

Global Challenges Revisited:

Understanding the Realities of an Uncertain World



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Understanding Global Challenges

At the beginning of 2020, we published our [initial piece](#) on Global Challenges, which we defined as the large-scale changes that must be made by consumers, corporates, and sovereigns to prevent our environmental impact from adversely affecting commerce and quality of life.

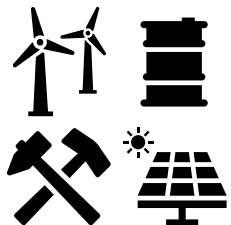
Nearly two and a half years later, in the wake of a global pandemic, conflict in Europe and inflationary forces impacting daily life the world over, we feel these issues are no less pressing, and if anything, more acute.

While this is well understood, we remain of the belief that many are failing to recognize what truly will be needed to resolve the Global Challenges. As we alluded to in our first piece, this is a search for **pragmatic** solutions.

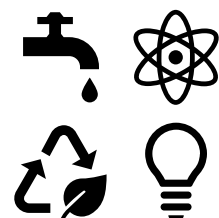
In this piece, we will explore a new set of Global Challenges, and consider some of the unrecognized realities that will likely go into solving them, and the potential opportunities they create.

Global Challenges in an Uncertain World

We believe the events of the past few years have exposed the fragilities of our global economy, and in the process have only made clearer the need for genuine solutions to the problems we face:

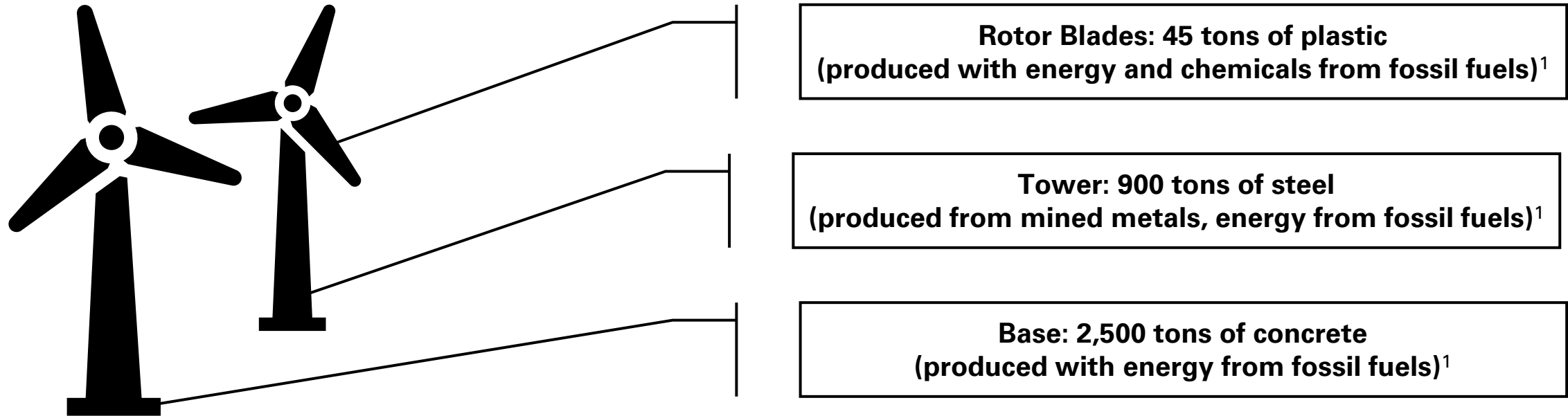
	CLEAN ENERGY: A "DIRTY JOB"
While we believe there is a need for a global shift to clean energy, we feel many fail to recognize the resource intensity of this transition, and with it, the large role that will be played by extractive industries.	

	GLOBAL TRADE GOES LOCAL
We see "nearshoring" not only helping to reduce recently exposed vulnerabilities in supply chains, but it also significantly diminishes the environmental impact of global consumption patterns.	

	EVERY MOLECULE COUNTS
While we believe a circular economy is clearly a more efficient one, we also feel environmental and economic gains can be made from mitigating waste of energy and materials in the first place.	

