

Investing in a Cleaner World

Private equity and sustainability

APRIL 2022



Executive summary

As Earth Day 2022 approaches, sustainability is top-of-mind. Often thought of in terms of renewable energy, sustainability actually covers a range of innovations beyond energy itself. How is wastewater treated, and how is the environment cleaned up? How can recycled goods be transformed at scale and turned into safe, effective alternative products? What will be required of the food industry as populations increase and farmland acreage is limited? How can a more sustainable future be built at all levels of society—not just wind and solar?

This research report, in partnership with PitchBook Data, unveils the massive contribution private equity (PE) is making in each of those conversations. Investing \$149.2 billion altogether, US investors have sponsored 1,039 clean tech companies over the past decade. Those numbers are expected to rise much more in the 2020s as more technologies come online and as users migrate to more sustainable options.

According to the [World Energy Outlook 2021](#), the annual report from the International Energy Administration, electricity's contribution to global energy consumption has reached a new high, at 20%. The report also notes that, in 2020, even as COVID-19 devastated global economies, "additions of renewable sources of energy such as wind and solar PV increased at their fastest rate in two decades, and electric vehicle sales set new records." The report anticipates the emergence of "a new energy economy."¹ At the American Investment Council, we want to highlight the outsized contributions made by our members, be it financing large-scale solar farms in Arizona, forging innovative partnerships with waste management companies, or providing the capital to build and improve a sustainable food supply chain from which all people living in the US can benefit.

Over the past several years, many of our members have established multibillion-dollar programs and funds dedicated exclusively to making the economy more sustainable. We're proud to associate ourselves with firms such as Blackstone, Goldman Sachs, Brookfield Asset Management, KKR, Paine Schwartz Partners, and EnCap Investments, among others, and highlight their efforts toward a cleaner, better world.

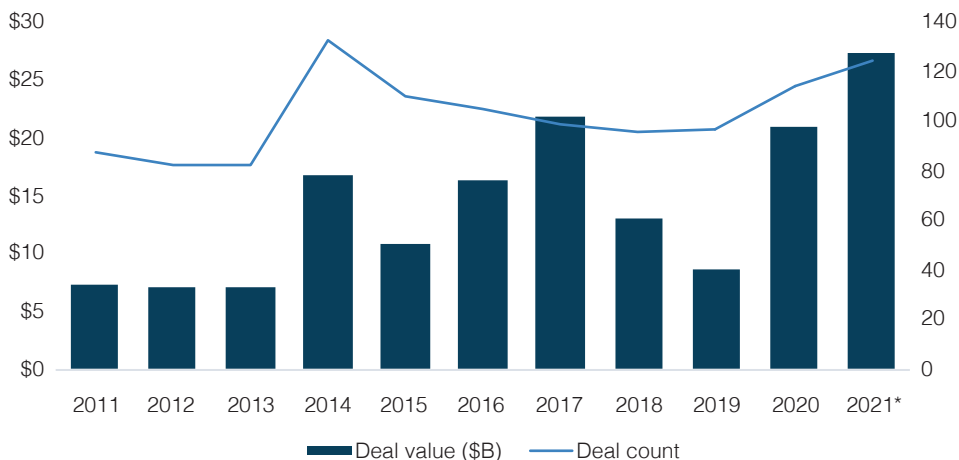
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1: "World Energy Outlook 2021," IEA, December 2021.

The clean tech revolution

The clean tech revolution is well underway, and private equity is at the forefront as a financial provider. Over the past decade, PE firms have sponsored more than 1,000 US clean tech companies, investing almost \$150 billion in the process. Clean tech spans a range of energy solutions, including renewables such as solar and wind, and other alternatives such as hydrogen and hydroelectric. For several years, PE firms have been active in renewable energy, investing more than \$100 billion over the past decade. 2021 was very active for renewables as well, with \$21.5 billion invested, including more than \$6 billion in solar and wind projects.

