K&L GATES

KEY OPERATIONAL CONSIDERATIONS IN THE SUSTAINABLE ECONOMY

ESG and the Sustainable Economy

CONTENTS

ESG FROM THE OPERATOR'S PERSPECTIVE

In recent years, businesses that demonstrate certain environmental, social, and governance (ESG) criteria have seen a pronounced uptick in interest from many investors, particularly from institutional investors who were in the vanguard of the ESG movement. This interest has manifested not only in higher stock prices on public markets, increased interest in private fundraising rounds, and competitive pricing in project finance, but also in ripple effects through supply chains, hiring, and other aspects of operations. So too do ESG criteria—and public announcements regarding investment decisions made by investors utilizing ESG criteria—increasingly impact a business's brand and consumer relations. In parallel with this trend, businesses around the world have independently created and implemented ESG-related policies in a variety of areas.

But what is ESG in the context of an operating business? Typically, discussions around ESG in this area target various practices that contribute to a business's ESG profile vis-à-vis investors. Consequently, ESG policies and practices are largely about accounting for and mitigating the risk that externalities will negatively impact an investment or business line. Thus, environmental criteria frequently focus on objectively accounting for observed changes in the natural world, regardless of their cause. Social criteria center on objectively accounting for the wider societal and economic impact that working conditions and practices can have. Finally, governance criteria account for the risks inherent in the failure to comply with applicable law, as well as the failure to prevent employee turnover and discontent, or to holistically take into account the views of a range of people—any of whom may be customers, investors, or business partners.

Often, ESG practices are oriented toward the long term and actions beyond only those that are required by law. However, there is wide variation among businesses in how they may approach ESG-related matters. For example, ESG considerations at the operating company level can include:

- Diversifying a business's workforce, executive team, and board, whether by reference to race, gender, sexual orientation, country of origin, or socioeconomic status, as a way to respond to customer requirements or market changes.
- Taking into account identified externalities that a business creates and taking steps to mitigate them. For example, a dairy farm could identify the costs of methane emissions to local residents and the climate, then mitigate them by installing a digester that captures the methane and converts it to renewable fuel.
- Expanding a business's focus on shareholder value to a focus on stakeholder value. The Business Roundtable has stated that stakeholders include "employees, customers, suppliers, and communities." The 2020

Davos Manifesto expands that slightly to include society at large and states that "the purpose of a company is to engage all its stakeholders in shared and sustained value creation[…]. The best way to understand and harmonize the divergent interests of all stakeholders is through a shared commitment to policies and decisions that strengthen the long-term prosperity of a company."[1] Thus, a company that focuses on stakeholder value could consider issues as diverse as compensation of employees relative to executives, scope 3 greenhouse gas emissions, longevity of products sold to customers, and hiring from marginalized communities. Moreover, local law that governs business organizations can affect the extent to which a business considers matters that do not directly impact shareholder value.

- Anticipating and mitigating future and large-scale risks. This is the point at which ESG begins to merge with impact and justice missions. For example, many large companies currently purchase renewable energy credits (RECs). More recently, some have begun purchasing carbon credits, and a few have entered into voluntary carbon removals contracts. While this type of activity is, of course, about using corporate resources to impact climate change, there is wide variation in the reasons for any given company's entrance into this market. For example, some companies may acquire RECs solely in response to customer or investor pressure concerning corporate citizenship or otherwise. Others may be thinking farther into the future about the disruptions that are expected to result from climate change and how that may impact the business's customer or employee base, supply chain, or access to capital. Others still may venture into this market out of a desire to create positive and long-term impacts on the climate, environmental or energy justice communities. Similarly dramatic variations can be seen in the reasons that a company will engage with any ESG-related segment, including: forced labor in supply chains; justice, diversity, equity, inclusion, and accessibility; environmental impacts of supply chain sources and operations; and many others.

It can be difficult to translate these broad concepts into actionable items, particularly in the context of an active business with a traditional focus on near-term financial performance. But an ESG focus can be and is achieved every day around the world; largely by reconciling the values and goals of a business beyond mere profitability with the values and goals of the people with whom the business interacts or seeks alignment. This can be an enormous task requiring a large degree of coordination. It can also seem as though there is no good starting point. So, how are businesses implementing their ESG goals?

One popular option is for a business to create a chief sustainability officer or ESG officer role to implement policies to guide how the business accounts for ESG criteria in certain aspects of its operations or across its entire platform. Consultants are frequently essential to this effort, for example by creating baseline studies, identifying areas where

operations are already exemplary or could be with reasonable adjustments, helping the business determine the best steps to advance its goals, identifying opportunities to do so, and designing campaigns to communicate those goals and the business's efforts to meet them.

From there, there are numerous approaches to the integration of ESG criteria into a business, but a few general trends emerge:

- **Personnel matters.** ESG can factor into a number of decisions related to personnel, from choices about transportation subsidies to fair wages; diversity and inclusion in hiring, responsibilities, and promotions; employee perks at the office; and work-from-home policies. Each of these categories and many more have the potential to impact environmental sensitivity and justice, labor standards, and governance practices.
- **Supplier policies and evaluations, including selection of preferred providers based on the outcome of those evaluations.** Businesses without existing policies and procedures can create simple policies that incorporate ESG-related criteria. Businesses with existing policies and procedures can further integrate ESG criteria by including methods designed to evaluate a supplier's compliance with specific types of law and regulations, as well as how