Challenge #1- Clean Energy: A “Dirty Job”

As the world seeks to reduce carbon emissions, extractive industries like fossil fuel production and mining are frequently seen to be a part of the problem. However, we are of the view these industries actually play an important role in facilitating the transition to renewables. Consider the inputs that go into a single wind turbine:

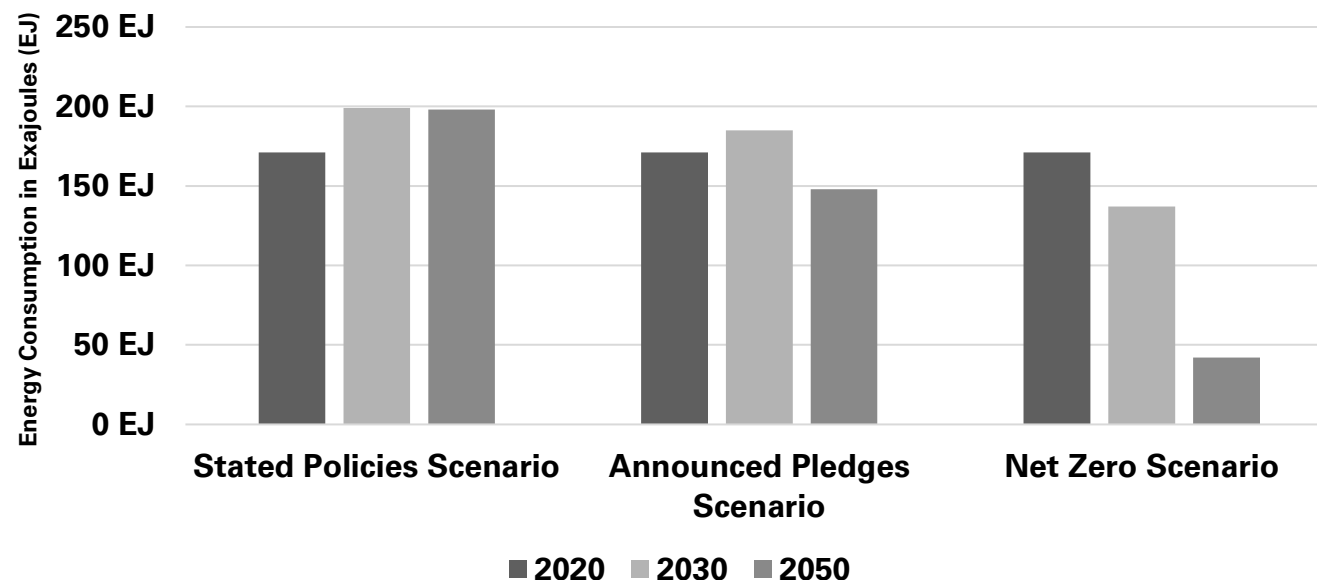


If we wanted to meet 25% of global electricity demand with wind by 2030, this would require 2.5 terawatts of capacity to be built. To accomplish this, rotor blade production alone would require ~12.42 million barrels of oil.²

Oil and Gas Play New Roles

With battery storage technology still in its infancy, fossil fuels will still be needed as an energy source for when the sun does not shine or the wind does not blow- fast-reacting (usually natural gas) plants are needed to complement renewable energy.³ What's more, even a cleaner grid does not obviate the need for oil production:

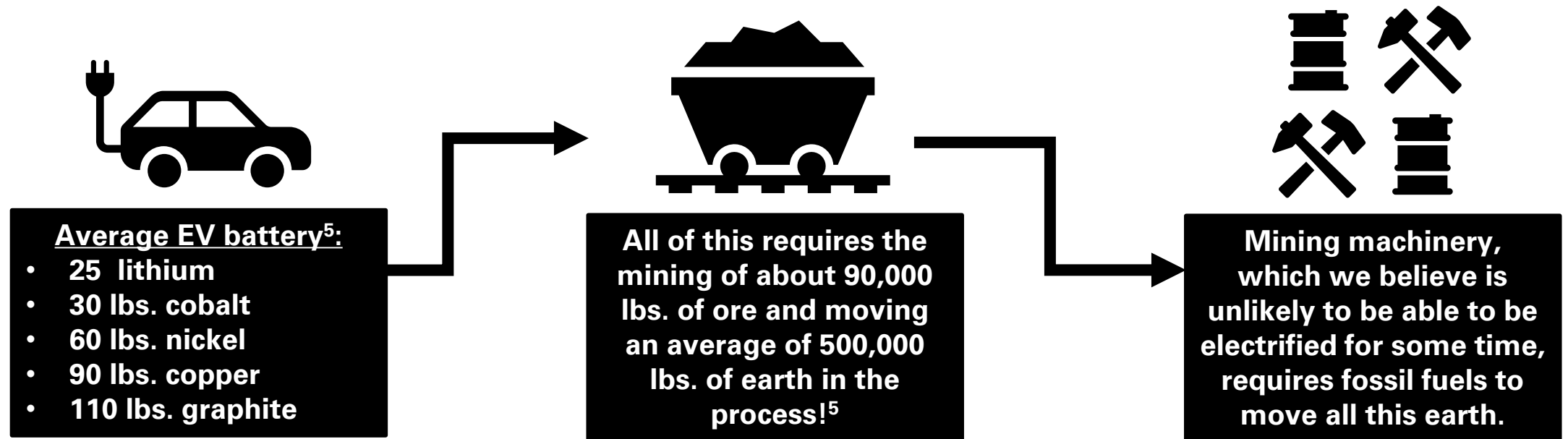
**IEA World Energy Outlook 2021:
Oil Use By Scenario**



- **Even in the highly optimistic Net Zero Scenario, the world still consumes the equivalent of 24 mb/d of oil- roughly a quarter of what we consume today. Of this, 55% would be for petrochemical production, which likely cannot be replaced.⁴**
- **Regardless of what scenario one considers, we feel these estimates support our view that contrary to popular belief, oil consumption is not going to zero any time soon.**

What's "Under the Hood" of an Electric Vehicle?

Even with advances in battery technology, demand for energy and materials will remain robust. While electric vehicles represent a means to reducing carbon emissions versus internal combustion engines, their production is quite resource intensive.



Given these factors, production of electric vehicles is likely to remain reliant upon oil and gas production, however indirectly. What's more, EV production is inextricably linked to the "extractive" metals and mining industries.

Who Does Clean Energy's "Dirty Work"?

We believe that some of the companies most integral to making the clean energy transition a success are, quite ironically, those often seen as the "dirtiest" or most extractive:

TRADITIONAL ENERGY



MINING & MATERIALS



INFRASTRUCTURE



Company Profile: Shell plc



Shell plc is one of the world's largest producers of oil and natural gas, as well as a major refiner, shipper and retailer of various petroleum products from gasoline to LNG. The company is present in over 70 countries around the world.⁷

Role in Clean Energy's "Dirty Work":

- As we have noted, the transition to clean energy requires a great deal of petroleum products, whether to produce wind turbine blades or mine key materials for EVs.
- Shell is not only a major provider of these petroleum products, but also a major player in natural gas, a complementary fuel to renewables.
- In addition to its "traditional" energy businesses, Shell has committed itself to developing renewable energy from solar, wind and hydrogen, among others.⁸

Company Profile: Deutz AG



Deutz is one of the world's leading producers of drive systems used for off-highway applications. The company serves a wide variety of end markets and industries, including construction, mining, materials handling, agriculture and transportation.⁶

Role in Clean Energy's "Dirty Work":

- Among many other applications, Deutz drive systems power equipment used in the mining space.
- As discussed, the extraction of metals and other materials is integral to making the green energy transition a reality.
- What's more, we believe Deutz may play a role in making extractive industries greener in the future, as it leverages technologies it has developed in hybrid, all-electric and hydrogen drives.