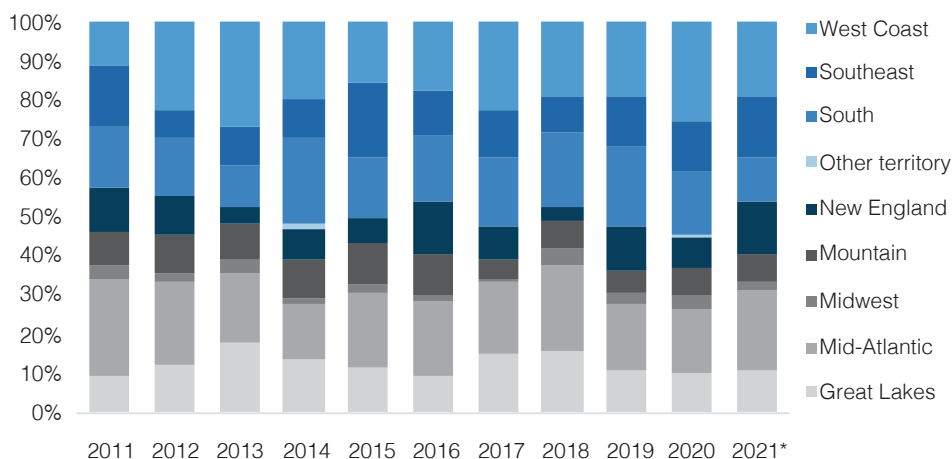
Clean tech PE deal activity



Source: PitchBook | Geography: US
*As of December 31, 2021

PitchBook data shows the even distribution of those investments throughout the country. The sunny Southeast is home to several PE-backed solar farms, while wind farms have been financed near the waters of Maine and as far inland as Kansas and Oklahoma. No matter the application, clean tech companies are being financed on both coasts and in every state in between.

Share of clean tech PE deal count by region



Source: PitchBook | Geography: US
*As of December 31, 2021

Private equity at work

Inspiration

In November 2021, AIC member ArcLight Capital Partners helped launch Inspiration Mobility, with \$200.0 million in committed capital. Inspiration is an electric vehicle company that provides light- and medium-duty vehicle fleets at scale. The joint venture has already made an impact in New York City by partnering with Revel, an all-electric ridesharing program with a fleet of Teslas available on-demand throughout Manhattan.

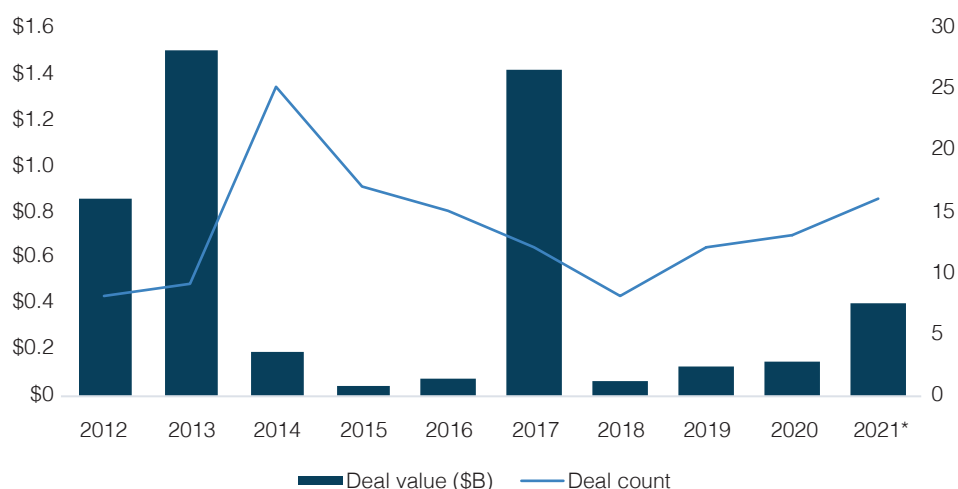
Sustainable food production

PE has a brief but growing history with the US agtech market. Agtech—short for agricultural technology—is at the nexus of food production and technology. There have been dozens of breakthroughs over the past decade, and the number of applications continues to grow.