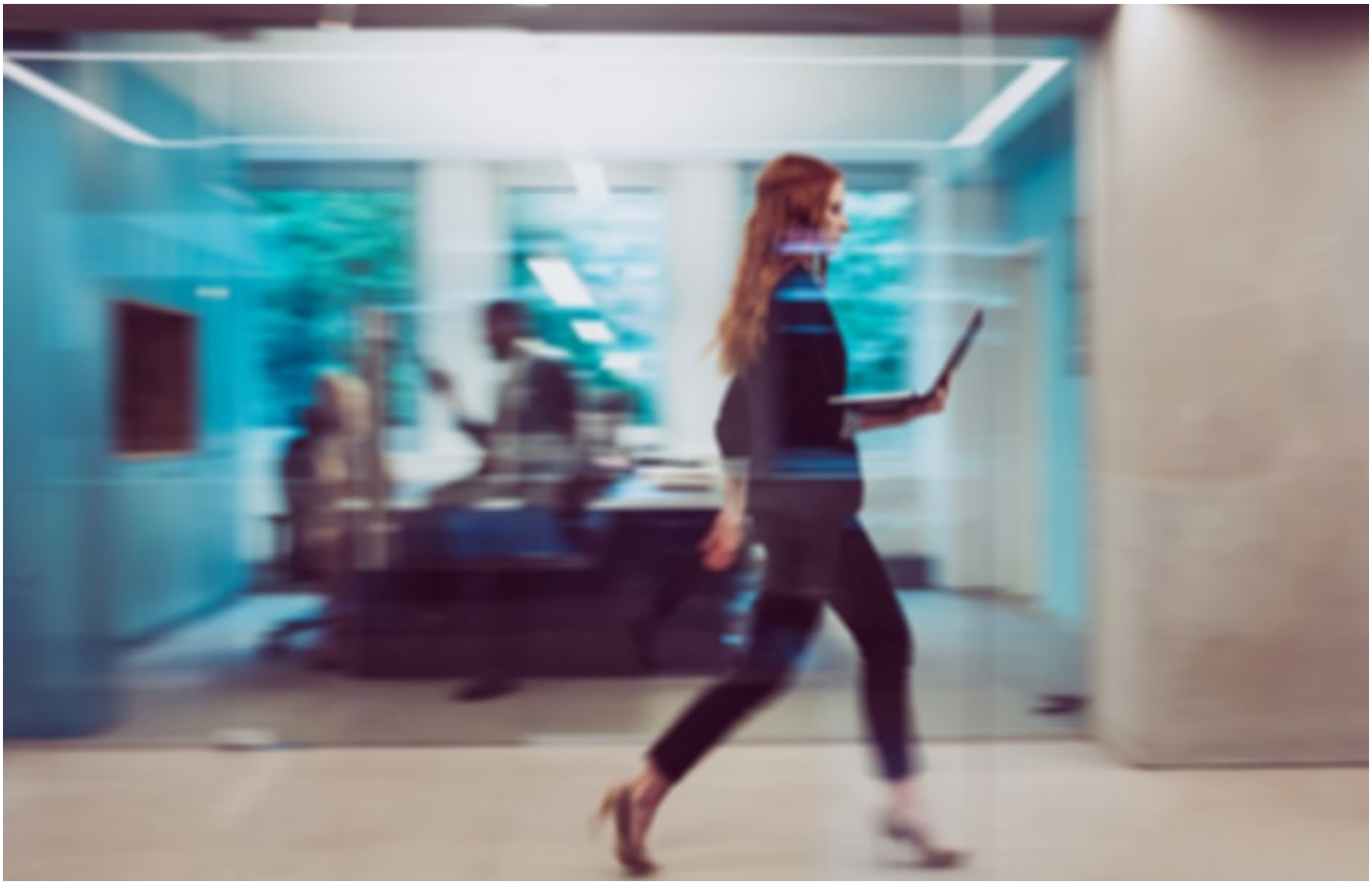
the supplier goes above and beyond those requirements by reference to stated criteria or voluntary standards such as those created by the Sustainability Accounting Standards Board (SASB), the Global Reporting Initiative (GRI), and the World Resources Institute. For example, a procedure may evaluate how the supplier works to mitigate pollution from its operations, whether it uses forced or low-wage labor, whether women or ethnic minorities are treated fairly or given substantial roles, and whether the business takes into account similar criteria when working with its own supply chain.

- **Service provider policies and evaluations.** It is a growing trend to formally incorporate ESG-related criteria into service provider bidding processes, as well as periodic evaluations. The criteria included in these processes often include factors designed to probe how service providers foster a diverse and inclusive workforce, address their own environmental footprint, and participate in their community or the communities where their customers are located.
- **Investments.** Many operating businesses invest in other businesses and funds for a variety of reasons; e.g., to foster growth of innovative technologies, grow business partnerships, or simply manage risk and grow value. Needless to say, businesses that make these investments can, and increasingly do, act like an institutional investor in evaluating targets using ESG criteria.
- **Mergers and acquisitions.** Business mergers and acquisitions can help both the acquirer and the target to grow through greater efficiencies, and access to customers, financing, new markets, and complementary talent and resources. Businesses that are focused on ESG as a guiding business principle should consider how ESG criteria are accounted for throughout this process:
  - » In the initial evaluation of a potential business combination, both the acquirer and the target should consider each other's ESG metrics and how well their existing practices may fit together, as well as areas where there is room for improvement.
  - » During due diligence, the acquirer's legal teams and consultants should be instructed to weigh ESG factors in addition to mere legal compliance and overt risk.
  - » When determining the appropriate price for the target, both parties should consider whether and how much value should be attributed to the target's ESG-related practices.
  - » When determining whether equity or cash consideration should be used in the transaction, the target's shareholders should consider whether the value of the acquirer's stock is impacted by the acquirer's ESG score and potential future changes in its stock price depending on how its ESG practices may change in the future, including by reason of integrating the target into the acquirer's business after the transaction closes.
  - » When evaluating how the acquisition will be financed, the acquirer should consider whether its or its target's ESG score warrants preferred lending terms or whether the acquirer could efficiently raise financing using a green, social, or sustainability bond.
  - » Finally, when integrating the target after the transaction, the acquirer should analyze how and to what extent its own and its new subsidiary's ESG-related practices should be melded. Does the subsidiary already have excellent practices? Should any of them be integrated into the parent company's broader operation? Or, how should the parent company's practices be translated for the new subsidiary?

