



FSLR BACK AT ~\$200, WHAT'S NEXT?

Our Investment Thesis

The US solar market has been making headlines with its record-breaking growth, driven by the Inflation Reduction Act and a surge in clean energy policies. According to the latest report from the Solar Energy Industries Association (SEIA) and Wood Mackenzie, the US installed 15.6 GW of solar capacity in the first half of 2024, a 55% increase from the previous year's record. This growth is expected to continue, with analysts predicting about 42 GW of US photovoltaic (PV) installations for 2024, up by a quarter from 2023. One of the most significant developments in 2Q24 was the growth of domestic solar module production capacity. As of the end of the second quarter, the US solar module manufacturing capacity exceeded 31 GW, a four-fold increase since the IRA was enacted. This surge in production capacity is expected to meet almost all demand for the next few years, according to Abigail Ross Hopper, President and CEO of SEIA.

We believe that the energy transition will continue unabated, regardless of whether Vice President Harris or former President Trump wins the election. While Trump's promise to repeal the IRA has raised concerns among industry stakeholders, it seems highly unlikely that he would attempt a complete repeal. Instead, he might opt for a partial repeal, targeting specific provisions that could slow down investment in the sector. One area that appears safe from Trump's potential axe is the reshoring of manufacturing for clean energy technologies, including solar panels and wind turbines. This initiative aligns with his economic policy and anti-China stance, making it an unlikely target for repeal. We look at companies like **First Solar, Inc. [NASDAQ: FSLR]**, which have benefited significantly from domestic manufacturing incentives, and are likely to continue thriving irrespective of the election's outcome.

Our Investment Pick

First Solar, Inc. [NASDAQ: FSLR]



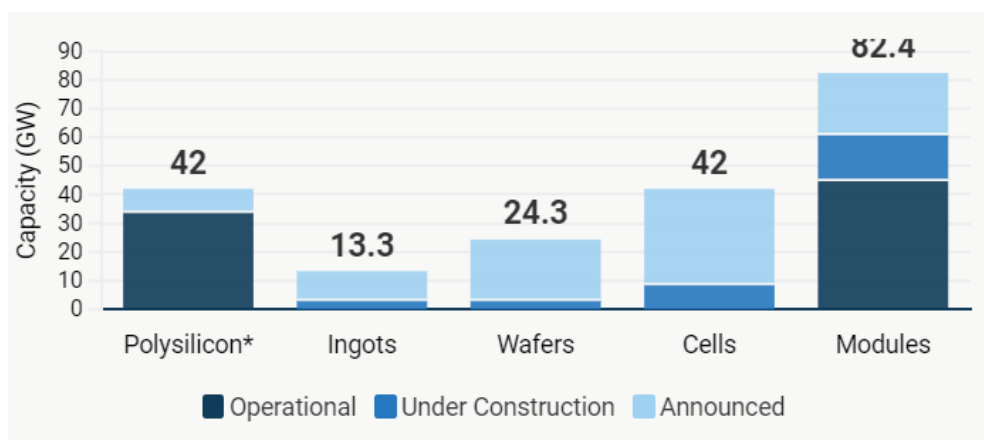
First Solar's growth is driven by strong financial performance, U.S. renewable energy policies, and benefits from the Section 45X tax credit under the Inflation Reduction Act. Trading at a PE ratio of 18.37x, below the industry's average, FSLR presents an attractive investment opportunity. After crossing the \$300 mark in June 2024, the stock is back to ~\$200 – a level close to where it was trading about a year and a half ago.

The Burgeoning US Solar Industry

The US solar industry has reached a milestone, installing a record-breaking 9.4 gigawatts direct current (GWdc) of capacity in Q2 2024, surpassing previous quarters and demonstrating a 29% year-over-year growth. The utility-scale segment is expected to continue driving growth in the industry, with predicted consistent installations of at least 40 GWdc per year from 2025 onward. This remarkable growth has sparked a manufacturing boom in the US, where solar module capacity has quadrupled since 2022, reaching an impressive 31 GW. **In just two years under the IRA, the US solar industry has added an astonishing 75 GW of new capacity, accounting for over one-third of all solar capacity built in the country's history.** This unprecedented growth has translated into tangible economic impacts, with nearly 1.5 million American homes opting for solar power since the IRA's passage. Hopper lauds this progress: "We are now manufacturing historic amounts of solar energy in America, and soon, we will have enough domestic module production to supply nearly all US demand for years to come." Moreover, the solar boom is not confined to a few states; it's a nationwide phenomenon. Texas, the nation's leading solar state, installed 5.5 GW of capacity in the first half of 2024 alone. Notably, several states with closely watched elections this November—including Texas, Florida, Nevada, Ohio, and Arizona—are among the top 10 solar states, indicating that solar power is a bipartisan priority.

While the industry's growth trajectory is impressive, it's not without challenges. Michelle Davis of Wood Mackenzie warns about interconnection backlogs, electrical equipment shortages, labor constraints, and tariff uncertainties that could hinder future solar growth. Despite these headwinds, **annual installations are expected to grow at an average rate of 4% over the next several years, with total US solar capacity doubling to 440 GW by 2029**. The introduction of potential new antidumping and countervailing duties (AD/CVD) on imports of crystalline silicon cells and modules from four Southeast Asian countries may have some impact on solar deployment, but we expect it to be modest. With sufficient cell and module production capacity available from multiple sources not subject to the proposed tariffs, the industry is well-positioned to adapt. Despite the uncertain near-term prospects for renewable energy, fueled by high interest rates and the forthcoming US presidential election, the industry's trajectory remains firmly on track.

Chart 1: Total U.S. Module Supply Chain and Capacity (by Component and Status)



Source: Intro-act, SEIA Solar and Storage Supply Chain Dashboard, October 2024
*Polysilicon values have been converted to GW using NREL's assumption of 2.0 g/W

The Solar+ Decade: Unlocking America's Clean Energy Potential

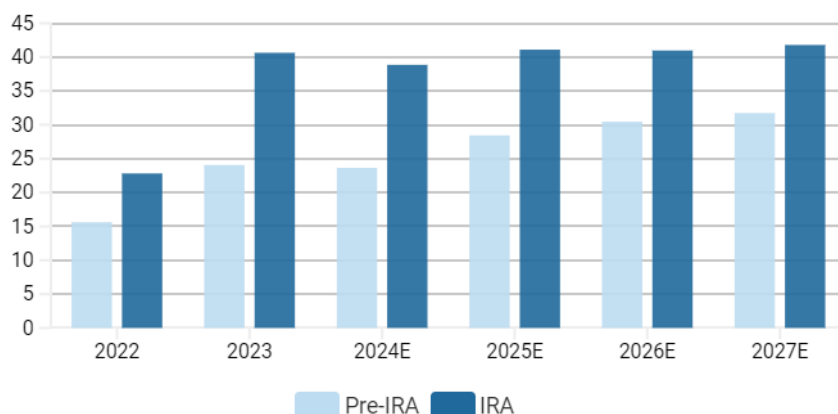
Solar's share of new electric capacity has grown rapidly, with **55% of all new generating capacity added to the grid in 2023 coming from solar**. This marks a historic milestone, as it is the first time in 80 years that a renewable energy resource has captured a majority of new capacity added. We expect this trend to continue, with solar representing around 65% of new capacity in 2024 and beyond. While residential hardware costs have fluctuated over the past decade, soft costs (SG&A, permitting, inspection, interconnection, and labor) have remained stubbornly high, pushing their share to record levels. Addressing these soft costs will be important for maintaining solar's competitive edge against other technologies. US solar soft costs are significantly higher than those in other developed markets, indicating ample room for improvement.

The remarkable growth in the US solar industry, averaging an annual rate of 25% over the past decade, is underpinned by robust federal policies such as the Solar Investment Tax Credit (ITC), declining installation costs, and surging demand for clean electricity. Moreover, solar has evolved into an economic engine, employing nearly 280,000 Americans across more than 10,000 companies nationwide. In 2023 alone, the industry attracted over \$60 billion in private investment, a testament to its growth potential and attractiveness as a long-term bet. However, we must acknowledge that the past three years have been volatile, with inflation and supply chain challenges driving price increases. As module availability improves and domestic manufacturing capacity expands, prices are expected to stabilize and potentially decline further.

Despite supply chain challenges slowing growth in 2022, module supply improvements have driven installations in recent quarters. Over 21 GW have been installed so far in 2024, the strongest first half of a year on record. The installations

are predicted to remain relatively steady around 40-45 GW annually over the next five years, barring any significant headwinds. The IRA has significantly bolstered the solar outlook, with expected deployment boosted by 46% compared to pre-IRA projections. The IRA's long-term tax incentives and manufacturing provisions will provide market certainty, driving growth over the next five years.

Chart 2: Annual U.S Solar Installations (GW) - U.S. Solar Market Forecasts Before and After the IRA



Source: Intro-act, SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight Q3 2024

To secure the supply chain and mitigate future challenges, new US module manufacturing capacity has surged, with over 15 GW coming online in 2024 alone. Higher domestic manufacturing will help ease supply constraints and ensure reliable access to solar technology for future growth. Additionally, massive investments in battery storage manufacturing have been announced, further solidifying the US's position as a global leader in clean energy technologies. As investors, we remain bullish on the solar sector and encourage further exploration of its attractive long-term prospects, especially the increasing reliance on domestic PV module manufacturing.

The Emerging Domestic Solar Supply Chain: The Cost Conundrum

As the US solar industry expands, so too does its domestic supply chain. However, while there are plenty of module assembly plants, component manufacturing remains limited. Currently, only three companies produce polysilicon domestically: Hemlock in Michigan, Wacker in Tennessee, and REC Silicon in Washington. Nevertheless, several promising facilities are on the horizon:

- **Canadian Solar Inc. [NASDAQ: CSIQ]** has opened a module plant in Texas and is building a 5 GW solar cell facility in Indiana.
- **Heliene Inc. [Private] and Premier Energies** plan to produce n-Type cells at a Minnesota plant, with Heliene also partnering with NorSun [Private] for a 5 GW wafer factory in Oklahoma.
- **Qcells [Private]** is constructing its first fully integrated silicon-based solar manufacturing facility in Georgia, set to produce up to 3.3 GW annually.
- **First Solar, Inc.** inaugurated its new \$1.1 billion fully vertically integrated thin-film solar manufacturing facility in Lawrence County, Alabama.

Despite these advancements, US-made solar panels still cost nearly three times as much as those produced in China, according to Bloomberg NEF research. Without a robust manufacturing backbone, the US relies on tariffs and incentives

to compete with Asian imports. Addressing this cost disparity is crucial for maintaining the momentum of the US solar boom. **As the US navigates challenges and continues investing in domestic supply chain development, we remain optimistic about the long-term prospects of American solar manufacturing.** With strategic planning and policy support, the US can solidify its position as a global leader in both solar power generation and module manufacturing.

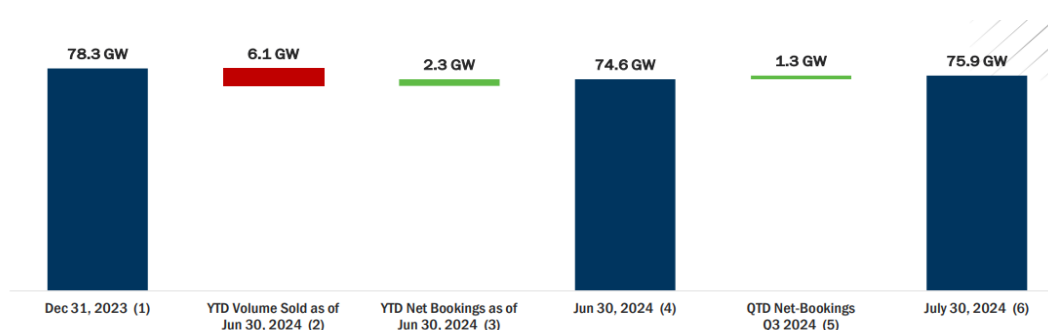
As a company heavily reliant on domestic manufacturing incentives, First Solar is well-positioned to navigate this uncertain landscape. Its focus on reshoring manufacturing and tariffs on imports has created a significant moat relative to its competitors, making it an attractive investment opportunity even in the face of potential policy changes. **As the US solar market continues to evolve, one thing is clear: the industry's resilience will be tested, but its long-term prospects remain bright.**

Company Spotlight: First Solar, Inc. [NASDAQ: FSLR]

First Solar [Founded: 1999, HQ: Tempe, AZ], with an anticipated global annual nameplate manufacturing capacity of over 21 gigawatts (GW) by 2026, is the only US-headquartered company among the **world's 10 largest solar PV module producers**. First Solar's competitive edge lies in its proprietary Cadmium Telluride (CadTel) thin film technology, which the company developed over decades of rigorous R&D and investment. Each module features a layer of CadTel derived from mining byproducts, offering superior scalability, higher theoretical efficiency limits, and lower cost compared to conventional crystalline silicon (c-Si).

First Solar boasts of an expansive manufacturing footprint across the Western Hemisphere. With three operational factories in Ohio and a fourth expected to commence production in Alabama by 2025, the company is investing heavily in American manufacturing and jobs. This strategic approach allows First Solar to control its supply chain more effectively, reducing risks associated with geopolitical uncertainties and ensuring consistent high-quality products. **Its thin-film PV modules offer the smallest environmental footprint in the industry, requiring only 1-2% of the semiconductor material needed by traditional c-Si modules.** Moreover, First Solar's manufacturing process consumes significantly less energy and water, resulting in up to 2.5x lower carbon footprint and up to 3x lower water footprint than c-Si solar panels on a life cycle basis.

Chart 3: Expected Module Volume Sold (GWdc)



Source: Intro-act, FSLR Q2-24-Earnings-Presentation

With an initial investment of \$9.3 million and a 74,000-square-foot facility employing 50 people, the company has evolved into a solar manufacturing powerhouse, poised to invest a cumulative \$4 billion by 2025. This expansion will result in over 6.5 million square feet of manufacturing space across four states, creating more than 3,000 direct jobs. First Solar's commitment to US innovation and production is evident in its R&D center in California and three factories in Ohio, which collectively form the largest solar manufacturing footprint in the Western Hemisphere. By 2025, these facilities aim to produce over 10 GWdc of advanced thin film PV solar panels annually, a testament to the company's responsible production practices. The latest addition to First Solar's Ohio portfolio is its Lake Township facility,

which will eventually have an annual capacity of 3.5 GWDC by 2025, leveraging Industry 4.0 architecture, automation, precision, and continuous improvement through machine-to-machine communication, artificial intelligence, and IoT connectivity. We observe that First Solar's strategic investments in Ohio are not only expanding its manufacturing capabilities but also fostering a skilled workforce and driving regional economic growth.

First Solar's investment in American manufacturing is evident in its sourcing practices for Series 6 and 7 products, with over 90% of the bill of materials procured from US suppliers by 2025. This commitment has spurred significant investments in glass production in Ohio and tellurium processing in Utah, creating a robust domestic supply chain ecosystem. For instance, the glass produced in Ohio uses sand mined in Michigan and soda ash from Wyoming, thus supporting local economies. Its manufacturing process involves approximately 79 components sourced from around 29 suppliers. However, what sets it apart is its recycling capabilities. With a recovery rate of over 90% for semiconductor material and glass, First Solar demonstrates a commendable commitment to sustainability and waste reduction in its operations. **We think this circular economy approach positions First Solar favorably amidst increasing environmental concerns.**

In 2Q 2024, First Solar posted \$1.0 billion of net sales, an increase of \$0.2 billion from the previous quarter, driven by a 35% surge in module volume sold and a 15% uptick in average selling price per watt. This robust performance translated into a commendable net income per diluted share of \$3.25, up from \$2.20 in Q1 2024. The company's strategic expansion is reflected in its cash position, which decreased to \$1.2 billion due to capex on new US factories and working capital loan repayments in India. However, this was partially offset by a healthy increase in operating cash flows from its modules business.