A comprehensive hybrid of hardware and software, soil sensors can be planted in the ground and can accurately measure over 40 acres of soil moisture levels. These measurements help farmers save money on water costs while enhancing seasonal yields. Other applications include drones for aerial imaging, intricate camera systems for pest control, and vertical, indoor farming structures for maximum control over a crop’s environment. For farmers, every year poses potential problems for their crops, thus compromising whether they will be able to make enough money once harvest season approaches.

Private capital is critical to the success of the agtech industry. Over the past decade, PE firms have sponsored 135 agtech companies, with almost

Agtech PE deal activity



Source: PitchBook | Geography: US
*As of December 31, 2021

\$5 billion invested in aggregate. The industry requires complex know-how and knowledgeable investors, and the number of agtech-focused PE firms is growing. AIC member Paine Schwartz Partners, based in San Mateo, California, has accumulated \$3 billion and employs a team with more than 500

years of combined industry experience. Paine Schwartz’s investments include AgBiTech, which manufactures a range of biological products to replace or augment traditional pesticides, and Axiota Animal Health, which produces non-antibiotic nutritional products for cattle producers.

Private equity at work



ADVANCED AGRILYTICS

In September 2019, AIC member Paine Schwartz Partners, which has been active in the sustainable food market for more than 20 years, partnered with Advanced Agrilytics. Indiana-based Advanced Agrilytics provides farmers throughout the US with precision farming advice. Under Paine Schwartz, the company was able to gain access to more resources to hire additional data scientists and agronomic professionals.

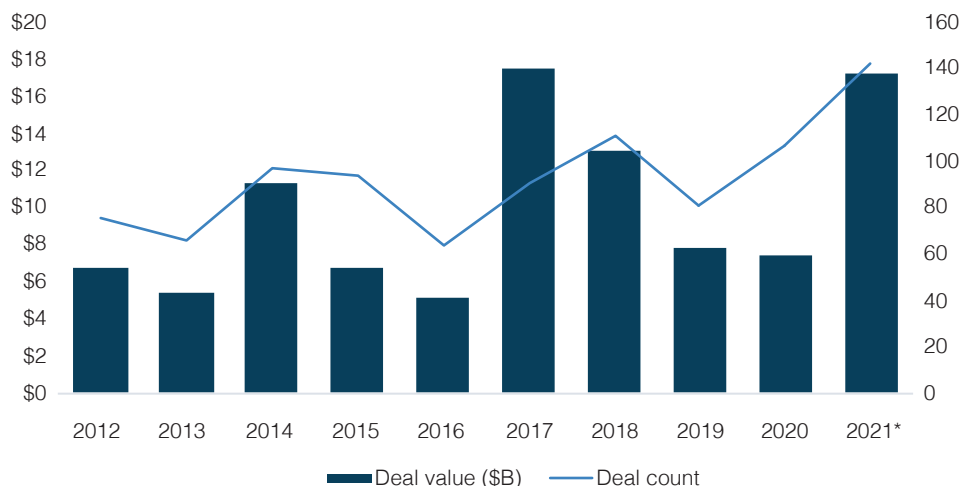
Tidying up the planet

Private equity has a long history in the environmental services sector. Waste management, recycling centers, and oilfield cleanup services, among other areas, are common in PE portfolios. Over the past decade, PE firms have sponsored 925 environmental service companies, investing almost \$100 billion in the process.

Waste management solutions can be capital-intensive; money is required to build new facilities and purchase equipment, especially when companies are looking to grow and improve every year. It's also an essential service to commercial and residential customers. With innovative science at the helm, many of these companies can turn waste into useful bioproducts, thereby simultaneously saving money and improving the surrounding environment.

The same can be said for recycling companies. In early 2022, a subsidiary of Waste Management (NYSE: WM) launched a joint venture with Tailwater Capital, a private equity firm. Waste Management and Tailwater acquired

Business products & services environmental sciences PE deal



Source: PitchBook | Geography: US
*As of December 31, 2021

Continuous Materials, which collects and recycles plastic and paper scrap materials and turns them into roofing board products. Under PE sponsorship, Continuous is expanding its presence and is building its first production plant

dedicated exclusively to roofing board production. The plant is expected to make more than 150 million square feet of product each year.