Challenge #2- Global Trade Goes Local

With global trade tensions already creating concerns, supply chain disruptions during the pandemic led many businesses to reconsider where they were locating production.⁹ This has lead many such companies to consider making use of “nearshoring”, by which operations (especially manufacturing and sourcing) are moved closer to key demand markets. Key benefits of this strategy include:

Reduced Shipping Costs

Rising shipping rates, more frequent port disruptions and awareness of the environmental impact of the maritime shipping industry, are leading some businesses to reconsider sourcing production in traditional East Asian hubs an ocean away.⁹

Reduced Lead Times

With supplies closer to end markets, companies can better adapt production to changing demand patterns. This not only means reduced working capital needs, but also reduces the chance inventory will go unsold, cutting waste in general.⁹

Improved ESG Profile

When compared to East Asian manufacturing hubs like China, we believe many markets where companies seek to nearshore likely rank as better places to do business from an ESG perspective, whether it comes to environmental regulations or labor conditions.

This “rewiring” of the supply chain is a resource intensive process and has the potential to drive up costs for corporates and consumers. However, many see this as the price to pay for more resilient supply chains and nearshoring itself comes with plenty of benefits to defray these added costs.

Comparison Shopping: Cost of Jeans Production

A 2018 study by McKinsey & Co. looked at the landed cost of producing a pair of jeans for the US and European markets, and found that production in a “nearshore” market, while obviously far cheaper than onshore production, was also frequently competitive with “offshore” manufacturing hubs, including China¹⁰:

		Mfg. Location			Freight (Method/Days)		Landed Cost Price (\$ USD)
North America	Offshore		Bangladesh			30 days	\$10.68
			China			30 days	\$12.04
	Nearshore		Mexico			2 days	\$10.57
	Onshore		USA			0 days	\$14.05
Europe	Offshore		Bangladesh			30 days	\$9.94
			China			30 days	\$12.46
	Nearshore		Turkey			3-6 days	\$12.08
	Onshore		Germany			0 days	\$30.36

Who Benefits From Nearshoring?

Ultimately, we believe that as new trade patterns form, the clear “winners” of a move towards nearshoring are those countries where businesses move operations. As such, local financial and consumer businesses, as well as logistics businesses with a presence in these markets, are likely key beneficiaries:

LOCAL FINANCIALS



LOCAL CONSUMERS



LOGISTICS PLAYERS



Company Profile: ProCredit Holding AG



Based in Frankfurt, ProCredit Holding AG is an impact-oriented group of commercial banks with a focus on SMEs in Southeastern and Eastern Europe, with a focus on sustainable and impact-oriented banking practices.¹¹

Role in Global Trade Going Local:

- We believe SMEs will play an important role in the nearshoring process, acting as vital suppliers to larger businesses who enter nearshore markets.
- ProCredit's footprint, focused primarily on Southeastern and Eastern Europe, means it could benefit as companies choose to bring manufacturing closer to the Eurozone market.
- The bank seeks to support those businesses that take on environmental projects, and has a large and growing "green" loan portfolio.¹¹

Company Profile: FEMSA



Based in Mexico, FEMSA is a diversified holding company with a presence in beverage distribution, consumer retail, logistics and health products throughout Latin America. It is a leading distributor of Coca-Cola and operates the OXXO convenience store chain.¹²

Role in Global Trade Going Local:

- We believe that Latin America, especially Mexico, will benefit as businesses seek to nearshore operations closer to large North American consumer markets.
- Through its wide variety of operations, FEMSA offers investors exposure to the Latin American consumer, with a particular focus on Mexico.
- FEMSA's OXXO chain has begun a foray into digital and financial services, one which we believe has the potential to serve the emerging needs of the Mexican consumer.

Challenge #3- Every Molecule Counts

Inflation has been top of mind for consumers and corporations alike in the years since the pandemic, and there has been increased volatility in the price of energy and other basic commodities:

THE WALL STREET JOURNAL.
Commodity Price Surges Add to Inflation Fears
Updated June 7, 2021

FINANCIAL TIMES
Energy prices will push up inflation across Europe, economists warn
SEPTEMBER 19 2021

The New York Times
Get Ready for Another Energy Price Spike: High Electric Bills
May 3, 2022

Given the resource intensity of the transition to clean energy, we believe there is a distinct possibility this volatility may persist for longer than some expect. As such, we are of the view that there will be a greater push to reduce the waste of energy, materials and other resources, primarily by leveraging technology to “measure molecules”.