The company's growth is driven by strong financial performance and favorable U.S. policies promoting domestic renewable energy production. As a vertically integrated manufacturer, First Solar benefits from the Section 45X tax credit under the Inflation Reduction Act. The company has also expanded its U.S. manufacturing footprint, completed its Ohio facility expansion, and is advancing plans in Alabama and Louisiana. During 2024, FSLR gained around 20%, crossing \$300 in June 2024, and is currently trading around a price of \$200. **FSLR is trading at a PE ratio of 18.4x, which is lower than the average industry PE ratio of 20.6x, presenting an attractive investment opportunity.**

Chart 4: FSLR vs S&P 500 (1-Year Comparison)



Source: Intro-act, Trading View, Data as on October 16, 2024

CLEANTECH NEWS

INDUSTRY TRENDS

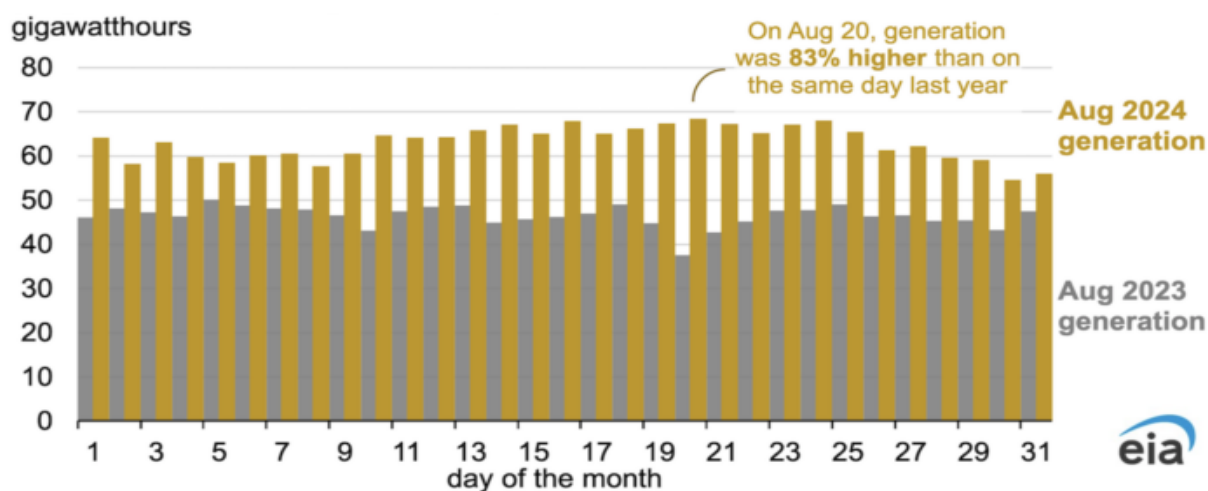
Bacteria-based technologies to deliver ‘revolutionary’ sustainable solutions. Genetically modified bacteria are set to revolutionize various sectors by enabling sustainable solutions like precision therapies, biofuels, and biodegradable materials. Bacteria engineered for specific functions are becoming increasingly important in healthcare, agriculture, energy, and environmental management due to demand for low-cost, low-impact solutions. Advances in synthetic biology and genetic engineering position bacteria as catalysts in the sustainability revolution, cutting emissions and driving cost savings. [Read more.](#) (Energy Monitor)

Tripling renewables and doubling efficiency will cut emissions by ten billion tonnes, IEA says . The International Energy Agency (IEA) has released a report highlighting that achieving climate targets from COP28 will cut greenhouse gas emissions by 10 billion tonnes. The report, "From Taking Stock to Taking Action", details the benefits and feasibility of tripling renewable energy capacity and doubling energy efficiency by 2030, as agreed upon by nearly 200 countries at COP28. Meeting these targets would reduce global emissions by 10 billion tonnes by 2030, making it a transformative step towards a more secure, affordable, and sustainable future for the global energy sector. [Read more.](#) (Energy Monitor)

EIA Now Publishes Additional U.S. Biofuel & Distillate Forecasts. The US Energy Information Administration (EIA) has updated its Short-Term Energy Outlook to include forecasts for biofuels, specifically biodiesel and renewable diesel. These fuels are increasingly being consumed as part of distillate fuel oil in the US, making up 4% of total consumption from 2016-2020 and 7% in 2023. The EIA now publishes a new series, total distillate fuel oil consumption, which includes biofuels to better capture market demand. This change reflects growing state-level policies promoting low-carbon fuels, particularly in California. [Read more.](#) (CleanTechnica)

Utility-scale U.S. Solar electricity generation skyrocketing in 2024. Utility-scale solar electricity generation in the US skyrocketed in August 2024, averaging 63.1 gigawatthours per day, a 36% increase from the same period in 2023. The total operating capacity reached 107.4 GW, up from 81.9 GW in August 2023. New solar capacity additions are expected to outpace other resources through year-end, making up 63% of all new generating capacity. California, Texas, and Florida led the country with a combined 49.5 GW of utility-scale solar fleet, accounting for nearly half of the US total. [Read more.](#) (CleanTechnica)

Chart 5: Daily U.S. Lower 48 States Solar Electricity Generation, 10.00 a.m. to 6.00 p.m. Local Time



Source: Intro-act, Clean Technica, U.S. Energy Information Administration, Hourly Electric Grid Monitor

Cryptocurrency & data centers create soaring electricity demand in Texas. Texas's electricity consumption is growing fastest, with 90% managed by ERCOT. Large-scale computing facilities like data centers and cryptocurrency mining operations are major sources of demand, consuming large amounts of electricity to run equipment and keep cool. ERCOT expects LFL customers' demand to total 54 billion kWh in 2025, up 60% from 2024. The LFL program aims to manage this growth by requiring approval of projects and encouraging curtailment during high-demand periods. Two scenarios model different levels of future large-load electricity demand, with the low-growth scenario forecasting a 32% decrease and the high-growth scenario a 50% increase in LFL consumption. [Read more.](#) (CleanTechnica)

EnergySage releases its 19th Solar & Storage Marketplace report. EnergySage released its 19th Solar & Storage Marketplace Report, analyzing data from January to June 2024. The report shows near-record-low solar prices, with \$2.69 per watt, and record-low storage prices at \$1,133 per kilowatt-hour stored. Storage attachment rates nationwide rose to 34%, driven by policies and consumer demand for energy resilience. Installers quoted higher-interest rate loan products, but with lower fees, while the median interest rate increased from 5.5% to 7.49%. The report suggests a turning point in the industry, with potential for lower prices, better equipment, and financing options. [Read more.](#) (CleanTechnica)

The crowded field of space solar suddenly got more crowded-er. Aetherflux, a startup founded by Baiju Bhatt, has entered the crowded field of space solar power with its mission to commercialize this renewable energy source. Space solar power involves beaming solar energy from outer space to Earth, offering advantages such as increased energy capture and reduced land use issues. The US Department of Energy and various government agencies have supported research in this area, citing benefits for remote locations and national defense. Aetherflux plans to deploy a constellation of small satellites in Low Earth Orbit to transmit power to multiple ground stations using infrared lasers, differing from conventional space solar concepts. [Read more.](#) (CleanTechnica)

International clean energy initiative launches global biomass resource assessment. The International Clean Energy Initiative has launched a Global Biomass Resource Assessment, providing data on sustainable biomass supplies worldwide. The assessment, conducted by Oak Ridge National Laboratory, aims to support a circular and climate-smart bioeconomy through clean fuels, chemicals, and materials. It includes resources from developing economies and estimates 2,740 million metric tons of current sustainable biomass supplies, with potential for up to 2,120 million metric tons by 2030. The data is hosted on the Bioenergy Knowledge Discovery Framework portal, facilitating collaboration and innovation in bioenergy research. [Read more.](#) (CleanTechnica)

How floating solar is carving out space in the renewable energy landscape. Floating solar arrays are gaining traction in renewable energy, particularly on non-liquid surfaces. The US Department of Defense installed a 1.1-megawatt array on a lake to provide clean electricity for a training ground, and the US Department of Energy estimates that solar panels on human-made reservoirs could account for about 10% of the country's electricity generating capacity. A study by the National Renewable Energy Laboratory found that covering only 27% of each reservoir with solar panels would reach this mark. Utah has its first floating solar array at a water treatment plant, which reduces evaporation and algae growth while providing on-site clean power and security. [Read more.](#) (CleanTechnica)

World-first geothermal energy system heading for US air force. The US Air Force is set to pilot-test a world-first geothermal energy system developed by Sage Geosystems, which harnesses geothermal energy in the form of pressure as well as heat. The system, called Geopressured Geothermal Systems, is a hybrid enhanced geothermal system that can also be used for short- and long-duration energy storage. This technology aims to overcome the limitations of traditional geothermal energy by creating human-made geothermal reservoirs through hydrofracturing, potentially unlocking 500,000 megawatts of recoverable resources in the Western US. [Read more.](#) (CleanTechnica)

How can communities help deploy clean energy & build up local economies? The global urgency to decarbonize has led to rapid growth in low-carbon infrastructure, but power system planners must use appropriate models to address associated challenges. Communities can help deploy clean energy and build local economies by investing in distributed energy sources (DERs), such as rooftop solar panels, energy storage systems, and microgrids. Pew Charitable Trusts is launching an initiative to accelerate DER growth across the US, citing benefits including community empowerment,

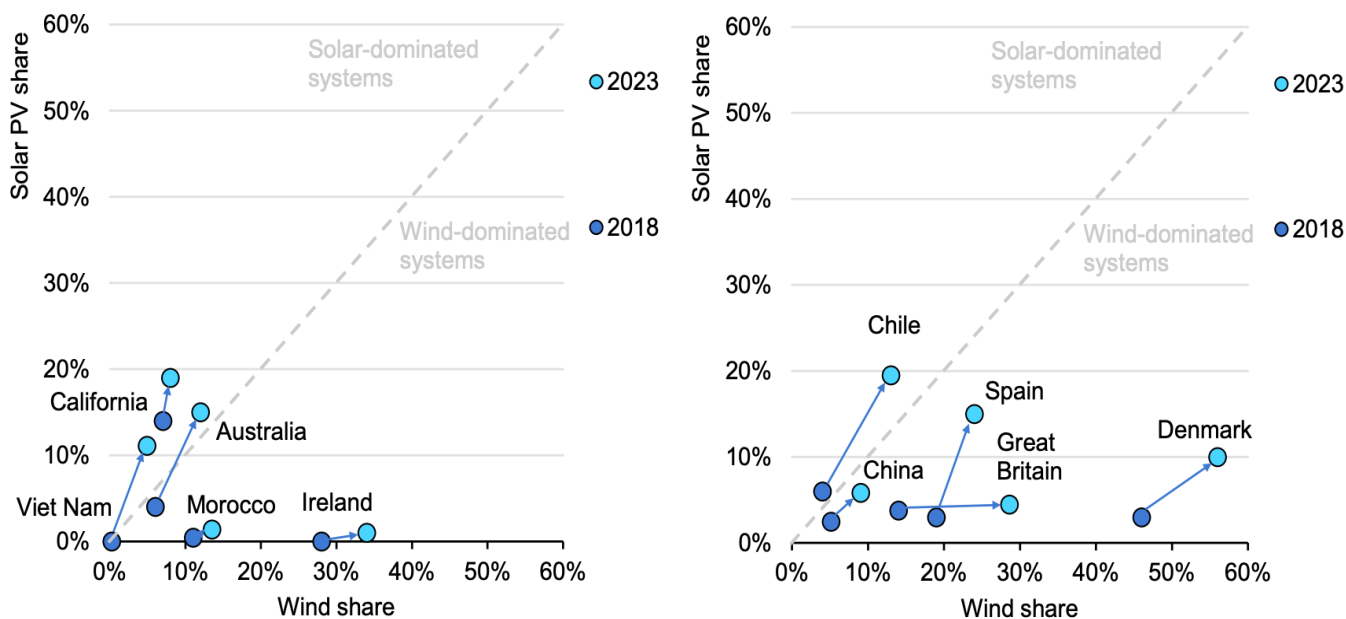
grid resilience, and cost-effective carbon reduction. The initiative aims to provide policymakers with tools to scale DER use and ensure equitable access to clean energy benefits. [Read more.](#) (CleanTechnica)

U.S. Department of the Treasury releases guidance to expand clean vehicle recharging and refueling infrastructure and lower transportation costs for americans. The U.S. Department of the Treasury and Internal Revenue Service issued guidance on the Alternative Fuel Vehicle Refueling Property Credit, expanded by the Biden-Harris Administration's Inflation Reduction Act. The credit provides up to 30% tax relief for installing qualified alternative fuel vehicle refueling property, such as chargers and hydrogen refueling equipment. Eligible entities can claim credits of \$1,000 individually or \$100,000 per item for businesses, with enhanced credits for prevailing wage workers and apprentices. This guidance aims to lower transportation costs and increase energy security by making clean vehicles more affordable for Americans. [Read more.](#) (CleanTechnica)

This chart shows how california is massively extending solar use into the evening. California's solar energy dominance led to concerns about the "duck curve," but battery storage has helped mitigate this issue. The state has installed significant battery capacity, with a record 7 GW discharge on April 30, 2024, meeting 33% of net load peak. This has enabled California to integrate more solar power into its grid, with solar PV reaching 20% of electricity supply and potentially doubling to 40%. Battery storage and smart charging technologies are also being used to balance services and reduce reliance on natural gas. [Read more.](#) (CleanTechnica)

Interesting chart: How much solar or wind dominate renewable energy in different countries. The International Energy Agency's (IEA) report shows how different countries have shifted towards renewable energy sources like solar and wind power. In 2023, some markets like California, Vietnam, Australia, and Chile became more solar-dominated, while others like Great Britain, Denmark, and Ireland became more wind-dominated due to growing offshore wind markets. China's renewable energy mix remained almost evenly split between solar and wind generation. The report highlights various countries' progress in transitioning to a renewable energy grid, with many achieving significant growth in electricity market share of solar and wind power. [Read more.](#) (CleanTechnica)

Chart 6: Annual Solar and Wind Generation Shares, Selected Countries and Systems, 2018 - 2023



Source: Intro-act, Clean Technica, IEA (2024), World Energy Statistics; operational data collected using the IEA's Real-Time Electricity Tracker.

Clean Energy jobs are changing lives. these programs are providing liftoff. The Energy Coordinating Agency (ECA) in Philadelphia provides workforce development programs training 250 workers annually in the clean energy economy. The Inflation Reduction Act (IRA) has boosted funding, enabling the ECA to train more workers and keep programs free. The IRA has created over 330,000 jobs nationally, with a 8-19% income increase potential. A new initiative aims to support one million workers completing Registered Apprenticeship programs by 2035, focusing on clean energy, buildings, and resilient communities. This effort can maximize benefits for all stakeholders, including workers, policymakers, project developers, and the environment. [Read more.](#) (*CleanTechnica*)

Texas adds another 1.2 GW of solar and storage. Texas has added 1.2 GW of solar and storage capacity with the completion of Danish Fields and Cottonwood, two utility-scale solar farms with integrated battery storage in the southeast part of the state. TotalEnergies announced commercial operations at the facilities, increasing its Texas portfolio to nearly 4 GW. The projects feature a combined 225 MWh of battery storage supplied by Saft, with electricity production contracted under long-term PPAs indexed to merchant prices. This brings Texas' utility-scale solar generation capacity to over 22 GW and storage capacity to around 8 GW. [Read more.](#) (*Renewable Energy World*)

Chart 7: TotalEnergies' Largest U.S. Solar Farm, Danish Fields.



Source: Intro-act, Renewable Energy World, TotalEnergies

Grid capacity, data centers among topics at New Jersey hearing on electricity prices. Experts testified before New Jersey lawmakers that the state should avoid costly utility mandates, invest in technology like carbon capture, and not shut down power plants without replacement sources. The hearing addressed complaints about soaring electricity bills after a scorching summer. Grid operator PJM Interconnection's executive director urged avoiding policies that push resources off the system before replacements are operating. Growing electrification, electric vehicles, and data centers will increase energy demand, with one proposed data center alone consuming nearly a quarter of three nuclear power plants' output. [Read more.](#) (*Renewable Energy World*)

NYPA seeks 3.5 GW of new solar, wind, battery storage in latest strategic plan. NYPA released a draft strategic plan to expand renewable energy resources in New York State, including 40 projects totaling 3.5 GW of solar, wind, and battery storage capacity. The public is invited to comment on the plan during a 60-day period, with five in-person hearings and one virtual hearing scheduled. NYPA will consider feedback from stakeholders before finalizing the plan, which will be presented to the Board of Trustees for approval by January 31, 2025. The plan aims to advance Governor Hochul's vision for renewable energy development in the state. [Read more.](#) (*Renewable Energy World*)

US power use forecast to reach record highs in 2024 and 2025, EIA says. The US Energy Information Administration (EIA) forecasts record-high power consumption in 2024 and 2025, with demand expected to reach 4,093 billion kWh in 2024 and 4,163 billion kWh in 2025. Residential consumers will see a rise to 1,503 billion kWh, commercial customers to 1,412 billion kWh, and industrial customers to 1,033 billion kWh. Natural gas' share of power generation will hold at 42% in 2024 before decreasing to 39% in 2025, while renewable output rises to 23% in 2024 and 25% in 2025. [Read more.](#) (Reuters)

Shell, Equinor, TotalEnergies open Norwegian CO2 storage facility. Shell, Equinor, and TotalEnergies have completed their carbon dioxide (CO2) storage project in Norway's west coast, with the first deliveries expected next year. The Northern Lights site can store 37.5 million metric tons of CO2 over 25 years, with a second phase targeting an additional 3.5 million tons annually. The facility will receive its first cargo from Heidelberg Materials' Brevik cement plant in southern Norway and also has agreements to transport and store CO2 for Yara and Orsted from 2025 and 2026 respectively. [Read more.](#) (Reuters)

Georgia's new nuclear plants drive US power sector clean-up. Georgia's new nuclear plants have driven a shift in the state's power mix, with electricity from clean energy sources exceeding fossil fuel output for the first time. The Vogtle Electric Generating Plant, the largest nuclear plant in the US, has increased its share of Georgia's electricity generation to 30%, with the final two reactors entering production in 2023 after significant cost overruns and delays. This has led to a 14% drop in carbon intensity within the Southern Company Services power system, making clean energy sources account for 47% of Georgia's overall mix. [Read more.](#) (Reuters)

