG facilities provides a roadmap to significantly curtail Russia's ability to manipulate energy markets for political purposes, even if it comes at a marginal price premium.

Importantly, American LNG exports could also help reduce global greenhouse gas emissions. The Department of Energy's National Energy Technology Laboratory (NETL) analyzed life cycle greenhouse gas emissions from LNG exports compared to consumption of other energy sources.[33] In different scenarios comparing U.S. LNG shipped to European markets, when compared to coal use or Russian piped gas, the study found life cycle emissions from U.S. LNG exports to be lower.[34]

POLICY RECOMMENDATIONS TO EXPEDITE LNG EXPORTS

The United States is on track to become the world's largest exporter of LNG this year.[35] To improve opportunities to export more U.S. LNG, policymakers should:

- **Fast-track permitting for LNG exports.** If the U.S. does not have a free trade agreement (FTA) with the country receiving or sending the natural gas, the Department of Energy must make a public interest determination. The reality is LNG exports benefit Americans economically and geopolitically, and private companies should be able to sell natural gas to any buyer, as long as doing so does not compromise national security. The Energy Security Cooperation with Allied Partners in Europe Act (ESCAPE Act) would accomplish this. Specifically the legislation:
    - Directs the U.S. permanent representative to NATO to work with NATO member states to address energy security for the organization's members and partners in Europe and Eurasia.
    - Calls for a comprehensive U.S. government transatlantic energy strategy that focuses on increasing the energy security of our NATO allies and partners and increasing American energy exports to those countries.
    - Requires the Secretary of Energy to expedite approvals of natural gas exports to NATO allies, Japan, and any other foreign country where exports of natural gas would promote the national security interests of the United States.
    - Authorizes mandatory U.S. sanctions on the development of Russian energy pipeline projects, such as Nord Stream II.

- **Refrain from assessing greenhouse gas impact from natural gas pipelines and LNG infrastructure.** Reducing greenhouse gas emissions and avoiding the costs of human-induced climate change are worthwhile goals. However, a single pipeline project or even all the natural gas pipelines in operation are not going to meaningfully affect the climate. Lengthier reviews will slow the development of a cleaner fuel source, increase opportunities for litigation, and create investment uncertainty. FERC's unanimous decision to reverse course on its greenhouse policies related to natural gas pipelines and facilities should remain in place.[36]

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MINERAL RESOURCES AND RARE EARTH ELEMENTS

Russia's invasion of Ukraine was also a reminder that disruptions around the world can threaten supplies of minerals necessary for renewable, nuclear, and alternative energy technologies. As a major supplier of nickel, copper, and palladium (important inputs for batteries and semiconductors), sanctions on the Russian economy drove up prices for these elements.[37] In addition, the U.S. imports many of the rare earth elements necessary for many defense and commercial technologies that support daily life. The value of REEs lies in their unusual physical and chemical properties that give them unique magnetic and optical capabilities. Rare earth elements are essential for solar cells, batteries, and wind turbine magnets. They are critical to scaling up clean energy deployment and global decarbonization.

Despite the name, rare earth elements are very abundant, including in the United States. In addition to mining, "the ores must be thoroughly refined before they can be used in manufacturing. Raw ores, for example, often undergo 'solvent extraction' which entails moving the minerals through hundreds of liquid-filled vats that separate individual elements—and this process must be repeated hundreds or even thousands of time[s]."[38]

Currently, most rare earth minerals are mined and processed in China.[39] According to the U.S. Geological Service, China accounted for 80 percent of the rare earth minerals imported into the U.S. in 2020.[40] Policymakers have been quick to warn about trading dependence on foreign oil for dependence on Chinese minerals; however, protectionism and taxpayer subsidies are ill-suited mechanisms to diversify the mining and processing of rare earths. Alternatively, **allocating resources to research and development, opening access to the abundance of rare earths in the U.S., and trading with allies will reduce the ability of China to manipulate the rare earth market.**