How Do We Reduce Waste?

We feel there are several key technologies that can help reduce the consumption of energy and other resources in a variety of settings:

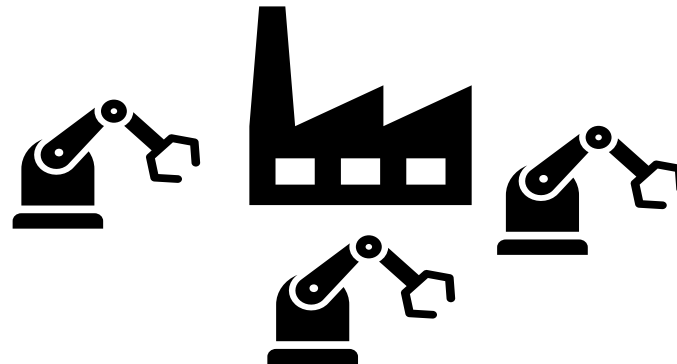
SMART GRIDS

We believe that digitization of the power grid, through innovations like connected “smart” meters and automation systems, will facilitate more efficient generation, management and distribution of power.



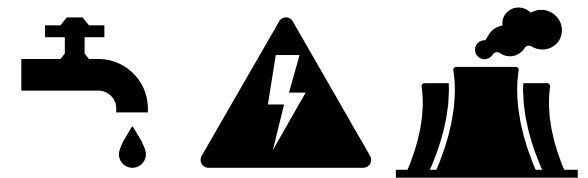
INDUSTRIAL AUTOMATION

We see industrial automation potentially reducing waste through more resource conscious production and by reducing the need for heating, cooling and lighting many industrial spaces.



RESOURCE EFFICIENCY

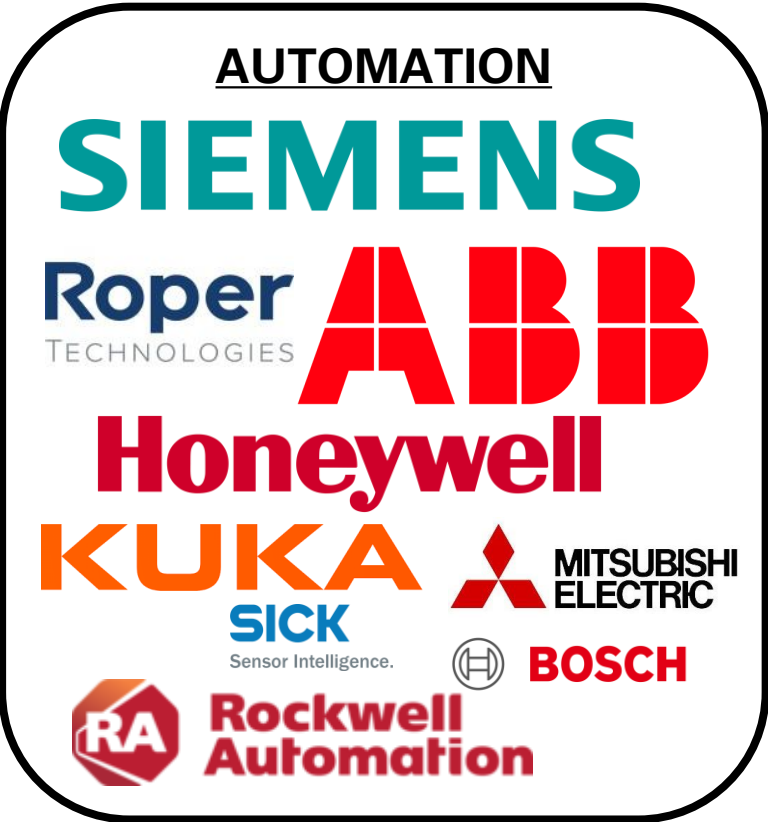
Whether it is energy, basic materials or even water, we see a wide range of businesses which offer products and services to help reduce consumption of commodities in homes, buildings and businesses.