New tool aims to boost ocean-based renewable energy. Researchers have developed a new modeling tool to help design and develop ocean-based hydrokinetic energy projects, which convert tidal and wave energy into electricity. The tool can inform risk assessments for securing financing and permits, and also aid in designing more robust marine hydrokinetic technologies. It estimates the fragility curve of devices, showing how much force they can withstand before breaking loose from the ocean floor due to extreme weather events. The software is freely available on GitHub and aims to advance successful marine hydrokinetic energy projects and contribute to renewable energy. [Read more.](#) (AI Energy Mag)

SoliTek unveils the most powerful integrated solar roof module. SoliTek has launched its upgraded SOLID Solrif integrated roof module with 22.04% efficiency, making it the most powerful integrated solar roof solution on the market and highest-performing to receive DiBT certification. The modules combine high-performance solar panels with aesthetically pleasing roof coverings, offering a cost-effective alternative for homeowners and businesses. They are manufactured in Europe, achieving Cradle to Cradle GOLD certification, and come in two variants with anti-reflective coating, durable glass-glass construction, and certifications for extreme conditions. [Read more.](#) (AI Energy Mag)

Expanding Opportunities: The Role of Silicone in the Renewable Energy Market. The silicone market is playing a significant role in the renewable energy sector, particularly in solar energy, wind energy, and electric vehicles. Silicone is used as an encapsulant in photovoltaic panels, protecting them from environmental conditions, and also in assembling and maintaining solar panel installations. It's crucial in wind turbine blades for protection against erosion and wear, and in electric vehicle battery systems for thermal management. The market is expected to experience robust growth due to increasing demand for sustainable materials, driven by global commitments to reduce carbon emissions. [Read more.](#) (AI Energy Mag)

REGULATORY UPDATES

Joint Statement between the U.S. & Australia on the 2024 ministerial dialogue on clean energy. US Secretary of Energy Jennifer Granholm and Australian Minister for Climate Change and Energy Chris Bowen held the second US-Australia Ministerial Dialogue on Clean Energy, reaffirming their commitment to a fully or predominantly carbon pollution-free power sector by 2035. They discussed supporting clean solar supply chains, conducting techno-economic market studies, and collaborating on renewable energy investments. The ministers also acknowledged the economic

opportunities of the global clean energy transformation, committed to net zero greenhouse gas emissions by 2050, and reaffirmed their resolve to pursue deep reductions in greenhouse gas emissions. [Read more.](#) (CleanTechnica)

Biden-Harris admin announces California's launch of 1st phase of federal home energy rebate programs to help lower families' utility bills. The Biden-Harris Administration announced California's launch of the first phase of federal Home Energy Rebate Programs to help lower families' utility bills. The programs are part of President Biden's Investing in America agenda and will provide \$8.8 billion in federal funding for states, territories, and Tribes to increase energy efficiency in American homes. The rebates will enable savings on energy-efficient improvements such as heat pumps, electrical panels, and insulation, saving households up to \$1 billion annually and supporting 50,000 US jobs. [Read more.](#) (CleanTechnica)

The American Alliance for solar manufacturing trade committee commends ITA on solar countervailing duty preliminary determinations. The U.S. Department of Commerce's International Trade Administration (ITA) has issued preliminary countervailing duty determinations on crystalline silicon photovoltaic cells imported from Cambodia, Malaysia, Thailand, and Vietnam in response to cases brought by The American Alliance for Solar Manufacturing Trade Committee. The committee alleges unfair trade practices harming the US solar manufacturing industry. Commerce imposed subsidy rates and made affirmative critical circumstances findings on all Vietnam and Thailand producers with above de minimis CVD margins. Preliminary anti-dumping determinations are scheduled for late November, with final determinations expected next spring. [Read more.](#) (CleanTechnica)

US closes \$861 million loan guarantee for solar, energy storage in Puerto Rico. The US Energy Department closed an \$861 million loan guarantee for two solar photovoltaic farms and two battery storage systems in Puerto Rico, financed by Clean Flexible Energy LLC, a subsidiary of AES and TotalEnergies Holdings USA. The project, Marahu, will produce enough electricity to power 43,000 homes annually, enhancing grid reliability and energy security. It supports the Justice40 Initiative, aiming for 40% of benefits to flow to disadvantaged communities, including most of Puerto Rico's 3.2 million US citizens. [Read more.](#) (Reuters)

Norway plans \$3.3 billion floating wind subsidy cap. The Norwegian government has proposed up to \$3.29 billion in subsidies for the country's first commercial floating wind power tender, in line with a preliminary plan outlined in June. The subsidy offer is based on a reference project of around 500 MW and will depend on factors such as cost developments and project maturity. At least 13 consortia have expressed interest in the tender, which focuses on Utsira Nord off southern Norway's coast. Industry respondents criticized government estimates for unrealistic future power prices and cost assumptions. [Read more.](#) (Reuters)

US to unveil first of two decisions on more solar tariffs. US trade officials are set to unveil a preliminary decision on new tariffs for solar panels from four Southeast Asian nations, Malaysia, Vietnam, Thailand, and Cambodia. The Commerce Department will consider cross-border subsidies, such as Chinese government support for manufacturers in these countries. US solar manufacturers have complained about unfair competition from cheap imports, seeking to protect billions of dollars in investments. A companion anti-dumping case is expected in November. Some US companies rely on low-cost solar cells from Southeast Asia and worry tariffs will drive up costs and stifle the solar supply chain. [Read more.](#) (Reuters)

How to claim the residential Solar Tax Credit. Charlottesville-based Virtue Solar has published an article on how to claim the residential solar tax credit, also known as the Investment Tax Credit (ITC). The article provides a comprehensive guide to navigating the federal tax credit, detailing eligibility requirements and step-by-step instructions for completing IRS Form 5695. It also informs readers of important deadlines and potential policy changes that may impact their ability to utilize the credit. Virtue Solar aims to empower homeowners with knowledge, helping them maximize their investment in solar energy and achieve long-term energy savings. [Read more.](#) (AI Energy Mag)

CAPITAL MARKETS

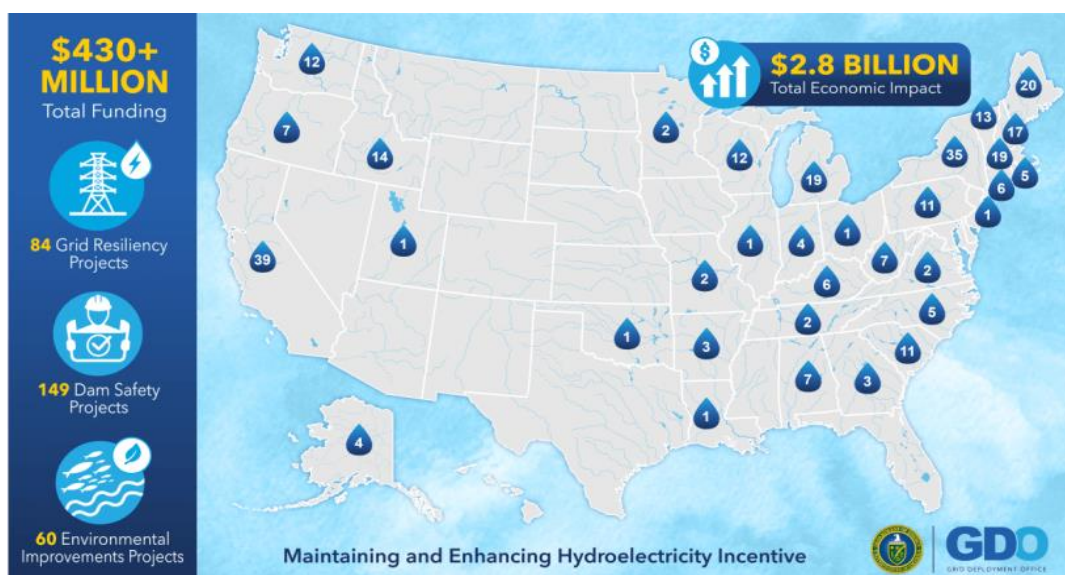
Octopus Energy to invest £2bn in UK renewable energy. Octopus Energy Generation has announced a £2bn investment in UK renewable energy projects by 2030, with a focus on solar capacity. The investment includes four new solar farms developed by BayWa r.e., totaling 222MW. Construction is set to start towards the end of 2024 for three sites and in 2025 for the fourth. The projects are located in Bristol, East Riding of Yorkshire, Essex, and Wiltshire, with one site being a joint venture with Grune Energien Solar. [Read more.](#) (*Energy Monitor*)

\$44 million for Clean Energy Planning & Deployment on Tribal Lands. The U.S. Department of Energy (DOE) announced nearly \$44 million for Tribal communities to deploy clean energy solutions, bringing energy security and resilience while lowering costs. Six American Indian and Alaska Native communities will receive \$18.8 million in funding for solar and wind energy infrastructure, providing 5.6-megawatts of clean energy generation and battery storage for over 100 Tribal buildings. An additional \$25 million is available through a new funding opportunity announcement to plan, assess, and develop clean energy projects, supporting the Biden-Harris Administration's goal of enhancing Tribal energy sovereignty. [Read more.](#) (*CleanTechnica*)

\$17 million to 23 State & Local Governments for Clean Energy. The U.S. Department of Energy announced \$16.9 million in funding for 23 state and local governments through the Energy Efficiency and Conservation Block Grant (EECBG) Program. The funds will support energy efficiency projects, reduce greenhouse gas emissions, and lower overall energy use. The program is part of President Biden's Investing in America agenda and aims to increase access to clean energy and boost energy resilience. Grantees will use the funds for various projects, including solar arrays, battery storage systems, electric vehicle charging stations, and energy efficiency upgrades. [Read more.](#) (*CleanTechnica*)

US Hydroelectric Infrastructure is getting \$430 million in upgrades. The US Department of Energy has announced \$430 million in funding for hydroelectric infrastructure upgrades across 33 states. The program aims to improve grid resilience, safety, and environmental conditions at existing facilities, protecting around 6,000 jobs. Nearly 300 projects have been selected for incentive payments, including upgrades to turbines, control systems, and dam infrastructure, as well as environmental and recreational improvements such as fish passage and water quality enhancements. This funding is part of the Biden-Harris administration's Investing in America agenda and will be administered by the Grid Deployment Office. [Read more.](#) (*CleanTechnica*)

Chart 8: Maintaining and Enhancing Hydroelectricity Incentive



Source: Intro-act, CleanTechnica, US DOE

DOE invests \$1.5B for four transmission projects, releases long-awaited planning study. The U.S. Department of Energy (DOE) has invested \$1.5 billion in four transmission projects to improve grid reliability and resilience, relieve congestion, and create nearly 9,000 jobs. The projects will enable 1,000 miles of new transmission development and 7,100 MW of new capacity across six states. DOE also released its final National Transmission Planning Study, which finds that the US will need to double or triple its 2020 transmission capacity by 2050 to meet demand growth and reliability needs, with potential cost savings of hundreds of billions of dollars through transmission expansion and interregional planning. [Read more.](#) (*Renewable Energy World*)

National 'green bank' recipient of nearly \$7B funds its first project. Climate United has funded its first project with a \$31.8 million loan to Scenic Hill Solar for pre-construction financing of a solar project benefiting the University of Arkansas System. The project, which will be built in 13 utility service territories, is the largest C&I solar deployment in Arkansas history and the fourth-largest university deployment of renewable energy in the US. It's expected to save the UA System over \$120 million on utility bills and generate \$120 million in direct economic development, creating hundreds of jobs. [Read more.](#) (*Renewable Energy World*)

Octopus Energy invests in US solar developer. Octopus Energy's generation division will invest in US solar developer Circal to create 600 megawatts (MW) of new solar farms over five years. This expansion targets Texas, aiming to generate enough green power for 40,000 homes. The investment is part of Octopus' growing presence in the US renewables sector, following its first US market entry three months ago with the acquisition of solar farms in Ohio and Pennsylvania. [Read more.](#) (*Reuters*)

Macquarie to take minority stake in D.E. Shaw's green energy arm for up to \$1.73 bln. Macquarie Group's asset management division is taking a minority stake in D.E. Shaw's green-energy arm, D.E. Shaw Renewable Investments (DESRI), for up to \$1.73 billion. The deal will help Macquarie capture the opportunity of transitioning to net zero and accelerate the growth of the renewable energy market. DESRI has a development pipeline of over 25 gigawatts and operates across 24 states with over 10 gigawatts of generation capacity, making it a significant player in the green-energy sector. [Read more.](#) (*Reuters*)

UAE's Masdar buys Brookfield's Saeta Yield in \$1.4 billion deal. Masdar, a UAE renewable energy company, has agreed to buy green energy firm Saeta Yield from Brookfield for \$1.4 billion. The deal includes 745 MW of mostly wind assets and 1.6 GW of projects under development in Spain and Portugal. This is Masdar's second major green energy deal in Spain, following a minority stake purchase in 48 solar plants controlled by Endesa. The acquisition adds to Masdar's portfolio in Europe, with the closing expected around year-end. [Read more.](#) (*Reuters*)

Brookfield raises \$2.4 billion for climate fund backed by UAE. Brookfield Asset Management has raised \$2.4 billion for the Catalytic Transition Fund (CTF), backed by the UAE, to scale up climate finance in emerging markets. The fund aims to deploy up to \$5 billion towards clean energy and transition assets. Investors include Canada's Caisse de dépôt et placement du Québec, Prudential, Singapore's Temasek and GIC, and ALTERRA, which committed \$1 billion. The initial investments are expected later in 2024, with a traditional first close by early next year. [Read more.](#) (*Reuters*)

Blue Energy Secures \$45M to Make Clean, Reliable Nuclear Power Commercially Viable. Blue Energy, a nuclear power plant company, has emerged from stealth with a \$45 million Series A fundraise to make clean and reliable nuclear power commercially viable. The company's modular nuclear power plant can be centrally manufactured in existing shipyards, reducing costs and build times. This innovation makes nuclear power economically competitive with fossil fuels and renewables. The funding will advance Blue Energy's core engineering work and site development, and secure additional partners. [Read more.](#) (*AI Energy Mag*)

SolaX power announces 1.498 billion USD investment in energy storage and smart energy facility. SolaX Power has announced a \$1.498 billion investment to establish a cutting-edge research and manufacturing facility in Zhejiang Province, focusing on utility energy storage and integrated smart energy systems. The project will reinforce SolaX's commitment to advancing the global transition to cleaner energy. The facility will expand production capacity, enhance grid stability, and deliver industry-leading products, with a focus on innovation, efficiency, and scalability. It will also

integrate solar power, storage, heating, and EV charging, leveraging AI, IoT, and big data for real-time energy optimization. [Read more.](#) (AI Energy Mag)

US ‘multi-day’ energy storage firm Form Energy closes US\$405 million funding round. Form Energy, a US startup behind a battery technology that provides 100-hour duration energy storage, has closed a Series F funding round of \$405 million. The company's proprietary iron-air battery technology uses abundant materials and can be made cheaply, offering the grid a viable multi-day energy storage option. This brings Form Energy's total investment to over \$1 billion, with existing investors including Bill Gates' Breakthrough Energy Ventures and GE Vernova joining in. [Read more.](#) (Energy Storage News)

COMPANY NEWS

LG Chem finds key to suppressing thermal runaway in batteries. LG Chem developed a temperature-responsive material, called Safety Reinforced Layer (SRL), that suppresses thermal runaway in batteries by acting as a "fuse" to block electricity flow at early overheating stages. The thin layer, 1 micrometer thick, is placed between the cathode and current collector in the battery. It increases electrical resistance with temperature rise, effectively preventing fires. In tests, batteries equipped with SRL did not catch fire or extinguished flames shortly after ignition. LG Chem plans to apply this technology to mass production for electric vehicle batteries, enhancing safety and competitiveness. [Read more.](#) (CleanTechnica)

Chart 9: Temperature-Responsive Material to Suppress Thermal Runaway



Source: Intro-act, LG Chem

We Energies files plans for 500 MW of new clean power in Wisconsin. We Energies has filed plans with the Public Service Commission of Wisconsin to build over 500 MW of new clean power, including 500 MW of solar and 180 MW of wind energy. The projects also include 100 MW of battery storage. Five new facilities are proposed, including Badger Hollow Wind, Dawn Harvest Solar, Good Oak Solar, Gristmill Solar, and Saratoga Solar, among others. If approved, the power produced would serve customers across the state, enough to power about 250,000 homes. The projects aim to transition Wisconsin's generation fleet from fossil fuels to clean energy sources. [Read more.](#) (Renewable Energy World)

GE Vernova plans 'leaner' offshore wind unit, will cut hundreds of jobs. GE Vernova plans to downsize its struggling offshore wind business, potentially cutting 900 jobs worldwide due to cost inflation and supply chain challenges. The company blames industry-wide issues for the decision, aiming to transform the unit into a smaller, leaner, and more profitable business within GE Vernova. Delays in major projects, including turbine blade failures at Vineyard Wind and Dogger Bank, have also contributed to the struggling wind segment, which is expected to lose \$300 million this quarter. [Read more.](#) (Reuters)