EVALUATING ESG-RELATED PERFORMANCE

While all of these processes can be implemented by creating bespoke criteria, a number of existing ESG-related standards can help businesses evaluate their and their partners' operations and communicate their performance to the public. This handbook's section about ESG and sustainable Investment includes a discussion about notable voluntary standards and guidelines. It also examines standards that are used to score a business' overall performance, such as the more than 70 standards created by SASB, and the nearly 40 standards created by GRI. It further highlights a handful of the numerous existing voluntary standards that are oriented toward products and operations. These product- and operations-focused standards can be challenging to use because they often relate to specific industries and, in some cases, specific geographies.

Translating product- or operations-specific standards to the broader context of overall ESG standards deserves more attention. Many of these specific standards are well established and respected. In addition, because they are typically used by a business to communicate to its customers certain activities and practices that the business wishes to highlight, they are very valuable to businesses that exist in many supply chains. Like the broader business-level ESG ratings, it can be expensive to obtain certification of compliance with product or operations standards. Furthermore, these processes can be complicated and time consuming to complete. Accounting for product or operations specific standards in overarching business-level standards would likely streamline the process of obtaining ESG ratings for many businesses, thus increasing the number of businesses that are able to adopt recognized ESG-related practices. Implementing accessible and comprehensive ESG strategies would bring us all closer to the goal of achieving a sustainable economy.



RENEWABLE ENERGY

UNITED STATES

Renewable energy has quickly become a popular asset class in the United States, with new records for installations of solar and wind established nearly every year, regardless of federal and political trends. By megawatt, most of the installations in the United States are onshore wind and solar operations, but the market share of biomass installations has materially increased in recent years. Some industry observers anticipate a resurgence of hydroelectric power and long-term pumped hydro storage facilities in certain jurisdictions. In addition, it appears that traditional offshore wind is poised to advance in earnest on the East Coast, and that development of floating offshore wind may soon begin on the West Coast—particularly given an announcement made on 13 October 2021 by Secretary of the Interior, Deb Haaland, about significant offshore leasing plans. Please see the most recent version of our **Offshore Wind Handbook** for more information.

In fact, there are indications that the drive toward renewables will only increase in the near future. In one of his first acts in the Oval Office, on 20 January 2021, President Joseph R. Biden, Jr. caused the United States to rejoin the Paris Climate Agreement

(the Agreement), the largest international effort to curb global warming. The United States officially withdrew from the Agreement to limit climate-warming greenhouse gas emissions in late 2020, after Former President Donald J. Trump began the process in 2017. Prior to its withdrawal, the United States had played a large role in creating the 2015 Agreement. The current administration expects to redouble its efforts to participate in the Agreement, which aims to avoid severe climate change scenarios by keeping average global temperatures from rising no more than 2 degrees Celsius, and preferably less than 1.5 degrees Celsius by 2100, as compared to pre-industrial times.

Investors implementing ESG goals in the United States have long been active in the renewable energy sector, drawn by the allure of environmentally friendly power and dependable returns. While a great deal of that investment was once made by strategic and tax equity investors, in the last several years, a much larger variety of businesses have been taking advantage of a wide range of ESG-related financial instruments, which accomplish additionality while substantially reducing or eliminating the investor's exposure to physical asset risk.

Nonetheless, the increase in interest in the aggregate environmental impact of renewable energy and the social prong of ESG have driven a recent refocusing on the renewable energy supply chain, habitat at generation facilities, and opportunities for recycling obsolete materials. Scrutiny has come from the public at large, ESG-focused investors, project finance parties, and governments. For example, after significant news reporting on forced labor conditions in the Xinjiang province of the People's Republic of China, U.S. Homeland Security on 24 June 2021 issued a Withhold Release Order on silica-based products produced in Xinjiang.[2] This reporting also gave rise to a protocol issued by the Solar Energy Industries Association designed to prevent forced labor in the solar supply chain,[3] and a profusion of additional provisions in private contracts oriented toward the same goal.

EUROPE

For many years now, global attention has been paid to the implementation of the European Union's wide-ranging reforms to revive investor capital moving to tackle climate change. In July 2021, the EU made ambitious revisions to its 2018 directive concerning renewable energy, which demonstrates only the most recent development in what is a fundamental paradigm shift in global perspectives on

renewable energy sources. Nonetheless, shifting away from natural gas and coal on a regional basis can present an enormous challenge to affected regions and requires cooperative efforts on many fronts, from efforts to integrate regional energy systems[4] to ongoing cooperation efforts among affected countries.[5]

Several European countries have led this charge by creating abundant renewable energy resources and booming renewable energy sectors. These countries include Denmark, Norway, Sweden, and Finland (on- and offshore wind energy); Germany, Spain, and Italy (solar energy); and Iceland (hydro and geothermal energy). However, of all countries in Europe, Finland, Sweden, Norway, and Denmark are often perceived as forerunners in sustainability efforts. Nordic institutional investors have been among the world's first and most active ESG-focused investors, and issuers in this region often rank high in sustainability rating mechanisms. Of course, these rankings are not exclusively based on renewable energy, but the renewable electricity sources provided in these countries certainly help to support the ESG goals of their companies and issuers. By the end of 2019, each of Finland, Sweden, Norway, and Denmark had already exceeded their 2020 renewable energy goals.[6]

AUSTRALIA

Australia is blessed with abundant renewable energy resources and plenty of land on which to site renewable energy projects. Investments in utility-scale wind and solar generators have increased steadily over the past decade, with solar, wind, hydro, and other renewable resources comprising 24% of Australia's total electricity generation in 2019. Such growth has been fueled in part by federal and state renewable energy targets and a patchwork of feed-in tariffs or equivalent renewables schemes that vary among the states and territories. Uncertainty remains, however, as there is not likely to be any increase in federal Australian renewable energy targets. Investments are therefore largely reliant on state-based targets to support the ongoing increase in renewables in the Australian electricity market.