Realistically, it would be difficult for China to stop trading rare earth elements to the U.S. and the rest of the world. One reason is that U.S. companies are not solely importing the rare earth elements or oxides but products that contain them. The processed rare earths are sent to another country for assembly and exported to the U.S. so China would have to restrict rare earths trade to all those countries. In many cases, the company manufacturing the end product also resides in China. Eugene Gholz, professor of political science at Notre Dame, writes:

> *In some cases, like the rare-earth content of Apple's iPhones, the final assembly of the consumer product takes place in China; to stop those rare earths from getting to U.S. consumers, China would have to ban consumer product exports. Perhaps the Chinese government would contemplate banning iPhone sales in a huge trade conflagration, but at that point, access to rare earths would be the least of America's concerns.*[41]

Another data point worth mentioning is that China tried to cut off rare earths to Japan a decade ago, and the rare earths markets diversified. Prices increased, and mines opened in other countries including Australia, Brazil, Malaysia, and Vietnam – to name a few. Canada's rare earth mining project opened in 2021 and is functioning without any tailings ponds, making it much more environmentally friendly.[42] Japan, through state backing, is investing to extract an abundance of rare earths off its coast.[43] Mountain Pass mine in California re-opened, and it has a processing facility.[44] Several other mining projects and processing facilities opened in the U.S., and many non-Chinese rare earth processing facilities opened around the world.[45]

Thus far, the Biden administration has taken a frustratingly contradictory approach to procuring the minerals necessary for an energy transition. A lithium mine project in Nevada and nickel mine project in Minnesota, for example, are facing challenging permitting hurdles. Julie Padilla, the chief regulatory officer for Twin Metals Minnesota recently testified, "We can mine here better than anywhere else in the world. But the United States will not be able to do that under the current regulatory process that is unpredictable, subject to political manipulation with changing rules in each administration, and in conflict with the priorities of our nation."[46] The more the U.S. and countries like Canada and Australia develop their resources, fewer minerals will come from countries that have lax environmental standards and use morally unconscionable labor practices.

Regrettably, rather than streamline the process while maintaining environmental and public health safety, the Biden administration added layers of bureaucracy through changes to the National Environmental Policy Act (NEPA).[47]

Instead of reducing regulatory barriers, President Biden is using the Defense Production Act to procure several critical minerals.[48] Using the Defense Production Act not only sidesteps the necessary system reforms but worryingly sets a dangerous precedent to have the government usurp the role of the free, competitive markets. Eli Lehrer, president of the R Street Institute, observed:

> *While Congress has previously acted to stretch the law by expanding "national defense" to include terrorist attacks and pandemics, President Biden's action stretches a power beyond what should be its breaking point.*
>
> *In the abstract, more domestic electric vehicle battery production might be a good thing, but it has almost nothing to do with any commonsense definition of "national defense." Not only is the United States at peace for the first time since 9/11, but an extensive 2021 report from the National Academies of Science, Engineering and Medicine concluded that widespread use of batteries for warfighting won't be possible until at least 2035.*
>
> *And it doesn't stop there. As it must also transport, clothe, house, entertain and educate its troops, the Department of Defense buys some of just about everything; if batteries are necessary for a military that won't use them widely for more than a decade, then what isn't?*
>
> *What's more, the current law also lets the president make loans, guarantees, purchase agreements and more without congressional authorization. In short, letting Biden's current actions go unreviewed raises the possibility of a future president carrying something close to a national industrial policy (a less intense form of central planning that involves the government blatantly picking winners and losers) on the basis that "bread and meat" or even "pogo sticks" are national defense necessities. And those who find environmental reasons to cheer Biden's recent actions should consider how they would feel if a future president made exactly the same determination about the "national defense" need for coal.*[49]

"Easing supply chain constraints and securing processed minerals will best be achieved by opening up domestic and international markets to extraction, processing, and trade. Congress should liberalize the domestic mining market while maintaining the necessary environmental safeguards."