SolarEdge Technologies energy storage division and Pacific Energy utilize battery technology to decarbonize Australian mine sites and towns. SolarEdge Technologies' Energy Storage Division and Pacific Energy collaborate to decarbonize Australian mine sites and towns by providing large-scale battery energy storage systems (BESS). They have supplied 55MWh of BESS, with over 66MWh in the pipeline. The partnership started in 2019 with a hybrid power system for Esperance, which required sophisticated grid stabilizing technology. They have delivered industry-leading BESS to Australian miners and utilities, including a 42MW/19MWh system for Fortescue's Pilbara Energy Connect project. [Read more.](#) (AI Energy Mag)

Eaton Collaborates with Lunar Energy to maximize the functionality of residential energy storage and solar installations. Eaton has collaborated with Lunar Energy to simplify home energy storage and solar system installations. The integration of Eaton's AbleEdge smart breakers with the Lunar System will enable easier deployment, load management, cost optimization, and extended battery life. This joint solution is expected to be available in early 2025, with Eaton as Lunar Energy's preferred supplier for load management. The collaboration aligns with Eaton's Home as a Grid strategy, aiming to create flexible power systems that manage energy consumption in an integrated way, promoting the home as an energy source and reducing carbon footprint. [Read more.](#) (AI Energy Mag)

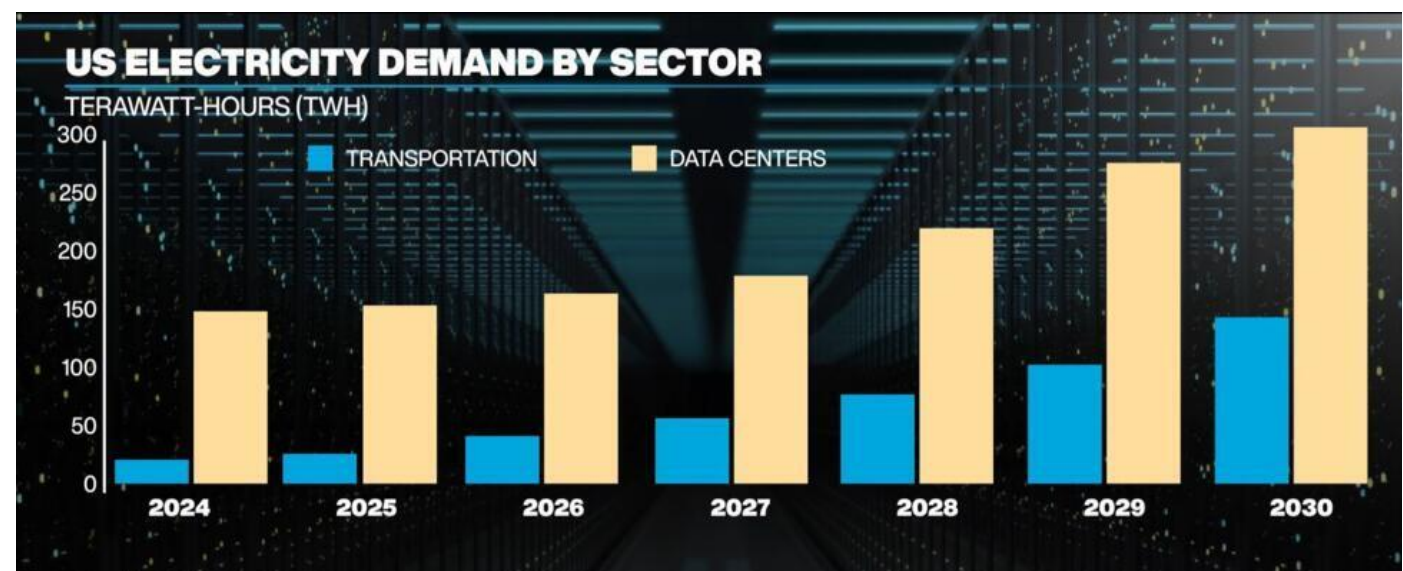
TEXEL Energy Storage rebrands as TEXEL Energy to reflect new green business opportunities. TEXEL Energy Storage AB has rebranded as TEXEL Energy to reflect its diversified business opportunities. The company's focus remains on commercialization, with energy storage being a prioritized area. New divisions like TEXEL Flare Gases, TEXEL Defence, and TEXEL Biofuels have been introduced, leveraging the same core technology that converts thermal energy into green electricity and heat. This technology, valued at over \$2 billion USD, forms the foundation for TEXEL's business growth and positions it uniquely in the market for green energy solutions. [Read more.](#) (AI Energy Mag)

Qcells and Puget sound energy announce Washington's largest co-located solar project. Qcells has sold the Appaloosa Solar Project to Puget Sound Energy (PSE), Washington's largest utility company. The project is a 142 MW solar PV facility in Garfield County, co-located with PSE's existing Lower Snake River Wind facility. Qcells will supply US-manufactured solar panels and provide EPC services for the project. This collaboration aims to deliver clean energy to over 30,000 homes annually and support Washington state's goal of becoming carbon neutral by 2030. The project utilizes an innovative approach to solve interconnection challenges, maximizing grid efficiency. [Read more.](#) (AI Energy Mag)

Siemens launches digital decarbonization tool at climate week NYC to help simplify the path to net-zero facilities. Siemens Financial Services launched the Decarbonization Business Optimizer (DBO), a cloud-based tool to simplify decarbonizing buildings and financing for net-zero emissions. The free digital web tool aggregates data from government agencies, removes knowledge barriers, and uncovers efficient strategies. It generates cost-effective scenarios based on facility size, type, and location, considering site-specific data like energy use or load profile. Users can choose generation and storage technologies, generate customized decarbonization scenarios, and view estimated return on investment (ROI). [Read more.](#) (AI Energy Mag)

CLEANTECH CHART OF THE MONTH

Chart 10: Data Centers are Poised to Become the Primary Drivers of Future Electricity Demand



Source: Intro-act, Rystad Energy's Renewables and Power Solution, June 2024

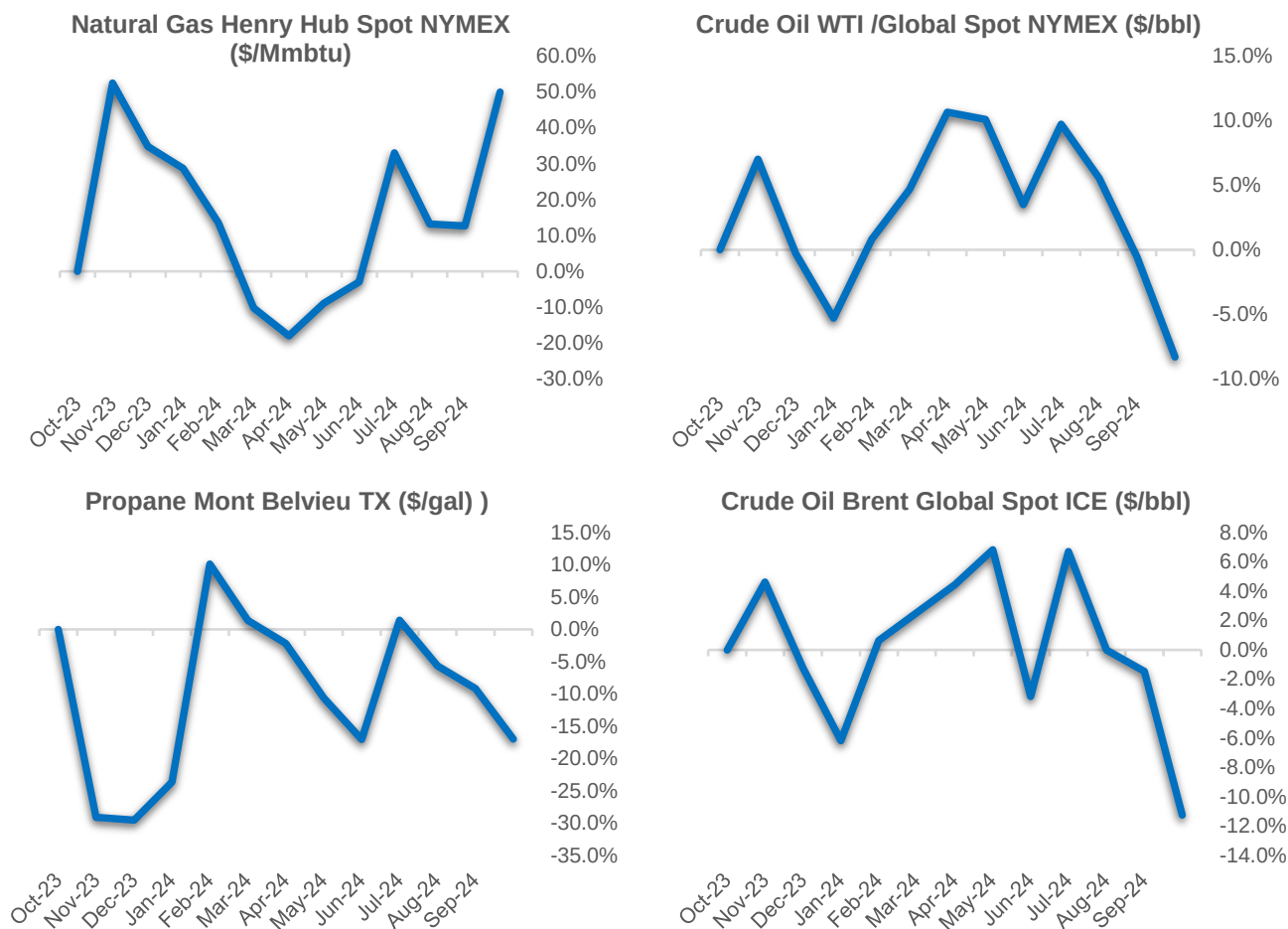
CLEANTECH COMMODITIES

Chart 11: Cleantech Commodities Price Returns

CleanTech Commodities	Price as of 30 Sep 2024	1M	3M	6M	1Y	YTD
Natural Gas and Crude Oil						
Natural Gas Henry Hub Spot NYMEX (\$/Mmbtu)	2.65	▲ 37.31%	▲ 9.50%	▲ 72.08%	▲ 21.00%	▲ 72.08%
Crude Oil WTI /Global Spot NYMEX (\$/bbl)	68.75	▼ -7.74%	▼ -17.00%	▼ -18.12%	▼ -9.87%	▼ -18.12%
Crude Oil Brent Global Spot ICE (\$/bbl)	72.35	▼ -9.79%	▼ -17.09%	▼ -16.04%	▼ -12.81%	▼ -16.04%
Propane Mont Belvieu TX (\$/gal)	0.69	▼ -7.88%	▼ -17.37%	▼ -16.16%	▼ -26.20%	▼ -16.16%
Refined Products						
Gasoline Conv Regular NY Harbor (\$/gal)	2.05	▼ -7.66%	▼ -18.88%	▼ -20.63%	▼ -9.13%	▼ -20.63%
Diesel No. 2 Low Sulfur NY Harbor (\$/gal)	2.10	▼ -4.84%	▼ -16.08%	▼ -19.33%	▼ -24.52%	▼ -19.33%
Heating Oil No. 2 NY Harbor (\$/gal)	1.63	▼ -21.40%	▼ -31.50%	▼ -35.41%	▼ -39.73%	▼ -35.41%
Jet Fuel Kerosene-Type U.S. Gulf Coast (\$/gal)	1.97	▼ -7.48%	▼ -20.23%	▼ -22.09%	▼ -27.11%	▼ -22.09%
Gasoil Near Term (IFEU \$/mt)	664.25	▼ -4.63%	▼ -15.44%	▼ -18.70%	▼ -22.31%	▼ -18.70%
Ethanol Iowa (CRB \$/gallon)	1.57	▼ -7.94%	▼ -20.56%	▲ 6.10%	▲ 3.30%	▲ 6.10%
WTI USG 3:2:1 Crack Spread	16.27	▼ -2.34%	▼ -6.69%	▼ -31.38%	▼ -31.57%	▼ -31.38%
Carbon Prices						
Carbon Emissions (EUR/ tonne)	67.36	▼ -9.06%	▲ 8.77%	▼ -13.62%	▼ -24.80%	▼ -13.62%
Metals						
Copper Cash Official LME (\$/mt)	9767.00	▲ 5.99%	▲ 3.07%	▲ 11.89%	▲ 14.73%	▲ 11.89%
Lithium Carbonate 99%Min China (CNY/ tonne)	87500.00	▼ -15.46%	▼ -16.27%	▲ 1.16%	▼ -71.07%	▲ 1.16%
Nickel Cash Official LME (\$/mt)	17005.00	▲ 1.10%	▲ 0.27%	▲ 2.87%	▲ 5.82%	▲ 2.87%
Cobalt Cash Official LME (\$/mt)	24155.00	▲ 0.65%	▼ -9.80%	▼ -14.84%	▼ -15.78%	▼ -14.84%
Platinum Indust (Engelhard) (\$/ozt)	990.00	▲ 4.87%	▼ -2.46%	▲ 7.61%	▲ 6.45%	▲ 7.61%
Uranium Near Term (NYM \$/lbs)	81.75	▲ 3.22%	▼ -4.55%	▼ -7.10%	▼ -19.26%	▼ -7.10%

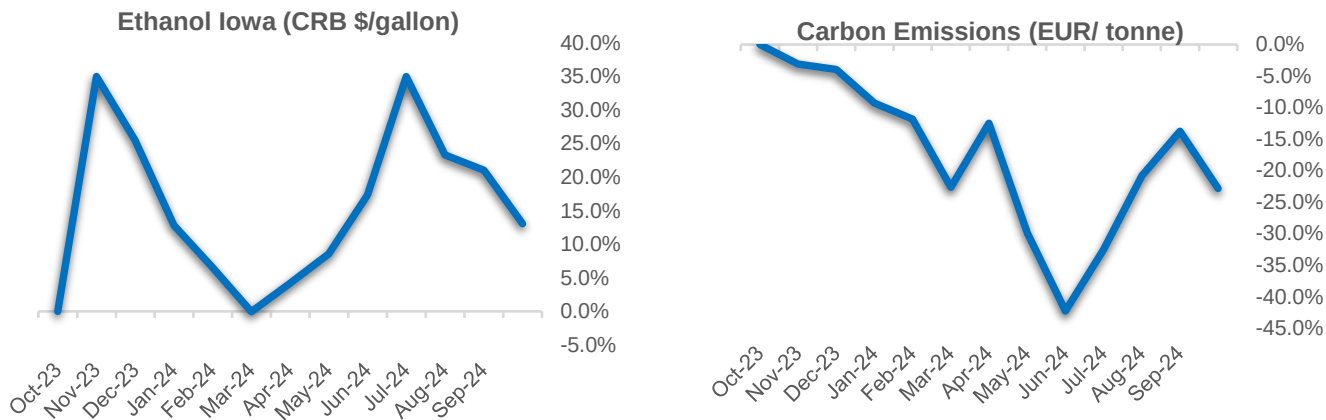
Source: Intro-act, FactSet, Investing.com. Data as of 09/30/24.

Chart 12: Indexed Change in Natural Gas and Crude Oil Prices in Last 12 Months



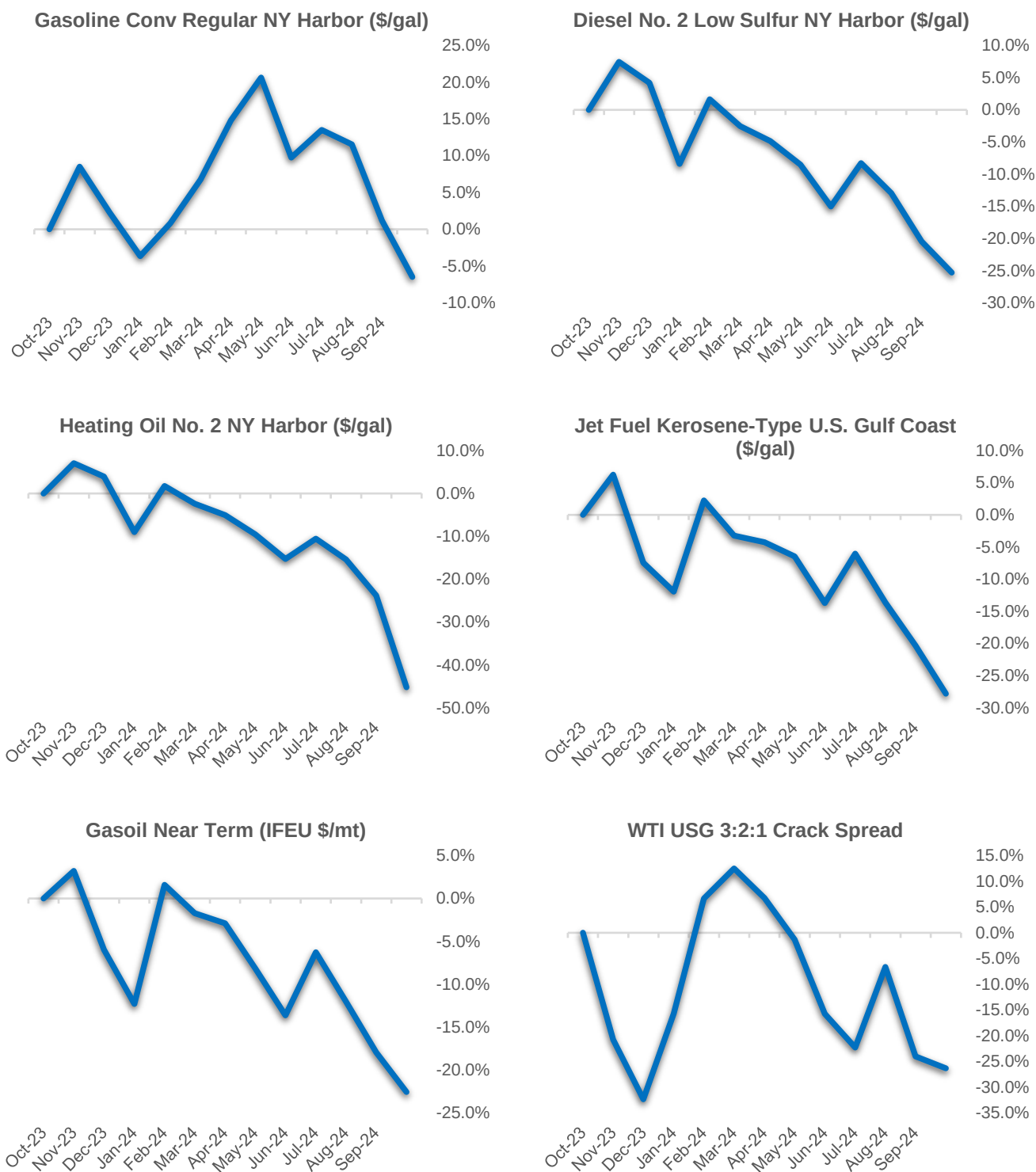
Source: Intro-act, FactSet, Investing.com. Data as of 09/30/24.