Australia hosts one of the largest battery storage systems in the world: the Hornsdale Power Reserve, originally a 150MW/194MWh grid-connected energy storage system co-located with the Hornsdale Wind Farm in the Mid North region of South Australia, which was expanded in 2020 by a further 50MW/64.5MWh to a combined 185 MWh. This system was a key factor in stabilizing the power grid during the loss of a major transmission line in South Australia. Batteries and other storage technologies are expected to continue to play a role in integrating large amounts of renewable energy onto the Australian power grid as the country transitions away from retiring coal-fired generation, while retaining a regulatory lens on the reliability of generation coming onto the grid under the Retailer Reliability Obligation. Other market dynamics and slated reforms may determine the overall success in commercialization of storage options in the Australian market but, to date, there has been a steady development of storage and "storage-ready" assets, particularly among retailers and vertically or semi-vertically integrated energy businesses.

In addition, Australia's focus on green hydrogen production is piquing interest in renewable investments as a whole. In part, because green hydrogen can be technically produced at scale using Australia's ample renewable electricity capabilities, and then exported. In particular, the Murchison Renewable Hydrogen Project, which is backed by Copenhagen Infrastructure

Partners, anticipates using five gigawatts of solar and onshore wind electricity to produce hydrogen for export to Japan, South Korea, and other Asian markets; and the Asian Renewable Energy Hub, which is backed by CWP Renewables, Intercontinental Energy, Vestas and most recently Macquarie Group, aims to use more than 11GW of wind and solar electricity to largely produce hydrogen for export.

Finally, offshore wind and electric vehicles are the subjects of increased attention in Australia, but these markets are still at an early stage. Electric vehicles and associated infrastructure are set to increase substantially in the next few years, while hydrogen and electricity vie for position in the heavy vehicle space. Similarly, behind-the-meter opportunities remain largely untapped in terms of size and impact, but there is increasing uptake of rooftop solar and integrated battery storage, hydrogen storage and electric vehicle systems in the commercial and industrial and large-customer space as retailers and other energy stakeholders test the waters on virtual-power-plant opportunities, and distributed energy and customer trading models more broadly.

UNITED KINGDOM

Although historically reliant on coal and petroleum-based energy sources, the United Kingdom has emerged as a leader in renewable energy. On 5 April 2021, The Guardian reported that 60% of the electricity consumed in the country was produced using wind and solar sources.[7] Nuclear energy contributed an additional 16%, bringing the carbon dioxide production per kilowatt-hour of electricity produced in England, Scotland, and Wales to only 39g. This was the lowest carbon intensity recorded since National Grid[8] began keeping records in 1935.

While the reported reduction in carbon intensity was encouraging, it was also something of a fluke due to reduced electricity demand resulting from the COVID-19 pandemic and many UK residents being away from home for a holiday weekend. Nonetheless, in 2020, Prime Minister Boris Johnson confirmed the UK's commitment to achieving 40GW of electricity from offshore wind by 2030, and pledged to double the capacity of renewable energy in the country's next contract for difference (CfD) auction, and to provide £160 million for the upgrade of ports and factories for building offshore wind turbines and related infrastructure. The next CfD auction is scheduled for December 2021.[9] This announcement is particularly pertinent for ESG investors who have been circling the UK's offshore wind industry for de-risked investment opportunities.

The continued advancement in technology and reduced capital and equipment costs suggest that offshore wind opportunities in the UK can yield long-term returns for ESG investors. Whilst this announcement from the UK government has been well received by the investor community, more attention must be paid to resolving the route to market issue, which has historically hindered the level of grid-connected capacity from offshore wind projects in the UK, before the level of investment from ESG investors can be unlocked. In particular, the availability of long-term, reasonably priced, power purchase contracts that will be necessary to underpin the stable revenue streams for such offshore wind projects. Only time will tell whether CfDs (or a contractual structure akin to CfDs) can operate to find the balance between giving consumers best price and investors a reasonable rate of return on their investment after cost recovery.

ENERGY STORAGE

Wind and solar technologies have become cost competitive with fossil fuel energy generation and have obvious environmental advantages over their fossil fuel peers. But, wind and solar resources are intermittent, meaning their production varies when the sun does not shine and the wind does not blow. Enter energy storage resources (ESRs), such as lithium ion batteries, fly wheels, and pumped hydro, can capture energy generated at one point in time, store it, and release that energy later when it is needed or when it is profitable to do so.

In the coming decade, ESRs will likely benefit from the synergistic forces that helped propel renewable energy over the previous decade: technological advances, declining costs, favorable regulatory and policy initiatives, and global urgency around the climate crisis, energy security, and energy justice. For example, the U.S. energy storage industry claimed an important victory in 2020, when a federal appeals court upheld a Federal Energy Regulatory Commission order clearing the way for U.S. grid operators to open their markets to energy storage. For a deeper dive into the current and future landscape of the regulatory, finance, tax, and policy issues relevant to ESRs, see the most recent version of our **Energy Storage Handbook**.

From an investor perspective, one area gaining traction is stacking renewable assets (particularly solar, but also wind, and recently, wind and solar) with ESRs. Large corporate power purchasers have been a major driver of renewable project development and several large corporates are showing active interest in renewable energy generating projects that include storage, but important questions remain on how best to capitalize on the theoretical returns from renewables plus storage. ESR investment is also gaining traction in emerging markets, as the Climate Investment Fund's US$250 million Global Energy Storage Program is helping to drive over US$1 billion of ESR investments.

From an ESG perspective, ESRs have a clear environmental and social benefit: ESRs are poised to play a key role globally in the move away from large, centrally located fossil fuel energy generation, to a more distributed and reliable renewable energy supply. Nonetheless, ESG investors should pay close attention to supply chain and life cycle concerns, including conflicts and labor issues concerning minerals mining (cobalt, nickel, and lithium), forced labor in manufacturing in some jurisdictions, and complexities in battery decommissioning and recycling.

For more information, please see the most recent version of our **Energy Storage Handbook**.