Eugene Gholz also warns that government subsidies would disrupt private investment because of the glut of rare earths in the market. He remarked, "US government investments using the Defense Production Act to create still more rare earth production capacity would add to this glut. The government investment could even drive the privately funded, already-operating US mine out of business again."[50]

POLICY RECOMMENDATIONS TO EXPAND DOMESTIC MINERAL PRODUCTION

Easing supply chain constraints and securing processed minerals will best be achieved by opening up domestic and international markets to extraction, processing, and trade. Congress should liberalize the domestic mining market while maintaining the necessary environmental safeguards. In fact, upstream mining and refining has been identified as a challenge to

meet the objectives targeted in the infrastructure bill and the Biden administration's climate targets.[51] In addition to modernizing environmental reviews and permitting (see next section), policymakers should:

- Clearly define "navigable waters" in the Clean Water Act to strictly limit federal authority.[52]
- Prohibit both pre-emptive and retroactive vetoes under Section 404 of the Clean Water Act.
- Narrow government procurement and purchase of rare earth elements to Department of Defense and national security needs.[53]
- Continue research and development into projects that can turn mine waste into useful products for clean energy and other technologies.[54]
- Provide research and development support for alternative mining technologies that would reduce environmental byproducts.

The federal government should work with the private sector to maximize the efficiency of money allocated for research, development, and demonstration included in the Infrastructure Investment and Jobs Act. The Act includes National Science Foundation grants for basic research on domestic critical minerals mining and recycling, $320 million for the U.S. Geological Survey for its Earth Mapping Resources Initiative, and $140 million to build a Rare Earth Demonstration Facility.[55]

Additionally, policymakers and companies should not reflexively close the door to deep seabed mining. The ocean floor contains nodules that are rich in minerals that can be used for batteries, renewable energy and defense technologies. The nodules can effectively be scooped up from the ocean floor and the deep ocean (down to 20,000 feet). There is no actual mining, extraction, or tailings associated with deep seabed mining, and studies have shown the climate and environmental impact is far smaller than the conventional mining of minerals.[56] While it is critical to understand the ecological and environmental risks and impacts of deep seabed mining, it is also important to evaluate the trade-offs between the various ways to extract and refine minerals. More collaboration among companies, coastal countries, and scientists should establish a transparent, science-based assessment of seabed mining.

POLICY RECOMMENDATIONS TO REDUCE BARRIERS FOR ALL FORMS OF ENERGY

Several policy reforms would help with the development of oil, natural gas, critical minerals and energy infrastructure. Congress and the administration should:

- **Expedite permitting for natural resource extraction, energy projects and infrastructure.** The Undoing NEPA's Substantial Harm by Advancing Concepts that Kickstart the Liberation of the Economy Act (UNSHACKLE Act)[57] and the Building United States Infrastructure through Limited Delays and Efficient Reviews Act of 2021 (BUILDER Act)[58] are two bills that would modernize NEPA and significantly improve the permitting process for energy security, capitalizing on America's abundance of natural resources and diversifying America's energy sources.
- **Open opportunities for state-led environmental reviews and permits.** Empowering states to conduct the environmental review and permits could create more efficient and localized reviews that better addresses the needs of local communities. State regulators could acquire technical expertise from the Federal Energy Regulatory Commission, the Bureau of Land Management, and the Environmental Protection Agency as necessary.
- **Repeal the Jones Act**, which mandates that oil (and other goods) shipped between two ports in the U.S. must be transported on a U.S.-built, U.S.-flagged vessel with a crew that is at least 75% American. Southern Methodist University professor James Coleman pointed out that refiners in the northeast U.S. paid triple the price to ship oil from Texas than from West Africa or Saudi Arabia. The Jones Act also distorts the transportation and delivery of LNG.
- **Eliminate steel and aluminum tariffs**, which drive up the cost of energy development and energy infrastructure.

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