Chart 13: Indexed Change in Ethanol Prices in Last 12 Months



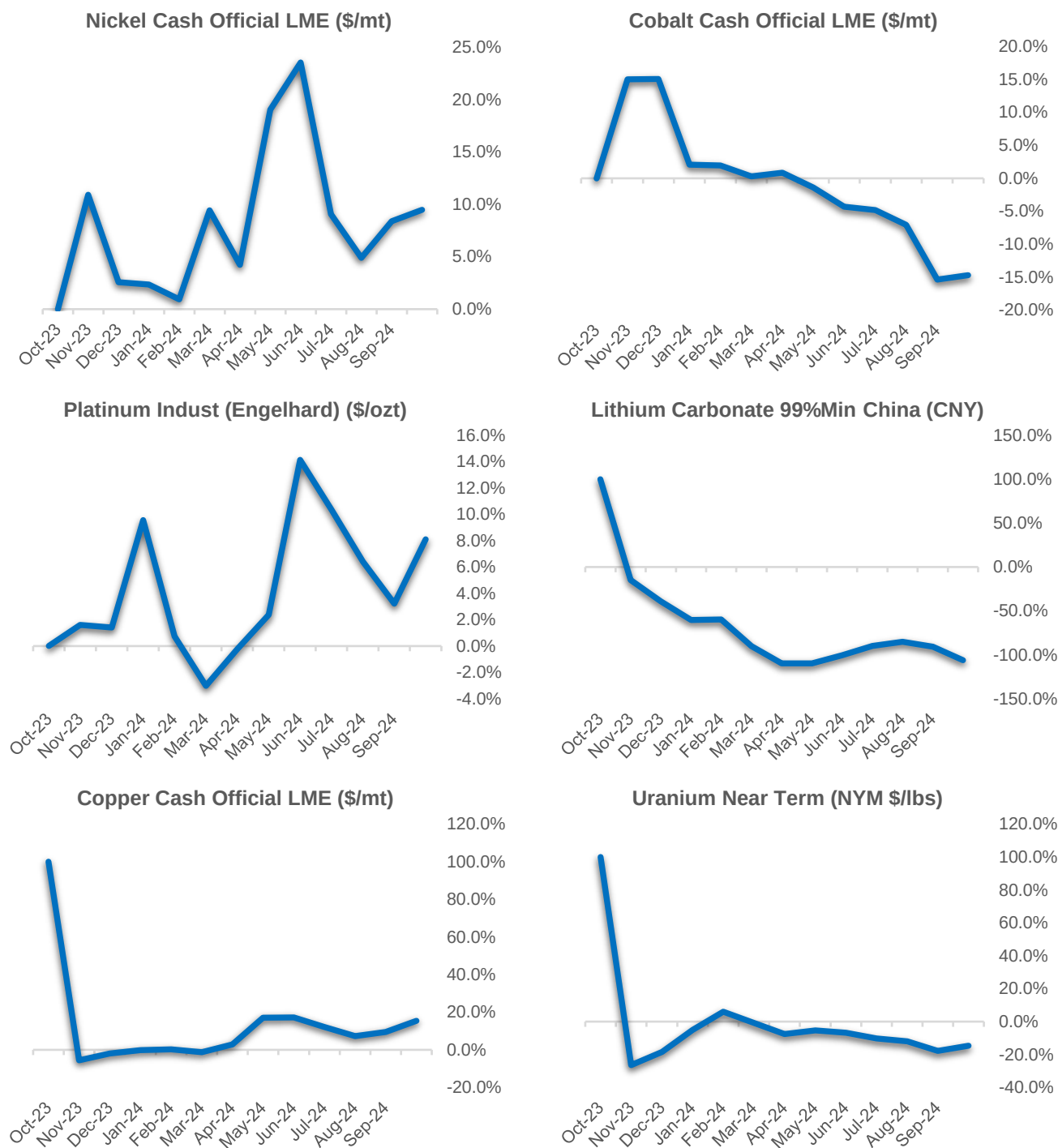
Source: Intro-act, FactSet, Investing.com. Data as of 09/30/24

Chart 14: Indexed Change in Refined Products in Prices Last 12 Months



Source: Intro-act, FactSet. Data as of 09/30/24.

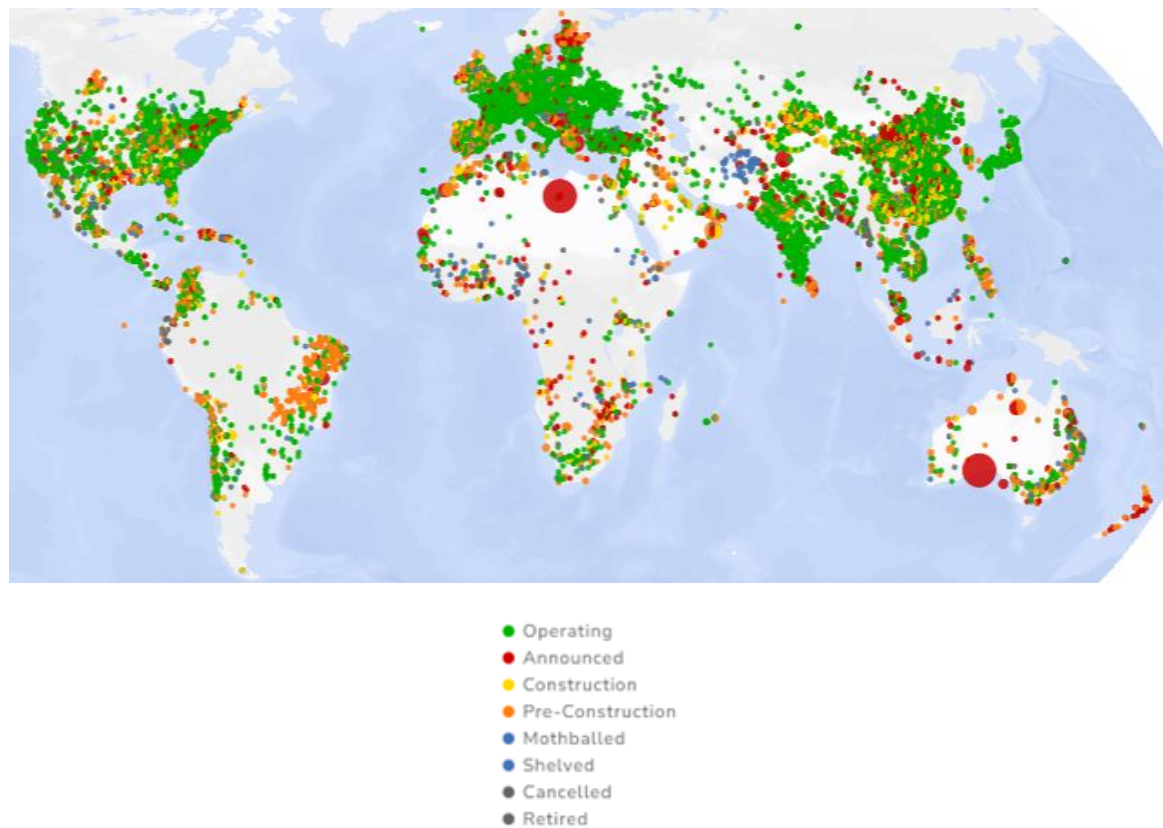
Chart 15: Indexed Change in Cleantech Metal Prices Last 12 Months



Source: Intro-act, FactSet. Data as of 09/30/24.

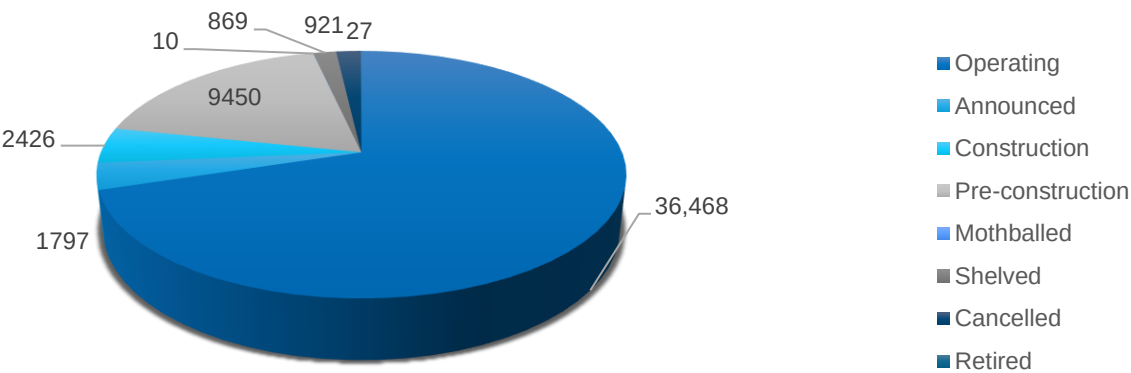
CLEANTECH INSTALLATIONS

Chart 16: Global Solar Power Tracker (June 2024)



Source: Intro-act, Global Energy Monitor

Chart 17: Worldwide Solar Farm Phases. Total Farms: 51,048 as of June 2024



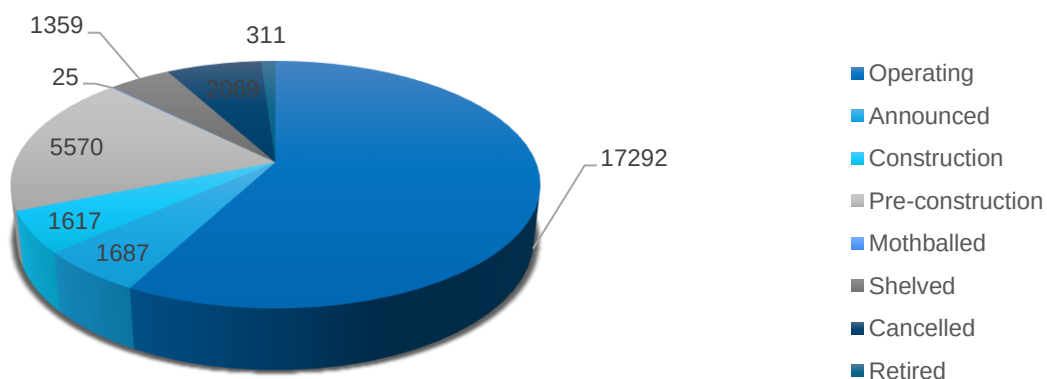
Source: Intro-act, Global Energy Monitor

Chart 18: Global Wind Power Tracker (June 2024)



Source: Intro-act, Global Energy Monitor

Chart 19: Worldwide Wind Farm Phases. Total Farms: 29,930 as of June 2024



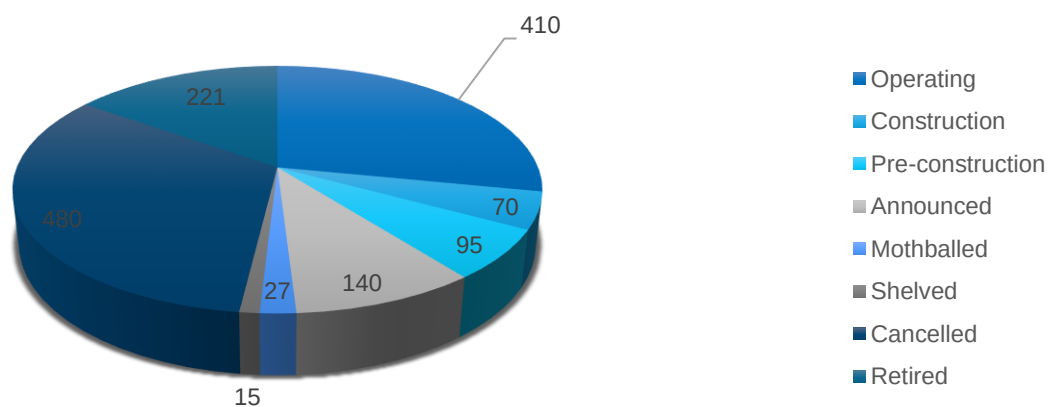
Source: Intro-act, Global Energy Monitor

Chart 20: Global Nuclear Power Tracker (June 2024)



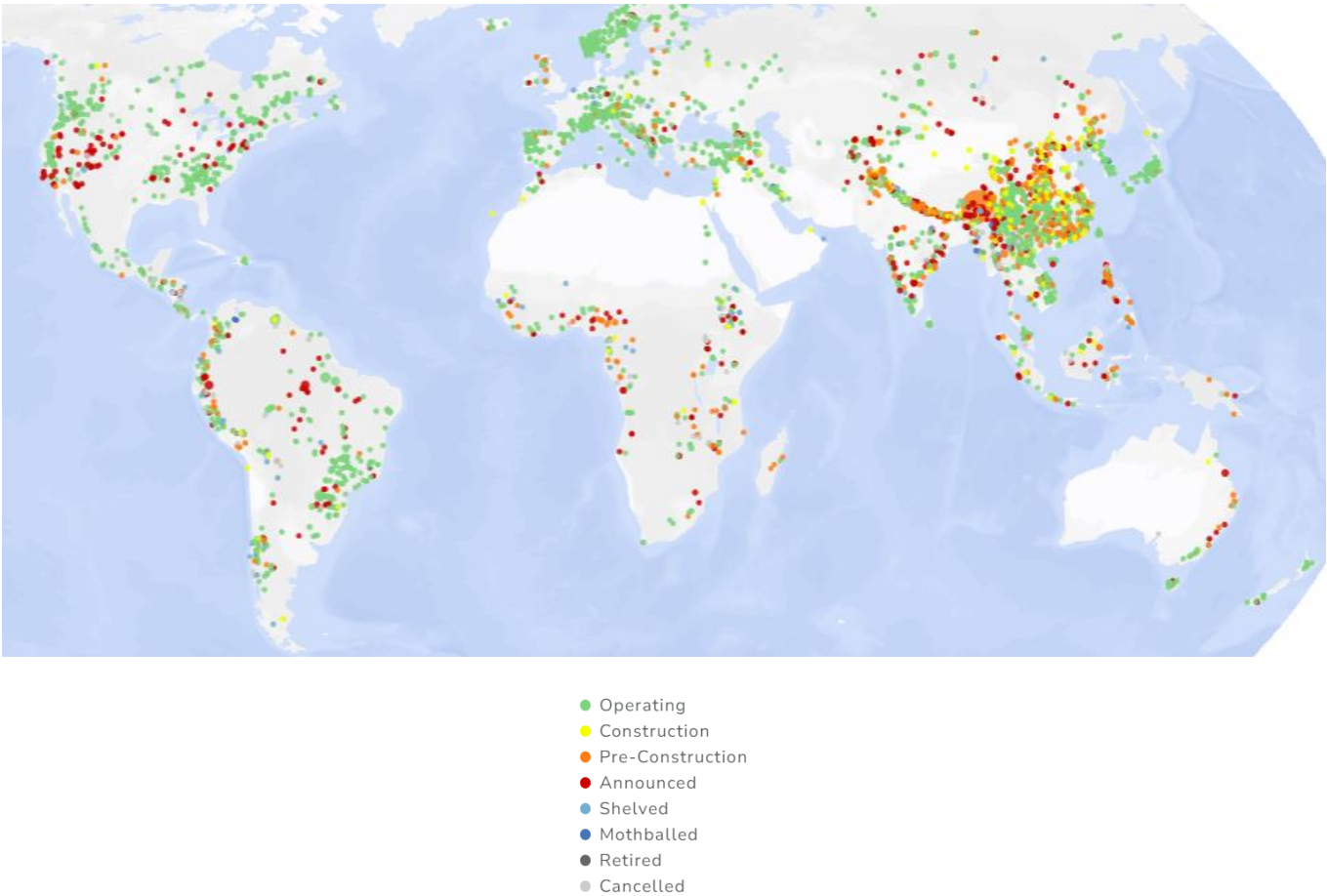
Source: Intro-act, Global Energy Monitor