Private equity at work



AIC member Goldman Sachs is an investor in Synagro, a Maryland-based environmental services company that provides biosolids treatments that can transform waste streams into effective fertilizers. Synagro's client base includes municipalities, commercial industries, and large-scale farmers. The company already benefited from private equity in the past, thanks to EQT's personalized comprehensive growth plan. Under Goldman, Synagro is set to accelerate its innovation plans and meet an ever-growing demand for clean and effective biosolids solutions.

Select fund profiles

KKR Global Impact Fund



AIC member KKR launched its Global Impact initiative in 2018. The effort goes well beyond renewable energy, with capital funneled to companies related to environmental, social, and governance (ESG), such as education, workforce development, and other societal challenges. In February 2022,

KKR Global Impact backed Resource Environmental Solutions, a Texas-based ecological company that helps its clients offset unavoidable, project-related impacts to wetlands, streams, and other habitats. RES' services have helped preserve land, improve water quality, and protect wildlife.

BeyondNetZero

 GENERAL
ATLANTIC

In 2021, General Atlantic launched its BeyondNetZero climate venture. The initiative aims to invest in decarbonizing supply chains and industrial processes, energy efficiency solutions, resource conservation, waste reduction, and emissions management. As part of the venture, General Atlantic partnered with SystemIQ, an independent think tank, to develop a novel data-driven approach to

measuring and implementing emission reduction. BeyondNetZero previously sponsored o9 Solutions, an AI-driven software platform that helps large-scale organizations such as IBM (NYSE: IBM) and Amazon Web Services reduce their carbon footprints, and 80 Acres Farms, a vertical farm operator that produces pesticide- and residue-free fruits and vegetables.

AIC member initiatives

KKR

In the summer of 2021, AIC member KKR introduced an exclusive partnership with Crossover Energy Partners. Crossover's mission is to design cost-effective solutions around renewable energy and decarbonization for large energy companies. Its clients include utilities and investor-owned utilities, municipalities, and large industrial firms. KKR has invested about \$5 billion in renewables over the past decade, and will leverage Crossover's expertise to develop, build, finance, and operate clean energy projects such as utility-scale solar, wind projects, and standalone storage units.



ENCAP INVESTMENTS L.P.

In May 2021, AIC member EnCap Investments closed its first energy transition fund. The \$1.2 billion fund will sponsor companies that can aid the country's transition to lower-carbon solutions, with an emphasis on renewable sources such as wind and solar, as well as energy storage providers. The fund has already invested in Arbor Renewable Gas, which converts woody biomass into renewable gasoline and green hydrogen, as well as Broad Reach Power, a utility-scale power producer focused on greenfield and brownfield power plants throughout the US.

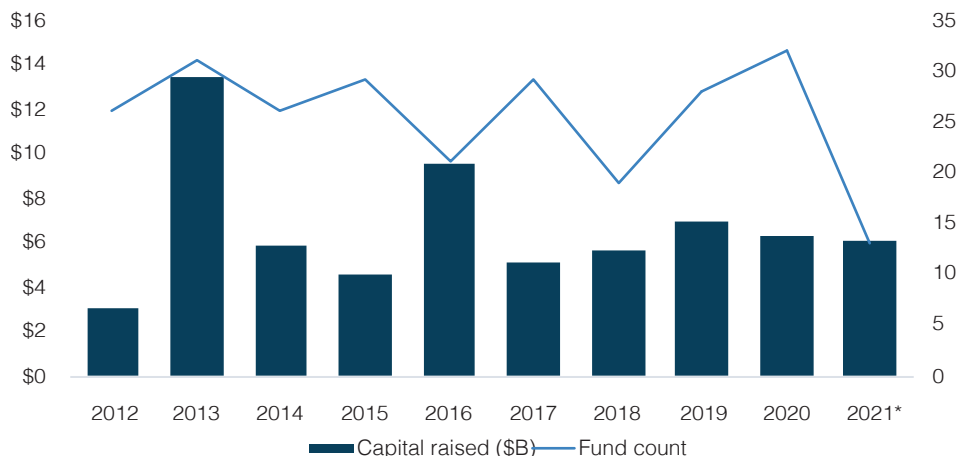
Brookfield

AIC member Brookfield Asset Management announced its first global transition fund in July 2021. Once online, the fund will focus on large decarbonization-driven investments, including reductions in greenhouse gas emissions and energy consumption, alongside increases in low-carbon energy capacity. Brookfield has a long history in renewable power. In 2016, Brookfield acquired two hydro stations in Pennsylvania that generate enough power to support 100,000 homes each year. In nearby Massachusetts, Brookfield sponsors the 600-megawatt Jack Cockwell Station, a hydroelectric storage generating station, which stabilizes New England's electrical grid.