MICROGRIDS

While some discussions around microgrids can be technical and somewhat esoteric, in reality, microgrids are simply local energy grids that can disconnect from the traditional grid and operate independently. They can be powered by traditional sources such as natural gas and diesel generators, but they often use renewable sources such as solar or wind, separately or in combination with each other. Energy storage technologies can also help to support reliability on a microgrid just as they do on the traditional grid.

While there are many potential applications of microgrids, they are typically used in one of two ways:

- To supply power when there are outages in the traditional grid, or provide additional capacity during periods of increased demand.
- To provide power in places that are underserved or not served at all by the traditional grid. These so-called "off-grid" microgrids can help rural or marginalized populations achieve energy independence or provide power at a facility that is located in a remote location for other reasons, e.g., commercial viability or national security.

Microgrids have been used outside the United States for decades. Particularly interesting examples exist in India and parts of Africa, but there has also been notable growth in microgrids in China, Japan, and Canada. In some cases, these microgrids incorporate renewable technologies and serve socioeconomically disadvantaged populations. While government financing may be an important part of the capital stack for these projects, microgrids outside the United States have been privately financed by non-natives, including by for-profit investors.

The U.S. microgrid market has grown significantly in recent years and interest in creating more of them has arguably grown much more. For example, the Blue Lake Rancheria group of the Wiyot, Yurok, and Hupa Indians in Humboldt County, California was the subject of much attention in 2019 when the microgrid installed by the group in 2017 stayed on while much of the power grid maintained by PG&E was shut off amid historic wildfires. Some observers predict a near-term "hockey-stick shaped" boom as part of the move from centralized to distributed energy resources. Together with the Biden Administration's apparent interest in significant electrical infrastructure investment, microgrids may present a compelling case to those ESG-focused investors who understand the electric infrastructure asset class.

ELECTRIC VEHICLES AND EV INFRASTRUCTURE

Electric vehicles (EVs) have been transforming the global automobile industry in recent years, and the pace of this transformation will only accelerate in the years ahead. General Motors plans to introduce 20 new EVs within the next three years. According to a report by Bloomberg New Energy Finance, 58% of global passenger vehicle sales in 2040 will come from EVs.[10]

The sustainable nature of the use of electric vehicles, particularly in areas with significant renewable electricity supply, appeals to many consumers, businesses and investors. From an environmental perspective, the EV fleet compares favorably to conventional vehicles with combustion engines and related greenhouse gas emissions. EV prices have also become more competitive with those of their traditional counterparts.

A key factor for the continued growth of EVs is infrastructure. A recent report by the Department of Energy noted the availability of 26,000 charging stations with more than 80,000 connectors.[11] Those numbers will need to increase significantly in order for EVs to win wider adoption in the United States and around the world. Notably, President Biden has proposed Federal investment in 500,000 electric vehicle charging stations by 2030.

There is also room for improving EVs in the context of ESG investment. Lithium-ion batteries are an integral component of EVs, which raises questions about the foreign supply of raw materials and related labor and human rights issues. Additionally, there are inherently disposal and recycling issues with the use of these batteries. While we have seen positive momentum in the U.S. Congress in 2021, we have not yet seen many concrete accomplishments to support this emerging sector. Government policymakers and regulators should be monitored closely for proposals to address these issues and new incentives to promote manufacturing and sales of EVs and supporting infrastructure.

EVs promise a fundamental change to consumer and industry decisions as well as the overall transportation network. Indeed, many changes are already underway. With the number of EVs in the United States projected to reach over 18 million in 2030, this market segment deserves close attention by ESG investors.[12]

HYDROGEN

While hydrogen has been used in industrial processes for decades, this mighty molecule can be deployed much more broadly in industry and other applications such as long-term energy storage, electricity production at so-called peaker plants, and fuel for industrial processes, trains, aircraft, space craft, marine vessels, and commercial and passenger vehicles.

When used hydrogen is very clean; its only byproduct is water vapor. However, there are a range of techniques for manufacturing hydrogen. Today, nearly all hydrogen is produced by treating natural gas in a process called steam reforming. While this product burns clean, it emits carbon and other GHGs in the reformation process. In addition, this method of production relies on ongoing extractive activities for the sourcing of natural gas. Thus, this "grey hydrogen" is generally not acceptable to ESG-focused investors who exclude the oil and gas industry from their investment processes.

Steam reformation processes may be paired with carbon capture and other technologies to reduce or mitigate emissions of the hydrogen production process. This is a realistic mitigation method when captured carbon is sequestered in geologic formations or utilized to produce durable products that will not emit carbon into the atmosphere as they degrade. While more compatible with ESG investment strategies, this process of steam reformation coupled with carbon capture and sequestration is still objectionable to some ESG investors. Nonetheless, this technique presents a current and near-term option because of the developed natural gas infrastructure in many countries and increasing availability of long-term sequestration options. Please see the Carbon section in this chapter for more information about carbon sequestration and utilization.

Hydrogen can also be produced using electrolysis of water, which breaks the bond between the oxygen and hydrogen molecules in water. When the electricity used in this process is generated from renewable resources such as wind, solar, or hydropower, the hydrogen produced is more compatible with ESG and sustainability goals as compared to hydrogen produced by other methods outlined above. Thus, ESG-oriented investors may be particularly interested in businesses producing hydrogen using electrolysis powered by renewable electricity and those using hydrogen that was produced in this manner.

Parts of Europe and the People's Republic of China stand out as leaders in the expansion of hydrogen markets. However, many industrial leaders and the government in Australia and the United States have announced big plans to quickly catch up. Achievement of these goals—as well as expansion in Europe and the People's Republic of China—will depend on a number of factors. These include political support at all levels of government; development and expansion of regulatory regimes to ensure clear, transparent, and intentional regulation; the ability to leverage existing energy infrastructure to produce, transport, and store hydrogen; the availability of cost-effective debt and equity options for project finance; and the resolution of various open commercial questions. However, the recent surge in interest and advancement of the industry in other countries indicate that we may be on the cusp of the age of hydrogen.

For more information about the hydrogen industry around the world, please see our **H2 Handbook**.