Chart 21: Worldwide Nuclear Power Plants. Total Farms: 1,458 as of June 2024



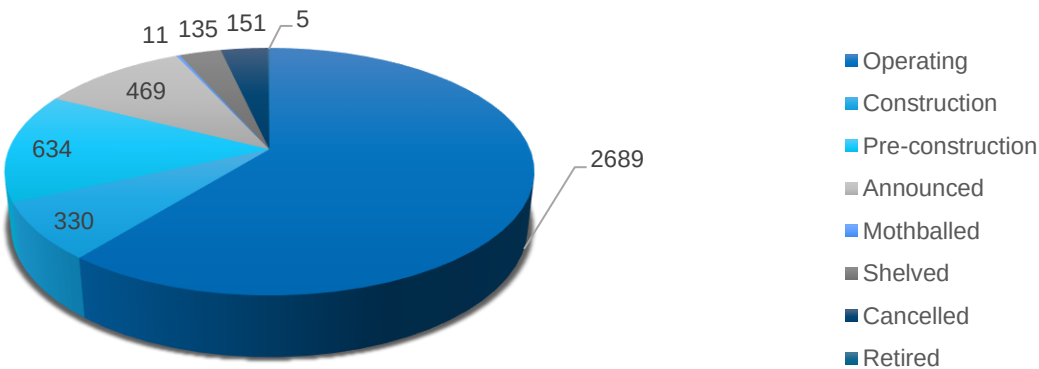
Source: Intro-act, Global Energy Monitor

Chart 22: Global Hydropower Tracker (June 2024)



Source: Intro-act, Global Energy Monitor

Chart 23: Worldwide Hydropower Plants. Total Farms: 4,424 as of June 2024



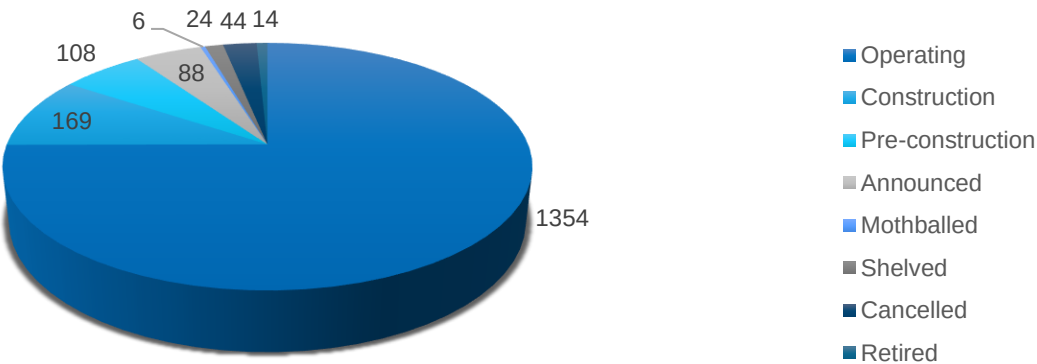
Source: Intro-act, Global Energy Monitor

Chart 24: Global Bioenergy Power Tracker (June 2024)



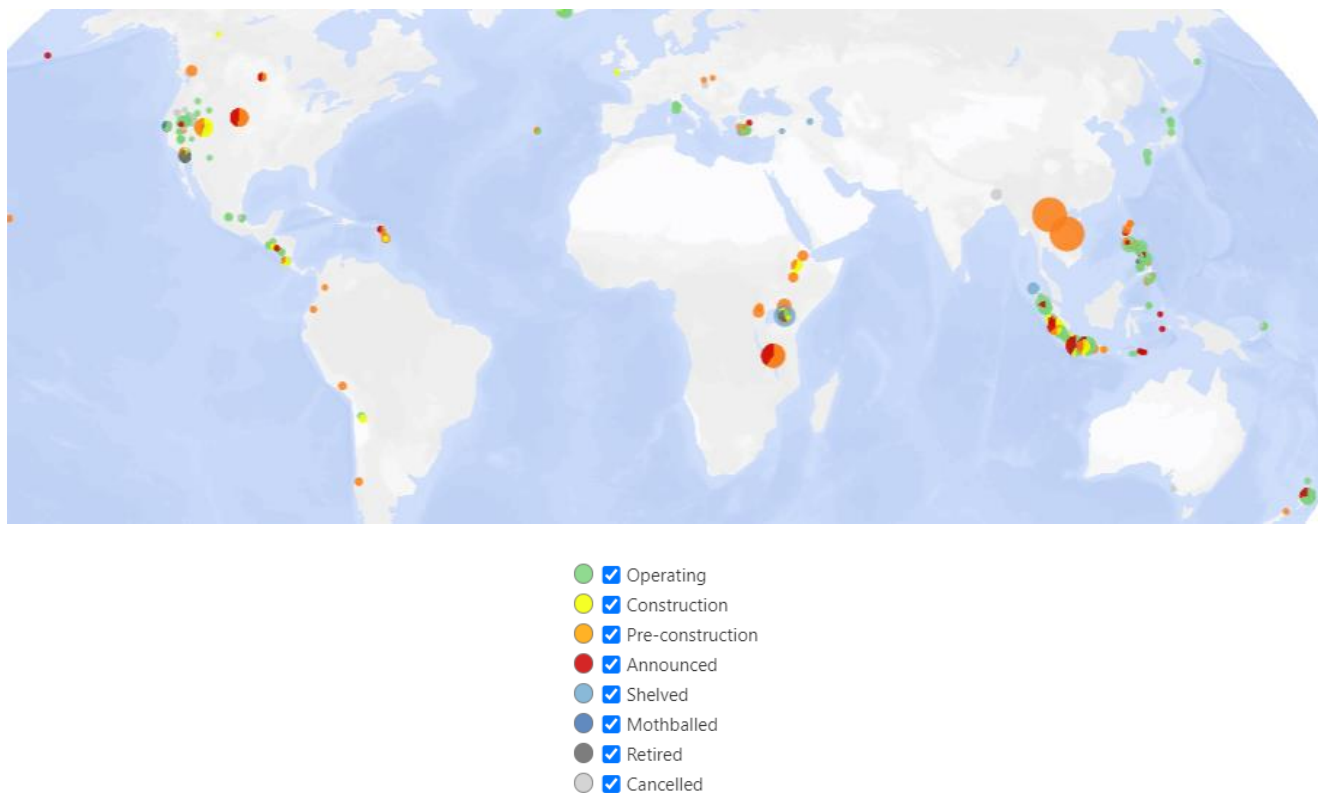
Source: Intro-act, Global Energy Monitor

Chart 25: Worldwide Bioenergy Power Plants. Total Farms: 1,807 as of June 2024



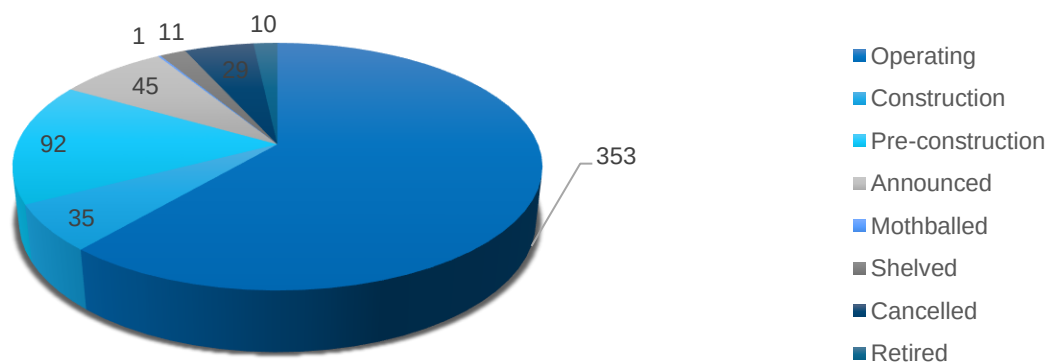
Source: Intro-act, Global Energy Monitor

Chart 26: Global Geothermal Power Tracker (June 2024)



Source: Intro-act, Global Energy Monitor

Chart 27: Worldwide Geothermal Power Plants. Total Farms: 576 as of June 2024



Source: Intro-act, Global Energy Monitor

CLEANTECH CAPITAL MARKET ACTION

M&A Activity

Target	Target Country	Acquirer	Deal Size (\$m)	Announcement Date
Scandbio AB	Sweden	Lausitz Energie Bergbau AG	-	15-Oct-2024
Suryaurja One Pvt Ltd.	India	Britannia Industries Ltd.	0.10	09-Oct-2024
East Energy GmbH	Germany	Zelextra; EQT Infrastructure	-	07-Oct-2024
Full Circle Group Holding BV	Netherlands	Renew Holdings Plc	65.82	07-Oct-2024
Ørsted A/S	Denmark	Equinor ASA	-	07-Oct-2024
Valorem SAS	France	AIP Management P/S; Valorem SAS /Private Group/	338.96	07-Oct-2024
Varta AG	Germany	Porsche AG	-	07-Oct-2024
Vale do São Bartolomeu Transmissora de Energia SA	Brazil	Centrais Elétricas Brasileiras SA	6.68	03-Oct-2024
CFV Solar Test Laboratory, Inc.	United States	Groundwork Renewables, Inc.	-	01-Oct-2024
Mast Energy Developments PLC	United Kingdom	Cuart Investments PCC Ltd.	0.16	01-Oct-2024
Robison Energy LLC	United States	BP Energy Partners LLC; Catalyst Power Holdings LLC	-	01-Oct-2024
Electrochem Solutions, Inc. (Massachusetts)	United States	Ultralife Corp.	50.00	30-Sep-2024
EnerCharge GmbH	Austria	KEBA AG	-	26-Sep-2024
Exagen Group Ltd.	United Kingdom	Octopus Energy Ltd.	-	24-Sep-2024
First Hydro Co.	United Kingdom	CDP Capital Private Equity	-	24-Sep-2024
Saeta Yield SA	Spain	Abu Dhabi Future Energy Co. PJSC; Mubadala Investment Co. (Private Equity)	1,306.83	24-Sep-2024
Sikkim Hydro Power Ventures Ltd.	India	Last Mile Enterprises Ltd.	4.18	20-Sep-2024
Enercon Technologies Ltd.	Israel	Bel Fuse, Inc.	330.00	18-Sep-2024
Hickory Run Energy LLC	United States	Tyr Energy, Inc.	-	17-Sep-2024
Perpetual Energy, Inc.	Canada	Rubellite Energy, Inc.	539.53	17-Sep-2024
Senoko Energy Pte Ltd.	Singapore	Sembcorp Utilities Pte Ltd.	-	17-Sep-2024
TNS energo Kuban PJSC	Russian Federation	Region Trust OAO	-	17-Sep-2024
Kibo Mining (Cyprus) Ltd.	Cyprus	Absolute Return Investment Advisers (ARIA) Ltd.	-	16-Sep-2024

Source: Intro-act, FactSet

PE/ VC Funding Activity

Company Name	Funding Round	Amount	Active Investors	Investment Date
X Energy LLC	Series C4	500.00	645 Ventures Management LLC; ACME Capital; Alumni Ventures Group LLC; Amazon (Venture Capital); Ares Management Corp (Private Equity); Champion Hill Ventures; Curtiss-Wright Corp.; DI E&C Co., Ltd; Doosan Enerbility Co., Ltd.; Eclipse Ventures LLC; FiveNine Ventures LLC; Government of the United States of America; Gula Tech Adventures, Inc.; IBX LLC; Kam Ghaffarian, PhD; Ken Griffin; Menlo Ventures Management LP; Narya Capital Management LLC; Natural Gas Partners LLC; Province of Ontario; Riot Ventures Management LLC; Rocketship VC LLC; University of Michigan	16-Oct-2024
Form Energy, Inc.	Series F	405.00	ArcelorMittal (Private Equity); Blindspot Ventures; Breakthrough Energy Investment LLC; Canada Pension Plan Investment Board Private Investments; Cap Table Coalition LP; Capricorn Investment Group LLC (Private Equity); Claure Group LLC; Coatue Management LLC (Private Equity); Energy Impact Partners LLC; Energy Technology Partners LLC; Engine Ventures; Eni Next LLC; FWH Management Co LLC; GE Vernova, Inc.; GIC Special Investments Pte Ltd.; Gigascale Capital; Good Growth Capital Management LLC; Kapor Capital Management Co LLC; Macquarie Group Ltd.; Natural Gas Partners LLC; Perry Creek Capital LP; Prelude Ventures LLC; Saudi Aramco Energy Ventures LLC; Sleeping Bear Capital LLC /US/; T Rowe Price Associates, Inc. (Private Equity); Temasek Capital Pte Ltd.; TPG Growth LLC; VamosVentures Management Co LLC	09-Oct-2024
Marvel Fusion GmbH	Series B	70.16	Albert Wenger, PhD; ATHOS Private Wealth LLC; b2venture AG; Bayern Kapital GmbH; BY Capital Management GmbH; Deutsche Telekom AG; Digital Transformation Capital Partners GmbH; Duerr Family; Earlybird Venture Capital GmbH & Co. KG; Hartmut Neven, PhD; HV Capital Manager GmbH; Nicolas Berggruen Charitable Foundation; Ou Notorius; Plural Platform SARL; Possible Ventures; PRIMEPULSE SE; Siemens Energy AG; Sprind GmbH; Sten Tamkivi; Susan Danzinger; Taavet Hinrikus; Tengelmann Ventures Management GmbH; Thales SA; Thistledown Capital, Inc.; TRUMPF Venture GmbH	25-Sep-2024
Air Co.	Series B	69.00	Alaska Air Group, Inc.; Alumni Ventures Group LLC; Avfuel Corp.; Carbon Direct Capital Management LLC; Connecticut Innovations, Inc.; Duncan Aviation, Inc.; In-Q-Tel; JetBlue Technology Ventures LLC; JSSI Holdings LLC; Lowercarbon Capital LLC; MCJ Collective; New Climate Ventures Management LLC; Parley LLC; Toyota Ventures LLC	18-Sep-2024
Air Co.	Series B	69.00	Alaska Air Group, Inc.; Alumni Ventures Group LLC; Avfuel Corp.; Carbon Direct Capital Management LLC; Connecticut Innovations, Inc.; Duncan Aviation, Inc.; In-Q-Tel; JetBlue Technology Ventures LLC; JSSI Holdings LLC; Lowercarbon Capital LLC; MCJ Collective; New Climate Ventures Management LLC; Parley LLC; Toyota Ventures LLC	18-Sep-2024
Heliene, Inc.	Private Sh	54.00	2shores Capital; Bullrock Renewables LLC; Hamilton Lane Advisors LLC; OIC LP; Transition Equity Partners LLC; Valta Energy LLC	07-Oct-2024
Utility Global, Inc.	Series C	53.00	Ara Advisers LLC; ArcelorMittal (Private Equity); Province of Ontario; Saint-Gobain Nova; Samsung Catalyst; Saudi Aramco Energy Ventures LLC	26-Sep-2024
Polarium Energy Solutions AB	Series E	48.66	Absolute Unlisted AB; Alecta Pension Insurance Mutual; Altor Equity Partners AB; AMF Tjänstepension AB; Beijer Ventures AB; Formica Capital AB; Lars Håkan Påvel Roos, MBA; Ramsay Health Care Ltd.; RoosGruppen AB; Vargas Holding AB	02-Oct-2024
Dandelion Energy, Inc.	Series C	40.00	Beijing Zhenge Tiancheng Investment Management Co. Ltd.; Borealis Ventures; BoxGroup Ventures LLC; Breakthrough Energy Investment LLC; Building Ventures LLC; Catchlight Ventures; Collaborative Fund; Comcast Ventures LLC; Daniel Joseph Yates; Energy Technology Partners LLC; Ground Up Ventures Ltd; GV Management Co. LLC; Len	24-Sep-2024

