

TO:	Interested Parties
FROM:	Josh Freed, Senior Vice President for the Climate and Energy Program, Ellen Hughes-Cromwick, Senior Resident Fellow for Climate and Energy Program
RE:	When America Leads: Competing for the Future of Clean Energy Executive Summary

Strategic investments in clean energy technologies could yield massive and lasting benefits for the US economy by mid-century, according to a new study commissioned by Third Way and Breakthrough Energy. This groundbreaking report from the Boston Consulting Group (BCG) estimates that **by 2050, segments from key industries that support six clean technologies — advanced nuclear, clean steel, direct air capture, electric vehicles, low carbon hydrogen, and long-duration energy storage—will have a market of \$2 trillion a year, equal to roughly 10% of current US GDP.** This study quantifies the economic infusion that would come from betting big on America’s potential to leverage sectors where the US has or can create a competitive edge. Just as important, it identifies specific places in these six clean technology value chains where we should invest, so the private sector has the best chance of competing and winning for us all.

BCG’s analysis scours how America stacks up against our global competitors at every point in the supply chain, also described by BCG as the “value chain,” for these rapidly growing clean energy technologies. The initial study focuses on these six sectors for their carbon abatement potential, the economic and jobs impact, and the opportunity for a strong domestic advantage.

Building these lucrative industries with roots deep across all of America builds on a push by the Biden Administration and Congress to develop domestic supply chains that could insulate US companies against future disruptions. These technologies could drive **millions of jobs** and **\$500 billion in tax revenue** in the US over the next three decades. Incentivizing companies to make critical net-zero technologies in America creates strong economic anchors to revitalize communities and create good-paying jobs.

By taking stock of America’s advantages in each technology, where it can lead, and where it should partner with allies, this study points US policymakers and industry leaders to the smartest bets on American clean energy. **The six technologies would also generate \$340 billion in exports annually, \$100 billion more than the value of America’s current fossil fuel-related exports.** Developing these stronger and more secure energy sources is key to achieving energy independence from petrocrats, who have roiled global markets and consumers in the past year. The \$500 billion in investments and tax credits made by the Inflation Reduction Act and Bipartisan Infrastructure Law are a good start on this path. By doubling down on this rare opportunity with additional action, the US can become the world’s arsenal of clean energy to ensure we and our allies can stand up to the threat of petro-dictatorships.

This innovation and manufacturing-driven approach that the United States is deploying is critical for the world to reach net-zero. **Deploying these six technologies would reduce global emissions each year by as much as 47% of today’s global carbon emissions,**

making important progress in hard-to-decarbonize sectors. That's the equivalent of retiring half of the coal power plants operational worldwide. While the climate benefits would accrue around the globe, the US can put its shoulder behind developing, deploying, and exporting these technologies to get a big share of the economic benefits. But it will require quick and targeted support from policymakers to capture both the greatest emissions and the most significant economic impact.

Here are some key findings from the BCG report:

The United States is poised to become the dominant player in electric vehicles with a unique opportunity to lead in raw materials, battery and powertrain manufacturing, original equipment manufacturing (OEM), and software development and after-sales services.

- Strategic policy support could increase the US market share from 10% to 55%.
- Building on private sector leadership, the total domestic market is estimated to reach \$7-8 trillion in sales through 2050.
- The priority segments in the EV value chain could create jobs for millions of Americans—more than any other technology evaluated in the study.

Industries that helped build America are at the forefront of the new clean energy industrial revolution. The United States has an existing clean steel sector and a skilled workforce. It is home to some of the most productive and clean mills in the world.

- Steel making accounts for 10% of global carbon emissions. As companies look to decarbonize, the US market is expected to be the largest opportunity for clean steelmakers, with an expected market value of over \$3 trillion in cumulative value through 2050.
- The demand for clean steel is foundational to the growth of multiple sectors and will only increase as the US builds out better roads and cleaner water systems from the infrastructure law.
- US steel is 60% less carbon intensive than Chinese steel. Currently, American steel manufacturers are not rewarded for being clean. The US needs to make this a competitive advantage to re-shore steelmaking as a crucial step to decarbonizing this global sector.

The US advanced nuclear industry that Third Way put on the map for policymakers in 2015 could become one of the largest drivers of a global expansion of nuclear reactors. This early leadership in intellectual property, research, and public-private partnership investments give the United States an excellent shot at competing for the \$450 - \$550 billion potential global market it has access to. The nuclear market is global and creates hundred-year relationships between countries. It is imperative for security as well as climate and economic reasons that the US maintains its lead in this sector.

- BCG finds a high market value potential and significant opportunity to create a competitive advantage in the manufacturing of reactor components, completed reactors, intellectual property licensing and more.
- The proportion of the global market that US companies could capture is estimated to be 20% under a business-as-usual approach and as high as 30% if policymakers deliver the strategic support to become a market leader.

- Emerging markets are expected to have considerable growth in nuclear capacity through 2050, primarily from imports from countries like the US.

These findings show how the US can win big by leveraging public and private sector investment to secure a competitive advantage in clean technologies, supercharge our economy, create millions of new jobs, and strengthen, stabilize, and secure our energy supply chains. Stimulating demand for clean energy technologies and carbon-free products will not only cut costs *and* emissions, but also scale up domestic industries that will allow America to export mature, clean energy technology at scale, bringing new economic engines to strengthen US communities.

The transition to the clean energy economy is here, and it is more economically rewarding and politically viable than we ever imagined. Big bets are often risky, but this seminal new research shows us exactly where to place our chips on the table to create significant climate and economic benefits for America and our allies.