SUSTAINABLE AGRICULTURE

The concept of sustainable agriculture has enjoyed a great deal of attention over much of the last 50 years. More recently, this attention has increased and deepened as the long-term impact of the so-called "green revolution" of the 20th Century has become more apparent on farms and in communities throughout the world. At the same time, ownership of farmland and the agricultural supply chain has become increasingly consolidated in many economically advanced countries. These two movements are now beginning to combine in a heightened focus by institutional landowners and managers on sustainable agricultural methods as a way to create a more sustainable bottom line.

It is first important to note that "sustainable agriculture," as the term is currently used, does not stop with organic production methods. Rather, in the last few years, historic concerns about labor practices, long-term environmental costs both within and beyond the four corners of a farm, and human health have come together in a renewed focus on agriculture as a fundamental part of human existence and society and, therefore, the pressing need to foster long-term availability and economic sustainability of food systems. A pronounced trend has emerged, oriented toward stewardship of land and water, biodiversity as a key ingredient in crop health and success, conservation and growth of human capital, and incentivizing compliance with robust and practical governance regimes.

Emphasizing these factors ultimately moves toward the broader goal of increasing efficiency and reducing waste in agricultural operations while also making it more affordable to farm. In other words, sustainable agriculture is a complete ESG-oriented package.

Numerous concepts are discussed in the context of sustainable agriculture, and there are many different perspectives on which of these concepts should be included under the sustainable agriculture umbrella. For example, whether sustainable agriculture encompasses only food and textile products, or whether it should also include animal production. In addition, sustainable agriculture can be interpreted broadly to include the concept of regenerative agriculture, which is primarily concerned with regenerating soil nutrition and tilth, conserving water, and in some cases, encouraging biodiversity. Regenerative systems can also accomplish carbon removal or sequestration. Renewable energy and fuels production, discussed above, are also an increasingly important aspect of modern farming and sustainable agricultural systems in many parts of the world. Renewable energy and fuels can be used in the agricultural value chain or a revenue source for farmers. It is important to note also that sustainable agriculture is not limited to matters of production—it also includes the reduction of waste. For example, upcycling is the use of waste to produce new or different products; for example, sugarcane waste, or bagasse, may be used in a variety of processes, including food packaging. These factors underlie the concept of sustainable agriculture. As with the concept of ESG itself, the conversation around sustainable agriculture will continue to evolve as our practices and goals in this area change over time.

WATER

Water has long been a focus of sustainability practices—for example, reducing use, reducing evaporation, and re-using. While technological practices and policy have advanced these initiatives for decades, we are particularly attentive to legal mechanisms that, with fine-tuning, are adapting water uses to meet the best use demands of sustainability. Water rights vary substantially from country to country, and sometimes by jurisdiction within countries.

For example, in prior appropriation states,[13] i.e., the American West, water leasing and banking has been gaining momentum as resource needs shift.[14] As the new energy economy takes hold, traditional means of producing electricity that required large amounts of water are ramping down. Investors in this sector can leverage relatively new laws to create water banks and carve out blocks of their water rights to sell or lease to other users—growing municipalities, instream flows for ecological benefit, new cleantech industries, and others. While banking and leasing water are not entirely new concepts, participants in these markets have fine-tuned the processes to eliminate administrative and transaction costs, resulting in "over the counter" packages, suitability maps to determine eligibility, and streamlining water rights applications to make them less cumbersome and ultimately less expensive. Of course, the social aspects of ESG investment are also a major consideration in water allocations, but they are not always considered in individual transactions.

In riparian states, i.e., most states east of the Mississippi, the legal regime is less restrictive.[15] However, population pressure, continuing agricultural and aquacultural demands, legacy environmental contamination, and high industrial needs have led to more water use regulation. This regulation includes efforts to make water rights more legally certain, which results in more constraints as to where, when, and how much water can be used. The fact that there are two eastern interstate water disputes being argued before the U.S. Supreme Court in 2020-2021[16] reflects the need to continue working on sustainable allocations of water use in this part of the country. Ensuring sustainable and fair allocation of water in these states will be difficult, because regulated riparianism does not have the legal structure offered by the prior appropriation system that enables use reductions to be applied in a correlative and efficient manner. ESG investors in riparian states may be best served by taking a hard look at the water banking and market arrangements that have evolved in the Western U.S. and applying them in other areas to put water to the highest and best use within sustainability frameworks.

CARBON

Carbon[17] management is key to any ESG strategy focused on deep evaluation of the risks and economic externalities in a variety of investment classes associated with business activities that result in carbon emissions. In addition, there are significant incentives for investing in businesses, technologies, and projects that take measures to manage carbon. For example, tax credits may create new sources of project finance capital and environmental attributes (e.g., carbon credits or cap-and-trade certificates) may smooth operating revenues, or become new revenue streams. Here are a few carbon management concepts that may be considered:

Carbon reduction processes generally fit within the efficiency or sustainability category. These processes can be implemented solely to reduce carbon emissions, but in some cases also represent direct savings or value to existing operations. For example, switching from natural gas heat to electricity can not only reduce net carbon emissions, but also be more energy efficient and reduce energy costs overall.

Carbon capture and utilization (CCU) and carbon capture, utilization, and storage (CCUS) technologies, capture carbon oxides that are emitted in the process of combustion, industrial processes, fuel transport and certain refinery processes. The captured carbon is then typically utilized as a tertiary injectant for oil and gas extraction, i.e., enhanced oil recovery (EOR). However, as technology or markets improve in other applications, we expect to see more carbon sequestered in geological formations (i.e., without the goal of extracting oil or gas) and used in the manufacture of products, for example, cement, synthetic fuels, manufactured stone, and greenhouse products.

Carbon removal removes carbon from the environment through a variety of natural methods as well as certain engineered solutions. Existing natural solutions include planting and managing forests as long-term carbon sinks, and the use of biochar and certain regenerative agricultural practices, typically featuring no-till agriculture and extensive use of cover cropping. Emerging solutions include the use of captured carbon for specific agricultural practices such as intensive farming of algae for use in fuels, plastics, and other products. Engineered solutions typically encompass various forms of direct air capture, i.e., collection of air with removal of carbon dioxide using chemical or electrochemical media.