Under the radar

While many PE firms are household names, dozens of smaller investors make an impact and often go unnoticed. The “Impact PE fund activity” chart shows how many impact investors are out there. Over the past decade, US-based impact investors have raised more than 250 funds and a combined \$66 billion of available capital. While the biggest investors can tackle problems at a large scale, smaller, more niche investors can focus on helping lower-middle-market companies achieve the same outcomes.

Impact PE fund activity



Source: PitchBook | Geography: US
*As of December 31, 2021



\$200 million AUM

Based in San Francisco, The Builders Fund is a growth-stage PE firm that addresses sustainable food, climate solutions, and resource efficiency, among other focuses. Its portfolio includes PosiGen Solar, a New Orleans-based solar energy producer for low- to moderate-income families.



\$850 million AUM

Element Partners, headquartered in Wayne, Pennsylvania, provides growth equity exclusively in sustainability technology. Element’s portfolio includes energy, water, food, and agriculture companies, with Element stepping in as a financial provider and industry matchmaker for its executives.



\$68 million AUM

Based in Chicago, The Impact Engine is a venture capital, private equity, and fund-of-funds investor dedicated to the impact economy. The Impact Engine has the ability to directly invest in companies while also financing other private equity firms with different approaches to sustainable investing.



\$2.9 billion AUM

AIC member Paine Schwartz Partners focuses exclusively on the agribusiness market, including sustainable food chain management, agtech, and animal science, among other areas. Based in California, Paine Schwartz has made 70 investments over the past 20 years.



\$50 million AUM

Based in Chicago, The Rural American Fund invests in smaller agriculture companies throughout the country, including a sunflower genetics manufacturer in Minnesota, a field seed producer in Wisconsin, and a crop management company in North Carolina.



\$150 million AUM

California-based SER Capital was launched in 2018 to focus on sustainability. Its wide range of investments include electric vehicle charging systems, waste-to-energy conversion, wastewater treatment, and improvements in the clean energy supply chain.

Behind the scenes

Private equity's efforts are usually geared toward their portfolio companies. But they are capable of making much quieter investments in things such as buildings and factories, implementing cleaner technology that can pay dividends for the planet.

AIC member Blackstone did just that to the iconic Willis Tower in downtown Chicago. More than 100 stories high and a headquarter to dozens of companies, the building uses a great deal of energy every day. Improving a building's efficiency by 10% or 20% can translate to huge numbers in the real world. Enter EQ Office, a Blackstone portfolio company. As part of a \$500 million renovation, EQ Office identified fundamental changes that could be made to the building's HVAC system, water usage, and lighting controls. For its part, Blackstone invested heavily in the effort and worked closely with EQ Office throughout the upgrade. The changes made to the water system alone will reduce the building's water usage by 11 million gallons every year and over 100 million gallons over one decade. All told, the changes are expected to reduce the building's energy consumption by up to 20% and cut approximately 30% of the building's water consumption. Thanks to Blackstone and EQ Office, Willis Tower became the biggest building to ever receive LEED Platinum Certification, the highest status possible.



HVAC upgrades

EQ Office installed state-of-the-art HVAC technologies throughout the building, including improved dampers that will efficiently control air flow through the tower's exhaust vents and chillers.



Reduced water heating energy consumption

EQ Office replaced electric hot water generators with natural gas water boilers, which will significantly lower the building's energy consumption when heating water.



Lighting control system upgrades

EQ Office installed a new lighting system throughout the building, improving its energy efficiency alongside an easier and improved controlling system.



