NXG INVESTMENT MANAGEMENT

The Next Generation of Investment Management

Clean Investing Requires Global Expertise

August 2022

NXG Investment Management is dedicated to providing Next Generation investment strategies to investors seeking long-term growth in companies focused on a clean and sustainable future as well as traditional and transformational infrastructure companies.

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Strong demand for clean products is creating attractive investment returns across geographies and clean sectors. This trend has the potential to last for multiple decades. **Adoption of clean technologies, like renewables and EVs, is a result of 1) economics and 2) customer preference** that are not regionally unique. The cost advantage is due to improvements in technologies and from economies of scale from an expanding manufacturing base. Customer preference is entrenched and expanding as the economic benefits continue to increase.

However, potential for investment returns in the Clean Economy is highly diverse across geographies and across product lines due to a variety of factors. Therefore, if you want to maximize your probability of success, we believe there is a strong need for active management in this space.

Clean Universe is $6.8 Trillion Market

The global clean universe is very large and growing. We track has over 600 companies worldwide with a combined market cap of $6.8 trillion dollars. The US is the leader when it comes to number of companies listed but the industry and growth are widespread worldwide. For instance, China generates more electricity from renewable than any other country[1] and nearly half (48%) of the world's EV sales are in China[2].

Secular but Diverse Growth

The two largest components of clean economy, EVs and renewables, are expected to have significant global growth for decades but regional differences exist:

- Global renewable power generation is expected to grow 6% a year through 2025. The US' Inflation Reduction Act and European Commission's plan to replace Russian natural gas draw the headlines for the massive boost that they will provide, but **the best renewables growth is in the developing world, in places like India.** There they are planning to grow their renewable generation 7-fold by 2030[3].
- **Global auto manufacturers' own delivery targets call for 20 million EVs to be produced by 2025[4], ~3x more than were produced in 2021.** The leading adopters are those that have lagged, including India and the US. Again, the more established markets of Europe and China are likely to have lower growth since they are more established.

Clean Global Market Sizes and Growth

	Number of Companies	Market Cap (bn USD)	Renewables Growth[5]	EV Growth[6]
North America	258	$2,828	5%	43%
Europe	111	$898	5%	29%
China	99	$1,977	8%	32%
India	14	$76	12%	50%
Rest of World	131	$1,083	6%	40%
Global	**613**	**$6,862**	**6%**	**33%**

[1] BNEF. "New Energy Outlook 2021"
[2] BNEF EV forecast. Data as of 6/1/2022
[3] NXG, BNEF.
[4] BNEF. Data as of 6/9/2022
[5] 2021-25 CAGR. BNEF. "New Energy Outlook 2021"
[6] 2021-25 CAGR. BNEF EV forecast. Data as of 6/1/2022

Clean Equity Selection Is Multifaceted

To optimally invest in clean, we believe there must be a global approach. While demand for clean technologies and reduced equipment costs are global, the impacts are not uniform. Investing requires identifying improving growth trends that will lead to improving return expectations. Just because China is the largest user, the US has the greatest number of clean companies, or Europe is the most entrenched market does not mean that they will be the best for future equity returns. Here are some of the main drivers that lead to different regional returns:

Clean Advantaged by High Commodity Costs. The difference between the economics of clean technologies and traditional technologies, can have a major impact on the adoption rate and growth profile. Traditional technologies, like natural gas power plants and internal combustion vehicles, have very high fuel costs that make clean technologies more competitive. At $4.50 per gallon[7], the average American is now spending $750 (65%) more on gas per year than they were in the five years before COVID[8]. This impact is also being felt in the electricity sector. Fuel costs are 57% of the cost of generating electricity at a natural gas power plant[9]. Commodity prices move in more less in the same direction globally but can have major differences regionally. The European energy crisis caused by Russia's invasion of Ukraine means natural gas prices in continental Europe are 6x higher than they are in the US[10]. This makes renewables more cost effective despite less favorable resources.

Renewable Location Matters. Renewables are an obvious generation choice when the sun or wind are available. The challenge is finding locations with the most resource potential. For example, Tucson has 33% more sun than Boston[11]. Just like real estate, location matters. The economic advantage of renewables will still hold in almost any geography, but the cost advantage will be less in resource scarce sites, like solar in German.

Global Policies to Encourage Adoption. Regulations are a tailwind for clean technology, unlike many industries where regulations are designed to manage growth. The most impactful policies are those that could completely transform an industry. A great example of that is in India; where Modi pledged to grow renewable generation from 21% in 2021 to >50% in 2030[12]. Hydrogen in the US is another sector that is ripe for transformation.

Inflation Protection. **One of the main advantages of clean investing is significant pricing power.** European renewable power contracts have increased 76% since 2021 in response to the rising cost of alternative power generation, like natural gas and coal[13]. EV manufacturers are also increasing prices; Tesla was able to increase their prices during the first half of 2022, posting better than expected automotive gross margins. This is due to significant end market demand for renewable power and EVs. We look to the areas that are best positioned to achiever pricing increases.

Supply Costs Differences. Rising labor, materials, and logistics costs following COVID have disrupted many industries but clean has been impacted more than most. Batteries, wind blades, solar panels, and semiconductor chips are all essential to clean products, and most nations do not produce locally. Once cheap shipping has now led to material delays and cost increases. These costs are not uniform and impact different segments of clean and geographies differently. Companies are locking in stable supply and shortening supply chains, which leads to differentiated performance. In the US, both the CHIPS Act and the Inflation Recovery Act were designed to increase domestic supply.

Financing Costs Differences. Project returns are the most important driver, but cheap financing can make it much more attractive for different regions. Emerging market projects and plants may require significant equity to be raised, while more mature clean markets can finance significant portions with cheap debt. In Spain, for instance, solar projects can be 100% financed with cheap, project debt.

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[7] Bloomberg. US average price of $4.56 as of 8/10/2022
[8] NXG. Assumes 15,000 average miles at 36MPG and 2015-19 average fuel price of $2.72.
[9] Bloomberg NEF. "Energy Project Valuation Model (EPVAL 9.2)" 12/15/21
[10] NXG, Bloomberg. Average premium of TTF to Henry Hub for the period 1/1/2022 to 8/9/2022.
[11] EnergyData.info. Global Solar Atlas
[12] Bloomberg News. "Modi Surprises Climate Summit with 2070 Net-Zero Vow for India" 11/1/2021v
[13] BNEF. "1H 2022 European Solar and Wind Corporate PPA Price Survey"

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