			X LLC; Momentor Ventures LLC; Natural Gas Partners LLC; NEA Management Co. LLC	
David Energy Systems, Inc.	Series A2	23.00	Aniq Rahman; BoxGroup Ventures LLC; Cathay Innovation SAS; Equal Ventures Management, LLC; Five Four Ventures LLC; Great Oaks Venture Capital BZ LLC; Greycroft LLC; Irving Fain; James Dice; Jared Hecht; Jonah Goodhart; Josh Abramowitz; Junction Venture Partners; Keyframe Capital Partners LP; Kiran Bhatraju; Lorimer Ventures LLC; Masa Partners LLC; MCJ Collective; Nathalie Turner; Oceans Management LLC; Operator Partners LLC; Sandeep Jain; Sierra Peterson; Steven Martocci; TGM Ventures (United States); Toba Capital LLC; Tom McInerney; Turntide Technologies, Inc.; Union Square Ventures LLC; Weinberg Zach; Xuan Yong	23-Sep-2024
Buen Manejo del Campo SA de CV	Series C	15.00	AlphaMundi Group AG; AXA SA; Blink CV; Chroma Impact Investment SA; Co. Plataforma De Investigacion Generativa Ac; DILA Capital SA de CV; EcoEnterprises Fund; EDFI Management Co. NV; Endeavor Global, Inc.; ENGIE Rassembleurs d'Energies SASU; Factor[E] Ventures Ltd.; Hands-on BV; KawiSafi Ventures; Native/Us/; Opes Foundation; Shell Foundation; The World Bank; Triodos Investment Management BV	14-Oct-2024
Anaphite Ltd.	Series A2	13.94	Accelerator Advisory Ltd.; Blue Wire Capital Ltd.; Bristol Private Equity Ltd.; Elbow Beach Capital Ltd.; Energy & Environment Investment, Inc.; Impact Venture; Maniv Mobility Management Ltd.; Nesta; Potential Climate Ventures F1 Ltd; Science Angel Syndicate Ltd; Silicon Roundabout Ventures Ltd.; SQW Group Ltd.; Syndicate Room Ltd.; Wealth Club Ltd.; WF World Fund Management GmbH; Zero Carbon Capital Ltd.	27-Sep-2024
Airloom Energy, Inc.	Seed Round3	12.50	Adiuvans Foundation; Breakthrough Energy Investment LLC; CrossCut Ventures Management LLC; Kutnick Family Office; Lowercarbon Capital LLC; MCJ Collective; State of Wyoming; Wovenearth Ventures LLC; Wyoming Venture Capital	08-Oct-2024
Zeno Power Systems, Inc.	Seed Round4	9.50	1517 Fund; 4DX Ventures Management LLC; Active Impact Investments Management Inc; Advantedge Partners; Balerion Space Ventures Management LLC; DCVC Management Co. LLC; Infinite Capital LLC/US/; Irongate Capital Advisors LLC; Kayak Ventures; Lontra Ventures LLC; Lowercarbon Capital LLC; MCJ Collective; Pallas Ventures; PIF Capital Management Ltd; Redblue Capital; TechStars Central, LLC; Toyota Ventures LLC; Tribe Capital Management LLC /CA/	24-Sep-2024
Ayrton Energy, Inc.	Seed Round	6.75	Antares Ventures, Inc.; BDC Growth Equity Partners; Clean Energy Venture Management LLC; EPS Ventures; SOSV Ltd.; The51 Ventures, Inc.; Uceed; Valhalla Private Capital, Inc.	24-Sep-2024
Hgen	Seed Round2	5.00	776 Fund Management; Climate Capital Collective; Fontinalis Partners LLC; The Founders Fund Management LLC; Yishan Wong	17-Sep-2024
Aereo Pvt Ltd.	Series B1	1.80	360 One Asset Management Ltd. (Private Equity); 3one4capital Advisors LLP; 500 Startups Management Co LLC; Ashok Atluri; AUXANO ASSET MANAGEMENT PVT LTD; Bellwether Advisors LLP; Growx Venture Management Pvt Ltd.; Ivy Growth Associates Pvt Ltd.; JSW Ventures; Navam Capital Pvt Ltd.; Sanjay Vijay S. Jesrani; StartupXseed Ventures LLP; Valpro Capital	08-Oct-2024
Samara Energia SL	Series A2	1.67	Arvantis Group Holding GmbH; Athletico Ventures; Green Generation Management GmbH; Move Energy Fund Management B.V.; Mustard Seed Maze - Sociedade de Empreendedorismo Social SA; Ring SAS; Seaya Capital Gestión SGEIC SA	17-Sep-2024
CleanArc Data Centers LLC	Private Sh	0.00	547 Energy LLC; Snowhawk LP	17-Sep-2024
Exagen Group Ltd.	Private Sh	0.00	Octopus Energy Ltd.	24-Sep-2024

Monolith Materials, Inc.	Series J	0.00	ACM Ltd.; Cornell Capital LLC (Private Equity); Decarbonization Partners LLC; First Green Partners LLC; Imperative Management LLC; Magnetar Capital Partners LP; Mitsubishi Heavy Industries, Ltd.; NextEra Energy, Inc.; Perry Creek Capital LP; S.K. Group, Inc.; SK Inc/US/; TPG Growth LLC; Warburg Pincus LLC	26-Sep-2024
OX2 AB	Private Sh	0.00	Eqt Infrastructure	07-Oct-2024
Victory Energy Operations LLC	Private Sh	0.00	GulfStar Merchant Banking Ltd; Main Street Capital Partners LLC; Saw Mill Capital LLC	08-Oct-2024
WIT SAS	Private Sh	0.00	BPIFrance Investissement SAS; LT Capital SAS	09-Oct-2024
Zeleros Global SL	Series B	0.00	Angels Capital SL; Capgemini SE; Centro para el Desarrollo Tecnológico Ind /Private Equity/; Elewit SA; Goldacre Ventures Ltd.; Invest Ziur SL; KIC InnoEnergy SE; Muellas y Ballestas Hispano-Alemanas SL; Plug & Play Venture Group LLC; Redeia Corporacion SA; Road Ventures SA	04-Oct-2024
Econic Technologies Ltd.	Series F	Undisclosed	Capricorn Partners NV; Cm Venture Capital LLC; Future Fund /Uk/; GC Ventures America Corp.; ING Sustainable Investments BV; IP Group Plc /Venture Capital/; Jetstream Ventures LLC; Norner AS; OGCI Climate Investments LLP; Taranis Investment Ltd.; Touchstone Innovations Investment Management Ltd.	15-Oct-2024
Orbital Oracle Technologies GmbH	Series B	Undisclosed	Ananda Ventures GmbH; APEX Ventures GmbH; Bayern Kapital GmbH; Clemens Kaiser; ConActivity KG; ECBF Management GmbH; Edaphon; Findus Venture GmbH; Ingo Baumann; Korys Management NV; SpaceTec Capital GmbH	15-Oct-2024
REsurety, Inc.	Series C	Undisclosed	Angeleno Group LLC; Citigroup, Inc.; Clean Energy Venture Group LLC; HA Sustainable Infrastructure Capital, Inc.; LaunchCapital LLC; S2G Ventures LLC	15-Oct-2024

Source: Intro-act, FactSet

CLEANTECH INSTITUTIONAL INVESTOR LEAGUE

Chart 28: Cleantech Institutional Owners League (Current)

Rank	Investor Name	Invested in Cleantech (\$)	Q/Q Change (\$)	Change in Positions (#)	Cleantech as % of AUM
1	The Vanguard Group, Inc.	116,117,446,588	9,976,467,397	-1	10.8%
2	BlackRock Fund Advisors	59,732,921,979	4,346,628,477	2	5.6%
3	SSgA Funds Management, Inc.	39,759,432,762	842,164,178	2	3.7%
4	Fidelity Management & Research Co. LLC	26,815,166,172	5,076,441,890	-3	2.5%
5	Geode Capital Management LLC	22,931,934,510	2,632,082,604	8	2.1%
6	Capital Research & Management Co. (Global Investors)	18,796,011,137	2,309,940,217	3	1.7%
7	Nomura Asset Management Co., Ltd.	16,279,290,487	3,428,091,526	-6	1.5%
8	BlackRock Advisors (UK) Ltd.	15,434,637,872	1,230,233,619	9	1.4%
9	T. Rowe Price Associates, Inc. (Investment Management)	12,926,682,410	67,447,612	5	1.2%
10	Capital Research & Management Co. (International Investors)	12,056,865,590	1,837,140,660	3	1.1%
11	Capital Research & Management Co. (World Investors)	12,031,372,305	2,074,848,165	1	1.1%
12	JPMorgan Investment Management, Inc.	11,654,402,285	(819,871,374)	1	1.1%
13	BlackRock Investment Management (UK) Ltd.	10,090,981,170	367,615,152	31	0.9%
14	Charles Schwab Investment Management, Inc.	9,828,250,731	1,198,296,107	0	0.9%
15	Dimensional Fund Advisors LP	9,368,737,994	796,782,688	-1	0.9%
16	Northern Trust Investments, Inc. (Investment Management)	8,976,098,639	5,794,203	6	0.8%
17	Nikko Asset Management Co., Ltd.	8,443,054,247	394,808,675	0	0.8%
18	Massachusetts Financial Services Co.	8,254,823,422	(41,050,932)	1	0.8%
19	Wellington Management Co. LLP	7,512,260,772	(525,854,401)	3	0.7%
20	State Farm Investment Management Corp.	7,230,814,227	(207,456,743)	0	0.7%
21	Daiwa Asset Management Co. Ltd.	7,123,859,049	813,534,969	5	0.7%
22	Amundi Asset Management SA (Investment Management)	6,899,248,942	(451,604,012)	10	0.6%
23	Invesco Capital Management LLC	6,775,794,908	476,908,160	-2	0.6%
24	Legal & General Investment Management Ltd.	6,423,101,405	356,238,341	11	0.6%
25	Capital International Ltd.	6,017,100,461	1,293,784,509	2	0.6%
	Others	607,405,461,797	17,524,349,327	178	56.5%
	TOTAL	1,074,885,751,861	55,003,761,014	268	100%

Source: Intro-act, 13F Filings

Chart 29: Top 25 Cleantech Buyers (Q/Q)

Rank	Investor Name	Invested in Cleantech (\$)	Q/Q Change (\$)	Change in Positions (#)	Cleantech as % of AUM
1	Norges Bank Investment Management	11,974,433	(27,639,177,337)	151	0.0%
2	China Asset Management Co., Ltd.	1,316,208,436	(1,938,433,650)	80	1.9%
3	Bosera Asset Management Co., Ltd.	7,916,028	(694,414,473)	79	0.0%
4	China Universal Asset Management Co., Ltd.	166,919	(1,222,466,132)	75	0.0%
5	Harvest Fund Management Co., Ltd.	5,031,013	(1,337,389,187)	75	0.0%
6	E Fund Management Co., Ltd.	1,207,439,247	(884,948,698)	73	1.6%
7	HuaAn Fund Management Co., Ltd.	96,538,143	(1,207,500,797)	69	0.5%
8	OP Asset Management Ltd.	20,909,183	(271,099,148)	59	0.2%
9	RBC Dominion Securities, Inc.	699,987	(52,367,598)	57	0.0%
10	KBC Fund Management Ltd.	8,751,457	(249,914,686)	57	0.1%
11	Advisory Services Network LLC	37,644,132	1,082,670	50	0.8%
12	Irish Life Investment Managers Ltd.	533,658,851	44,932,133	49	3.0%
13	CCB Principal Asset Management Co., Ltd.	41,122,734	(307,502,816)	46	0.8%
14	The Caisse de depot et placement du Quebec	745,127,146	(1,643,442,684)	46	0.8%
15	Eastspring Investments (Singapore) Ltd.	85,546,871	(1,391,030)	42	0.4%
16	KBC Asset Management NV	716,863,499	14,828,314	38	1.6%
17	Danske Bank A/S (Investment Management)	536,712,006	5,506,161	37	2.0%
18	Connor, Clark & Lunn Investment Management Ltd.	1,176,229,930	711,697	33	4.8%
19	LGT Capital Partners AG (Investment Management)	58,969,882	(31,011,918)	33	0.8%
20	BlackRock Investment Management (UK) Ltd.	10,090,981,170	367,615,152	31	1.8%
21	ANIMA Sgr SpA	136,560,878	(211,285,126)	31	1.0%
22	CI Investments, Inc.	1,023,023,538	81,152,535	30	2.2%
23	Amundi Austria GmbH	132,125,301	(9,434,426)	30	2.9%
24	APG Asset Management NV	1,045,280,629	(1,158,850,394)	30	0.7%
25	Allspring Global Investments LLC	930,494,895	31,084,583	26	1.3%

Source: Intro-act, 13F Filings

Chart 30: Top 25 Cleantech Sellers (Q/Q)

Rank	Investor Name	Invested in Cleantech(\$)	Q/Q Change (\$)	Change in Positions (#)	Cleantech as % of AUM
1	Russell Investments Canada Ltd.	57,273,934	57,273,934	-69	2.5%
2	Desjardins Securities, Inc.	180,691,260	180,691,260	-67	1.9%
3	Avior Wealth Management LLC	6,037,515	4,104,842	-51	0.3%
4	CIBC Private Wealth Advisors, Inc.	817,269,451	89,370,211	-39	1.6%
5	Shinhan Asset Management Co., Ltd.	36,038,414	36,038,414	-38	2.5%
6	Catalyst Capital Advisors LLC	17,204,465	17,204,465	-36	0.4%
7	Corecap Advisors LLC	6,900,331	3,721,143	-34	0.4%
8	Kron AS	13,942,982	13,942,982	-32	2.3%
9	Mitsubishi UFJ Asset Management Co., Ltd.	4,286,405,037	320,382,726	-30	2.8%
10	Cetera Investment Advisers LLC	250,911,993	192,776,352	-30	0.6%
11	Threadneedle Asset Management Ltd.	1,226,790,420	134,426,116	-29	1.7%
12	The Mather Group LLC	18,687,160	1,119,122	-29	0.3%
13	abrdn Investment Management Ltd.	2,506,837,280	1,083,417,786	-28	3.8%
14	I. G. Investment Management Ltd.	408,678,937	408,678,937	-28	3.7%
15	Hilltop National Bank (Investment Management)	3,301,778	3,301,778	-28	1.1%
16	YHB Investment Advisors, Inc.	14,067,098	1,356,479	-27	1.2%
17	The Putnam Advisory Co. LLC	328,858,229	275,148,911	-26	1.6%
18	BOCI-Prudential Asset Management Ltd.	97,154,518	83,383,258	-26	1.6%
19	Continuum Advisory LLC	9,029,758	529,946	-26	1.3%
20	Morgan Stanley & Co. International Plc	125,138,457	30,672,375	-24	1.6%
21	Canada Pension Plan Investment Board	4,661,213,219	2,635,711,677	-23	2.9%
22	Los Angeles Capital Management LLC	574,333,160	263,656,819	-23	1.5%
23	West Yorkshire Pension Fund	209,985,892	206,617,124	-23	1.4%
24	Rise Advisors LLC	886,317	620,069	-22	0.5%
25	Storebrand Asset Management AS	1,490,665,396	135,980,648	-21	3.3%

Source: Intro-act, 13F Filings

ETF SPOTLIGHT

Global X Cleantech ETF (CTEC)

Closing Price (\$)	CUSIP	Expense Ratio	Inception
7.40	37954Y228	0.5	27/10/2020
AUM (\$ million)	Shares Outstanding (#)	Fund Flows (1M, \$)	Fund Flows (YTD, \$)
41.24	5MM	-20K	-8 MM

Fund Description

The CTEC Fund is an environmentally focused investment opportunity, designed to mirror a global index of companies driving technological advancements that mitigate environmental harm. This fund commits at least 80% of its assets to securities within the underlying index, in addition to American Depositary Receipts (ADRs) and Global Depositary Receipts (GDRs) linked to those securities. The underlying index comprises businesses primarily dedicated to Cleantech, including renewable energy, energy efficiency, smart grid solutions, lithium-ion batteries, fuel cells, and pollution prevention. These companies are carefully selected based on their generation of at least 50% of revenues from Cleantech-related activities and must meet specific market capitalization and liquidity criteria. The fund aims to harness the growth potential of Cleantech, and any modifications to the 80% investment policy necessitate a 60-day prior notice to shareholders. With eligibility spanning countries such as the United States, Japan, China, the United Kingdom, and others, this fund offers diversification for eco-conscious investors seeking Cleantech exposure.

ETF Returns Annualized (As of 09/30/2024)

1 Year	3 Year	5 Year	Since Inception
-23.06%	--23.23%	-52.68%	-13.55%

ETF Returns Cumulative (As of 09/30/2024)

1 Month	3 Month	YTD	Since Inception
5.94%	4.10%	-22.53%	-43.58%

Top 10 Holdings (updated as of 10/16/24)

Sr No.	Holdings	Ticker	% Allocation	Market Value (\$)
1	NEXTRACKER INC-CL A	NXT	6.06	2,230,961.76
2	SAMSUNG SDI CO LTD	006400 KS	5.69	2,093,344.10
3	NORDEX SE	NDX1 GR	5.48	2,015,614.34
4	ENPHASE ENERGY INC	ENPH	5.46	2,007,696.54
5	FIRST SOLAR INC	FSLR	5.4	1,987,934.16
6	EB ENVIRONMENT	257 HK	5.3	1,950,422.39
7	XINYI SOLAR HOLDINGS LTD	968 HK	5.06	1,860,778.64
8	VESTAS WIND SYSTEMS A/S	VWS DC	5.01	1,844,650.90
9	FLUENCE ENERGY INC	FLNC	4.81	1,770,390.00
10	JOHNSON MATTHEY PLC	JMAT LN	4.37	1,606,590.77

Source: Intro-act

For more information on CTEC visit: <https://www.globalxetfs.com/funds/ctec/>

iShares Global Clean Energy ETF (ICLN)

Closing Price (\$)	CUSIP	Expense Ratio	Inception
13.38	464288224	0.41	24/06/2008

AUM (\$ Billion)	Shares Outstanding (#)	Fund Flows (1M, \$)	Fund Flows (YTD, \$)
2.2	151 MM	32 MM	-636 MM

Fund Description

The ICLN Fund offers investors exposure to a carefully curated selection of global companies at the forefront of the clean energy sector. This fund seeks to replicate the performance of the S&P Global Clean Energy Index™, comprising approximately 100 clean energy-related companies. To be eligible for inclusion in this index, companies must meet specific criteria, including a minimum total market capitalization of \$300 million, float-adjusted market capitalization of \$100 million, and a median daily value traded of \$3 million over six months, all on developed market exchanges. The index construction process involves rigorous screening, utilizing classifications such as the Global Industry Classification Standard (GICS) and FactSets Revere Business Industry Classification System (RBICS), along with environmental, social, and governance (ESG) considerations. Clean energy exposure scores are assigned based on a company's primary business, with additional evaluation of carbon-to-revenue footprint to ensure alignment with sustainable and environmentally responsible practices. The result is a diversified fund that offers investors an opportunity to participate in the global clean energy revolution while adhering to stringent ESG criteria.