When discussing carbon, conversations about capture and removal ultimately turn to a few key considerations: durability, leakage, and additionality. All of these concepts inform the evaluation of how the carbon industry fits into an ESG policy, whether at the investor or operating-company level. Briefly:

- **Durability** refers to how long captured or removed carbon will remain sequestered or in a non-degradable state through utilization. Thus, there is a premium on sequestration opportunities in certain geologic formations where carbon will naturally bond with subsurface rock formations. Durability is also behind some concerns about natural carbon removal solutions. For example, during the

2021 Bootleg Fire in Oregon, many news sources reported that a forest that was a large carbon credit qualified project burned, thereby releasing much of the carbon that was captured while the trees grew.[18]

- **Leakage** reflects the concern that capturing or removing carbon in one location will simply result in increased emissions in another location. This is a major concern in the context of domestic policy to encourage carbon capture in the absence of controls on the importation of carbon-intensive products, e.g., a carbon border tax. In other settings, the same term can also refer to carbon leaking from a geologic formation where it has been previously injected either for sequestration or EOR purposes.
- **Additionality** reflects the desire of many participants in carbon markets to demonstrate that a specific investment results in a reduction of carbon emitted into or retained in the atmosphere. This concept will be discussed in greater detail in Chapter 4 of this Handbook.

These factors will become increasingly important to consider as part of an ESG framework as carbon continues to occupy a greater role in the overall conversation about sustainability.

ENERGY EFFICIENCY

Energy efficiency plays a critical, if underappreciated, role in the mitigation of greenhouse gas emissions by preventing those greenhouse gasses from being emitted in the first place. Energy efficiency takes many forms, but is generally considered to be the use of less energy to perform the same task, with no discernable impact to the consumer. Energy-Star appliances, replacing incandescent lightbulbs with LEDs, and improved insulation in windows are all popular and recognizable energy efficiency strategies.

Producing energy inherently involves some level of waste, and energy efficiency advances ESG goals by reducing such waste. While energy efficiency is often considered a consumer's issue, it has become very popular for investors, including private equity firms, to acquire equity in manufacturers of energy efficient materials, service providers that plan for or install energy efficient materials, energy efficient building management firms, and funds that own energy efficient materials that are effectively leased to business consumers. Moreover, strategic acquisitions in the industry continue to occur on a regular basis as larger providers of energy efficiency services consolidate the market.

The benefits of energy efficiency practices and strategies are not limited to ESG considerations. In fact, many energy efficiency practices can result in direct and identifiable cost savings. These savings are achieved by simply using less energy, resulting in a lower utility cost, but they can also result from related areas, such as governmental efficiency incentives or strategies such as using more energy when demand is low and benefiting from a lower cost while reducing peak demand on the grid. The benefits of implementing energy efficiency strategies will only increase as more methods of maximizing energy efficiency and reducing costs emerge.

MICROFINANCE AND CROWDFUNDING

Microfinance is the practice of lending small amounts of money to people who would not otherwise have access to traditional financial services, and it is often driven by a social justice purpose. However, microfinance is ultimately a lending activity. Lending activities raise many regulatory compliance issues, including state licensing, interest rate and fee limits, disclosure requirements, and even regulation regarding the use of credit reports, authorizations for electronic payments, and the delivery of disclosures and other materials electronically.

When analyzing microfinance businesses in the context of an ESG investment program, it is important to determine the business's compliance with licensing requirements, as well as whether social justice or other metrics with respect to the business are available and measurable. For example, in the United States, merely making microloans for the borrower's business purposes, as opposed to consumer purposes, may trigger licensing requirements. Non-mortgage consumer lending activities generally require a license in each state in which a borrower is located, although this can depend on loan amounts and interest rates. Activities relating to commercial-purpose loans will not raise as many licensing concerns, but even commercial lenders will need a license in some states, again, depending on loan amounts or interest rates. A non-bank can minimize its licensing requirements in this context by teaming with a bank that will make the loans (although a license may still be required to arrange or service the loans). If the company proposes to acquire the loans after they are made, it is important to structure the arrangement to minimize "true lender" challenges, which can cause loans to be usurious and raise other compliance concerns if it is determined that a non-licensed lender was the true lender.

It is essential that investors carefully analyze any potential microfinancing operations for compliance with applicable laws, or they risk inadvertently becoming subject to a broad range of lending laws and regulations.

AFFORDABLE AND WORKFORCE HOUSING

Real estate is an attractive asset class for many investors, but housing for lower income groups is often not incorporated into investment portfolios for a variety of reasons, including lower returns, potentially increased physical asset risk due to high turnover, and, often, government regulation. For example, the concept of "affordable housing" in the United States is tied to federal housing rules, which restrict federal funding to property owners that guarantee fixed, below-market rents. These rules often result in investment structures that emphasize tax losses over economic returns.

On the other hand, "workforce housing" describes rental or owned housing that is affordable for individuals and families who make too much to qualify for government housing assistance. Workforce housing returns are modest; targeted rents often barely cover the relatively high fixed costs for land, infrastructure, and construction.

In many jurisdictions, governments attempt to incent the construction of affordable and workforce housing through, for example, pre-development grants, low-rate government bonds, accelerated permitting, fee waivers and offsets, and tax credits and abatements. These efforts can increase the potential returns of an investment, but often introduce complexities in the investment structure or profile, including ongoing reporting and other compliance requirements.

While affordable and workforce housing investments can be incorporated into an impact investing portfolio, they can also be incorporated into a responsible investing portfolio. In form, these investments are generally similar to those in any typical real estate portfolio and may consist of either a debt or equity interest. Structures utilizing U.S. federal or state low-income housing tax credits are more complicated and require sophisticated tax structuring.