Who Measures Molecules?

We believe there are a number of companies developing technologies which play an important role in reducing waste, whether it is of energy, food, or other resources:

AUTOMATION



SMART GRID



RESOURCE EFFICIENCY



Company Profile: ABB Ltd.



ABB is a global technology company with a wide portfolio of solutions in the areas of electrification, robotics, automation, and motion. The company serves a wide variety of industries, from manufacturing to power generation.

Role in Measuring Molecules:

- We believe that the world's power generation infrastructure needs a significant overhaul in order to more efficiently manage resources.
- ABB offers a wide range of solutions that allow power plants to operate more reliably, continuously and cost-effectively.¹³
- We see ABB's solutions in high demand as the world seeks to reduce the amount of waste involved in power production and seeks to integrate renewables in a more meaningful fashion.

Company Profile: Landis+Gyr Group AG



For over 125 years, Landis+Gyr has been a leader in energy management solutions. The company offers a wide range of advanced metering infrastructure and associated smart grid technologies, in conjunction with some of the world's largest utilities.¹⁴

Role in Measuring Molecules:

- We have been emphatic since our original Global Challenges piece on the importance of making our utility systems “smarter” to reduce waste and increase efficiency.
- As one of the world's largest providers of smart metering and grid technologies, we see Landis+Gyr as playing a major role in this transition.
- We also see the company leveraging its competence in electricity into other utilities and smart infrastructure.¹⁵

A Pragmatic View: Solutions Beneath the Surface

In our original piece on Global Challenges, we noted the pronounced increase in interest in “sustainable”/ESG investing by both institutional and retail investors. Since that time, ESG assets under management have only grown further. However, we question whether things like ESG ratings are truly productive, as many businesses seen to be “High Risk” from an ESG perspective may actually play important roles in solving global challenges:



Shell plc

Provides fossil fuels used in the production/construction of renewables infrastructure. What’s more, Shell itself is a major developer of renewable energy projects around the world.



GrupoMéxico Grupo México

Grupo México is involved in extractive businesses like mining, but we believe it also provides the industrial and transportation infrastructure necessary to bring manufacturing closer to the North American market.

Honeywell

Honeywell

From automating HVAC functions to making a more fuel-efficient aircraft¹⁶, we see this industrial business is helping to reduce the consumption of increasingly scarce resources.

As previously discussed, we believe that investors should seek to identify businesses levered to solving global challenges through tangible results and profitable operations. While frequently just as dedicated to environmental sustainability, their ability to achieve economic sustainability gives these companies the ability to have an even greater impact.

Overview

Overall, it is our view that in the face of significant global challenges, consumers, corporations and investors need to be realistic about how we arrive at genuine solutions.

- We believe that investors would be well served to consider more subtle, second- and third-order factors which contribute to solving these issues:
 - **Clean Energy: A Dirty Job:** Many investors are more than willing to commit capital to wind and solar farms, while actively avoiding extractive industries like energy and mining. Ironically, energy and materials factor heavily into creating renewable energy infrastructure, and in our eyes will benefit long-term from the “clean energy” revolution.
 - **Global Trade Goes Local:** The global pandemic drove home the significant shortcomings of a globalized, “just in time” supply chain, and we believe there will be a move towards nearshoring. Greater proximity to the end consumer means fewer resources consumed in transportation and better environmental governance with minimal cost tradeoffs.
 - **Every Molecule Counts:** Given the resource intensive nature of many solutions to global challenges, we believe conserving energy and materials will be more important than ever. Those businesses which seek to measure and manage consumption will likely benefit.
- We are encouraged by the fact that investors, both institutional and retail, are becoming more discerning when it comes to investing for global challenges. ESG “products” can easily be put together, with little regard for fundamentals or meaningful impact. However, finding undiscovered opportunities that represent real solutions, though more challenging, may prove a better course in the long run.

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