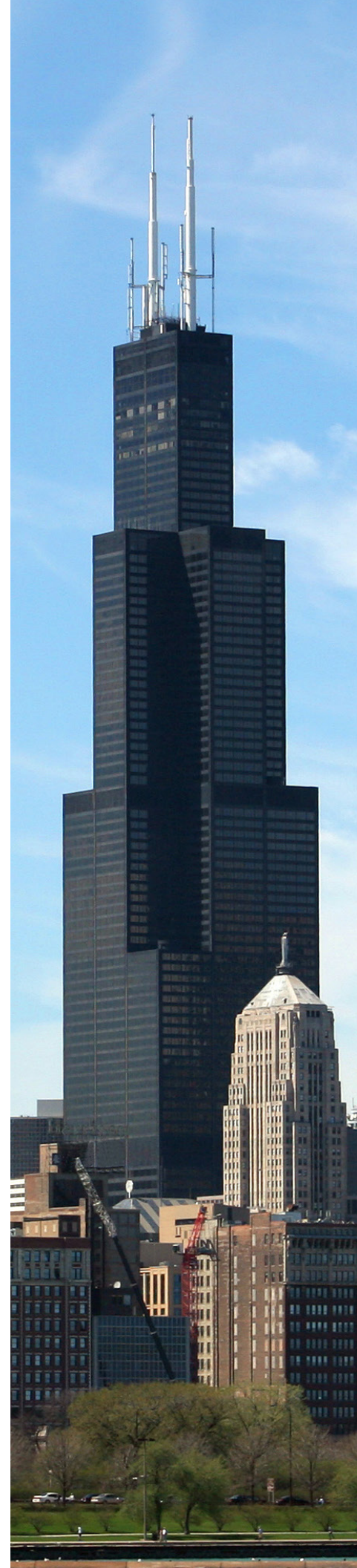
Restroom upgrades

All faucets, toilets and urinals were upgraded with an extensive low-flow plumbing system, which substantially reduces water flow per flush.



100% renewable electricity partnership

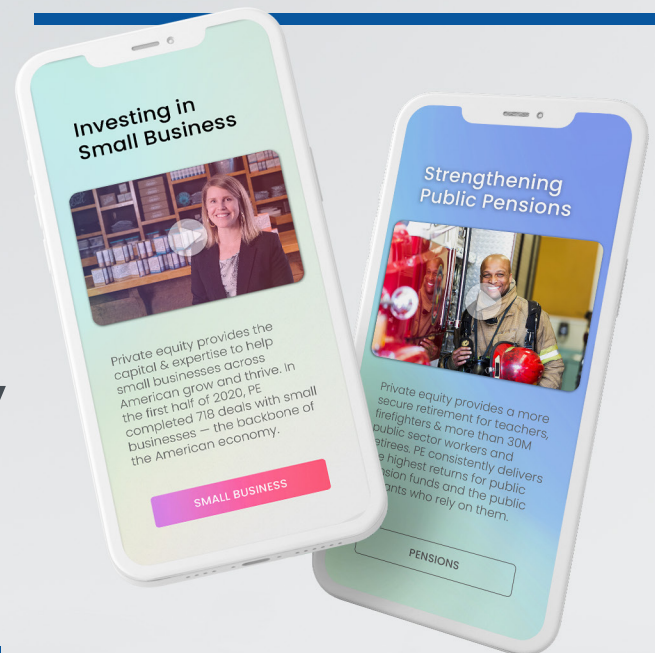
As part of the renovation, Willis Tower signed a multi-year partnership with Dynergy, a Texas-based power company, which will provide the building with 100% renewable electricity generated by wind parks.



PRIVATE EQUITY INVESTING IN AMERICA

From urban to rural and everywhere in between, private equity is making a positive impact across America and investing in every community to:

- Back small businesses
- Support good-paying jobs
- Boost the American economy
- Strengthen public pensions



The American Investment Council (AIC) is an advocacy and resource organization established to develop and provide information about the private investment industry and its contributions to the long-term growth of the U.S. economy and retirement security of American workers. Member firms of the AIC consist of the country's leading private equity and growth capital firms united by their successful partnerships with limited partners and American businesses.

Let your voice be heard. Join the AIC today.

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