Recently, we have seen examples of innovative affordable housing investment structures that may be appropriate for responsible investing or impact investment portfolios.

- Developers are acquiring and converting motels to studio apartments for low-income persons. Motel conversions are relatively inexpensive, can be executed quickly, and often qualify for local government benefits such as property tax exemptions. Consequently, these projects are capable of generating market or near-market returns.
- Real Estate Investment Trusts (REIT) are being formed to acquire and hold workforce and naturally occurring (that is, privately financed) affordable housing. Housing REITs address a significant social need by preserving rent affordability in perpetuity. These REITs generally offer a modest fixed return comparable to bonds, which can be used to balance an investment portfolio.

To date, affordable housing real estate investment has not been as amenable to certificate-based investments in the same way that renewable energy and carbon have been. However, as more and more investors and corporate actors seek ways to positively impact marginalized communities, some of the innovations in other industries that have been targeted by ESG and impact-focused investors could begin to trickle into other industries.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ENDNOTES

[1] Klaus Schwab, 2020 Davos Manifesto, https://www.weforum.org/agenda/2019/12/davos-manifesto-2020-the-universal-purpose-of-a-company-in-the-fourth-industrial-revolution/ (last visited October 15, 2021).

[2] "The Department of Homeland Security Issues Withhold Release Order on Silica-Based Products Made by Forced Labor in Xinjiang", U.S. Customs and Border Protection, https://www.cbp.gov/newsroom/national-media-release/department-homeland-security-issues-withhold-release-order-silica (last visited October 17, 2021).

[3] Solar Supply Chain Traceability Protocol, Solar Energy Industries Association, https://www.seia.org/research-resources/solar-supply-chain-traceability-protocol (last visited October 17, 2021).

[4] "Powering a climate-neutral economy: Commission sets out plans for the energy system of the future and clean hydrogen", European Commission, July 8, 2020, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1259 (last visited October 17, 2021).

[5] "Cooperation Mechanisms", European Commission, https://ec.europa.eu/energy/topics/renewable-energy/directive-targets-and-rules/cooperation-mechanisms_en (last visited October 17, 2021).

[6] Renewable Energy Statistics, Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Renewable_energy_statistics (last visited October 17, 2021).

[7] "Great Britain's electricity system has greenest day ever over Easter," The Guardian, April 6, 2021, found at https://www.theguardian.com/environment/2021/apr/06/uk-electricity-system-has-greenest-day-ever-over-easter (last visited October 17, 2021).

[8] National Grid Group Plc is a private organization that owns and operates much of the electricity transmission and distribution system in the United Kingdom. It is not a government organization.

[9] "Contracts for Difference," Department of Business, Energy and Industrial Strategy, https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference (last visited October 17, 2021).

[10] The Future of Cars is Electric - But How Soon is the Future, PV Magazine, November 26, 2020, https://www.pv-magazine-india.com/2020/11/26/the-future-of-cars-is-electric-but-how-soon-is-this-future/.

[11] Brown, Abby, Stephen Lommele, Alexis Schayowitz, and Emily Klotz. 2020. Electric Vehicle Charging Infrastructure Trends from the Alternative Fueling Station Locator: First Quarter 2020. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5400- 77508. www.nrel.gov/docs/fy20osti/77508.pdf.

[12] Press Release, Edison Electric Institute, EEI Celebrates 1 Million Electric Vehicles on U.S. Roads, November 30, 2018, https://www.eei.org/resourcesandmedia/newsroom/Pages/Press%20Releases/EEI%20Celebrates%201%20Million%20Electric%20Vehicles%20on%20U-S-%20Roads.aspx.

[13] Water in the Western United States is managed by the concept of prior appropriation, generally a more restrictive regime, requiring water rights or permits for nearly every type of use of groundwater or surface water. These paper rights have specific points of withdrawal and places and purposes of use, and are subject to relinquishment for periods of non-use. They are also highly regulated in times of scarcity—those with more senior rights have priority over those who obtained their rights later in time. During droughts, junior rights holders may see their water reduced significantly, sometimes to none at all.

[14] Craig, R.K. (2020), Water Law and Climate Change in the United States: A Review of the Scholarship, *SJ Quinney College of Law, University of Utah* at 5-6.

[15] Water use in the Eastern United States is primarily managed as a riparian resource, which means that if water runs through or abuts the land on which production occurs it may be "reasonably used" as long as it does not harm other users. This generally less-restrictive concept does not mean that water use is uncontrolled or abundantly available; many, if not all, riparian states have some form of monitoring or reporting requirements, particularly for large consumptive needs. However, compared to the mixed riparian or pure appropriative regimes of the Midwest, Mountain states and West Coast, riparian regimes generally offer more water and more flexible water use arrangements.

[16] *See Mississippi v. Tennessee*, No. 220143 (U.S. filed 1 June 2014); and Florida v. Georgia, No. 220142 (U.S. filed Oct. 1, 2013). The last major eastern interstate water rights dispute was New Jersey's challenge against New York over the Delaware River, decided first in 1931 and revisited in 1954. *See Craig, R.K.* at 8.

[17] We are using the term "carbon" here to mean carbon dioxide and carbon oxide, and in some contexts as a broader umbrella concept for all greenhouse gases.

[18] https://www.nytimes.com/2021/08/23/us/wildfires-carbon-offsets.html.

GLOSSARY

Acronym	Description
CCU	Carbon Capture and Utilization
CCUS	Carbon Capture, Utilization, and Storage
CfD	Contract for Difference
EOR	Enhanced Oil Recovery
ESRs	Energy Storage Resources
EV	Electric Vehicles
GHG	GreenhouseGas
GRI	Global Reporting Initiative
LED	Light-Emitting Diode
REC	Renewable Energy Credits
REIT	Real Estate Investment Trusts
SASB	Sustainability Accounting Standards Board

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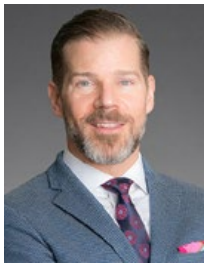

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