ETF Returns Annualized (As of 09/30/2024)

1 Year	3 Year	5 Year	Since Inception
1.75%	-11.08%	7.34%	-5.53%

ETF Returns Cumulative (As of 09/30/2024)

YTD	1 Month	3 Months	Since Inception
-5.34%	2.68%	9.67%	-60.4%

Top 10 Holdings (updated as of 10/16/24)

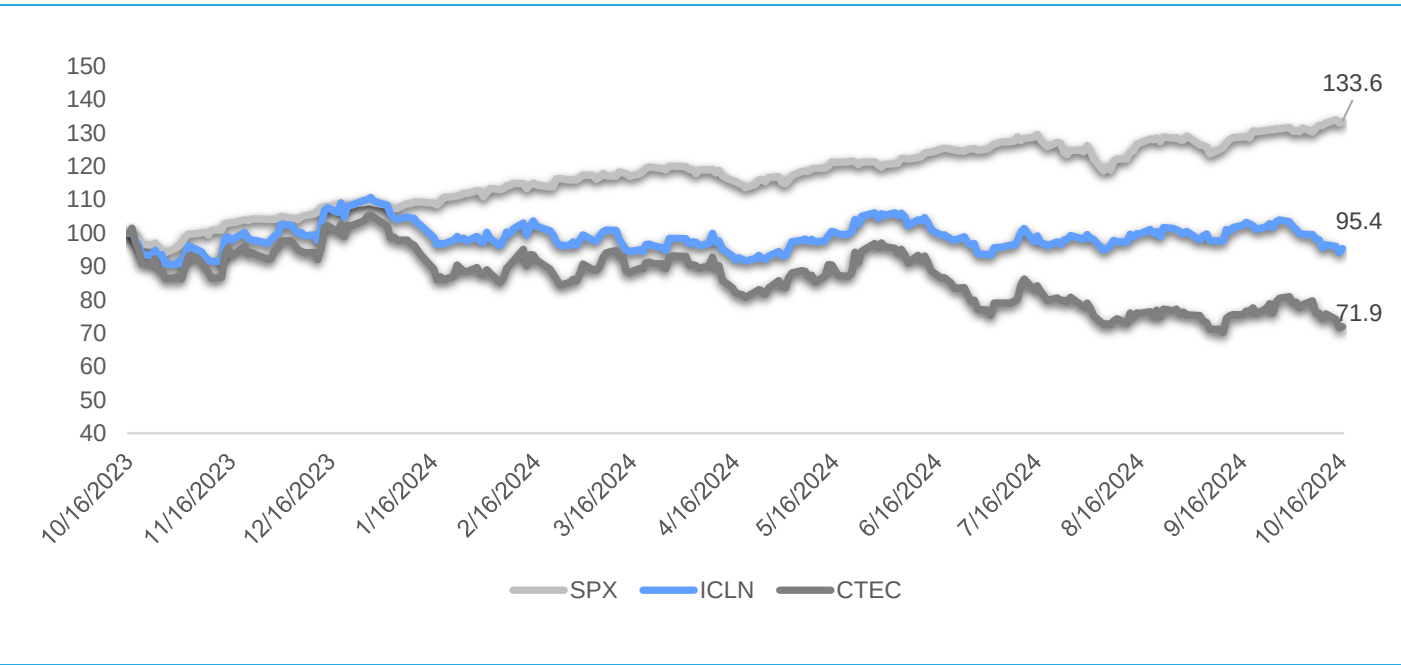
Holdings	Ticker	% Allocation	Market Value (\$)
IBERDROLA SA	IBE	7.36	149,399,677.24
FIRST SOLAR INC	FSLR	7.24	146,868,343.14
CONSOLIDATED EDISON INC	ED	7.21	146,261,469.90
ENPHASE ENERGY INC	ENPH	6.66	135,225,904.32
VESTAS WIND SYSTEMS	VWS	4.56	92,584,649.25
EDP ENERGIAS DE PORTUGAL SA	EDP	4.34	88,076,478.84
ORSTED	ORSTED	4.21	85,529,063.26
CHINA YANGTZE POWER LTD A	600900	4.21	85,463,728.60
CHUBU ELECTRIC POWER INC	9502	3.59	72,815,362.66
SUZLON ENERGY LTD	SUZLON	3.52	71,439,114.93

Source: Intro-act, FactSet

For more information on ICLN visit: <https://www.ishares.com/us/products/239738/ishares-global-clean-energy-etf>

ETF Performance vs. S&P 500

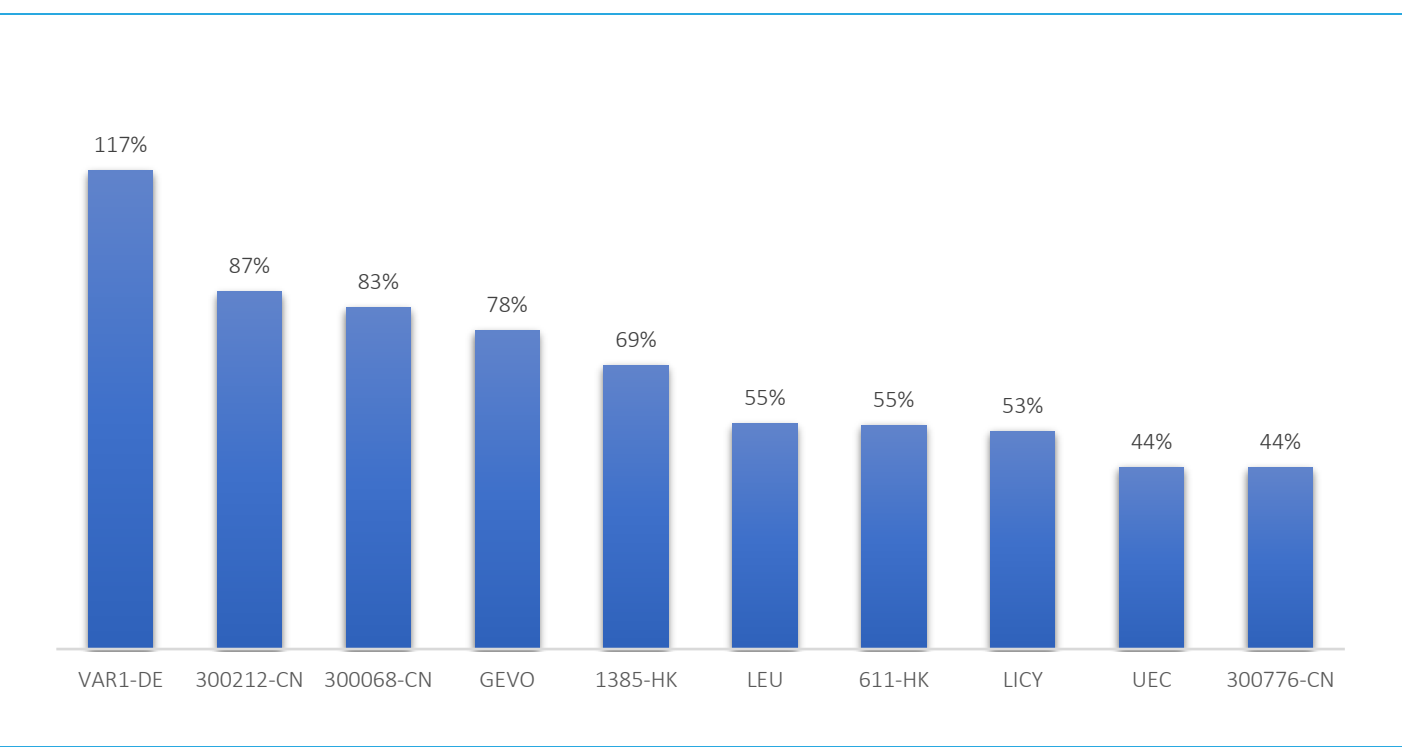
Chart 31: 12-month Indexed Returns of ICLN and CTEC vs. S&P 500



Source: Intro-act, FactSet, Data as of 10/16/2024.

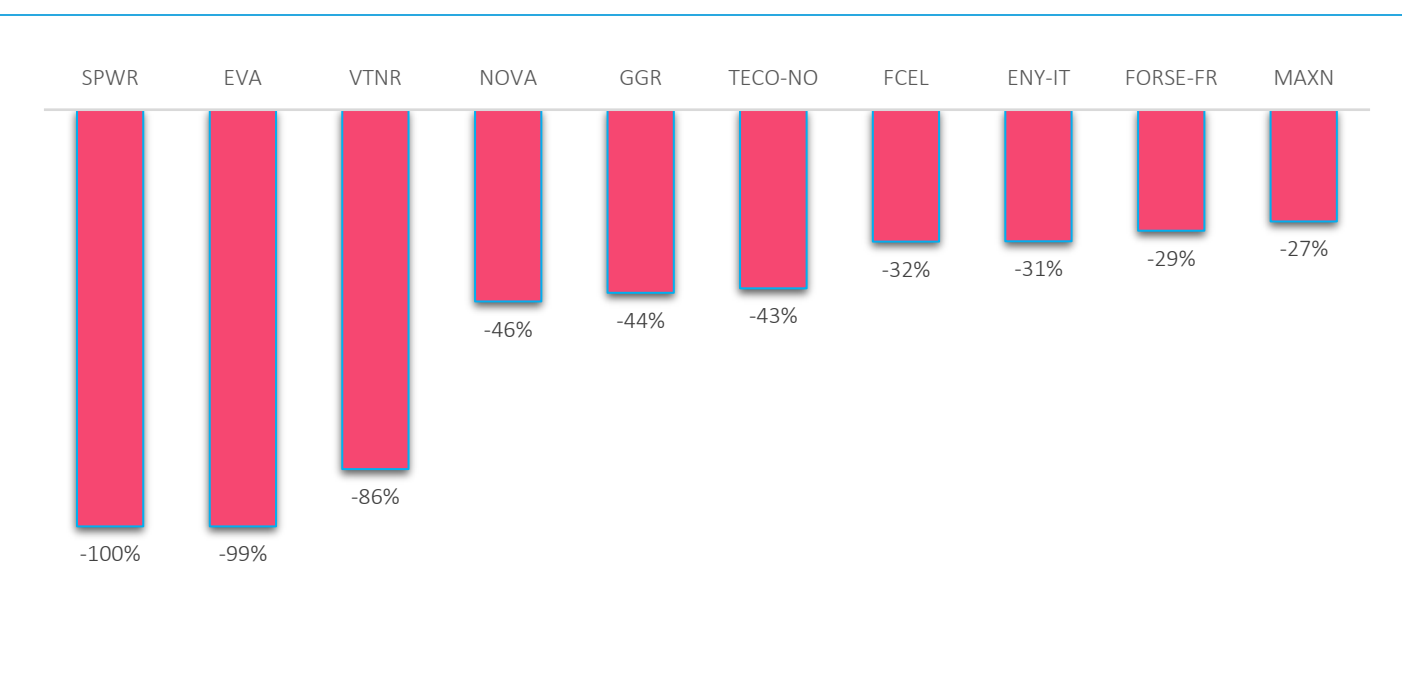
GAINERS AND LOSERS – CLEANTECH STOCKS

Chart 32: Top 10 M/M Cleantech Gainers



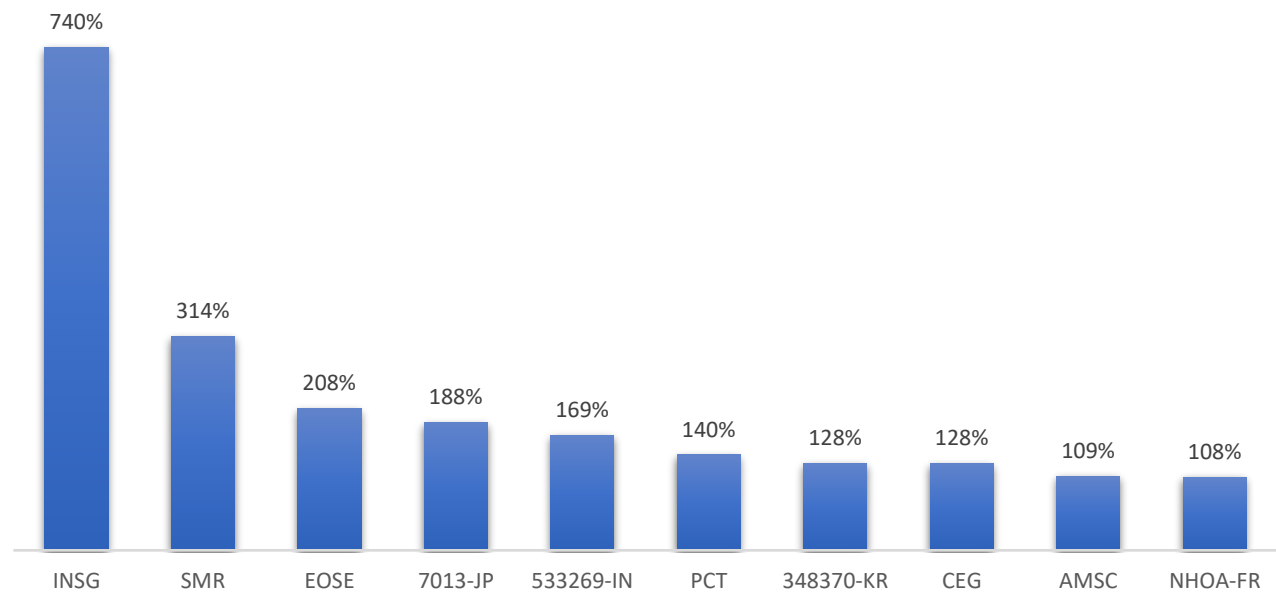
Source: Intro-act, FactSet, Data as on October 16, 2024

Chart 35: Top 10 M/M Cleantech Losers



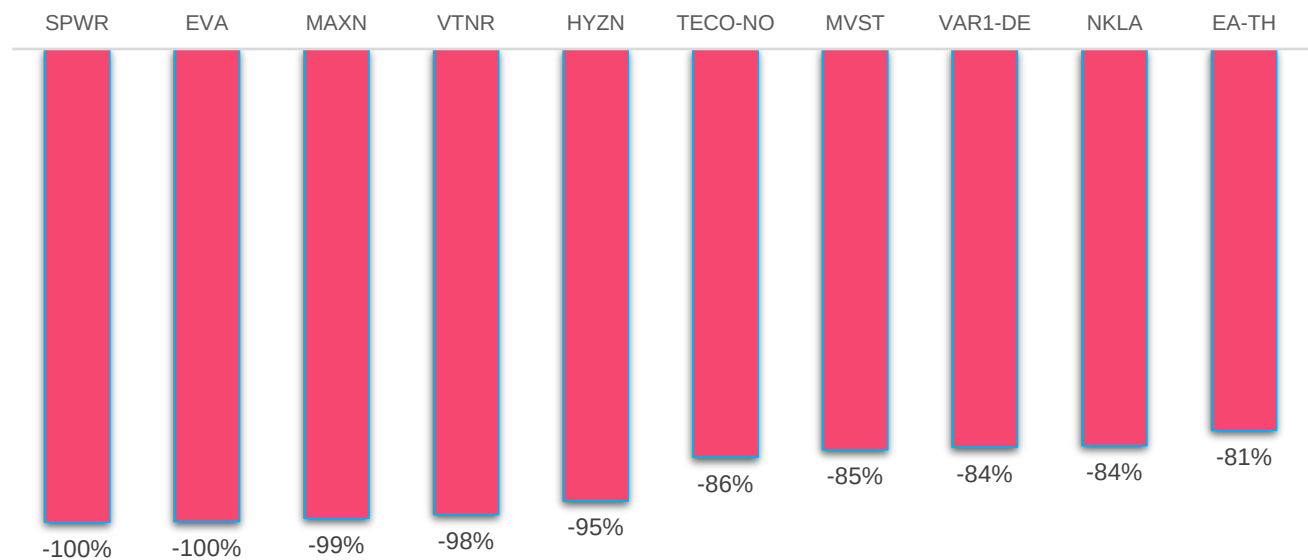
Source: Intro-act, FactSet, Data as on October 16, 2024

Chart 33: Top 10 YTD Cleantech Gainers



Source: Intro-act, FactSet. Data as on October 16, 2024.

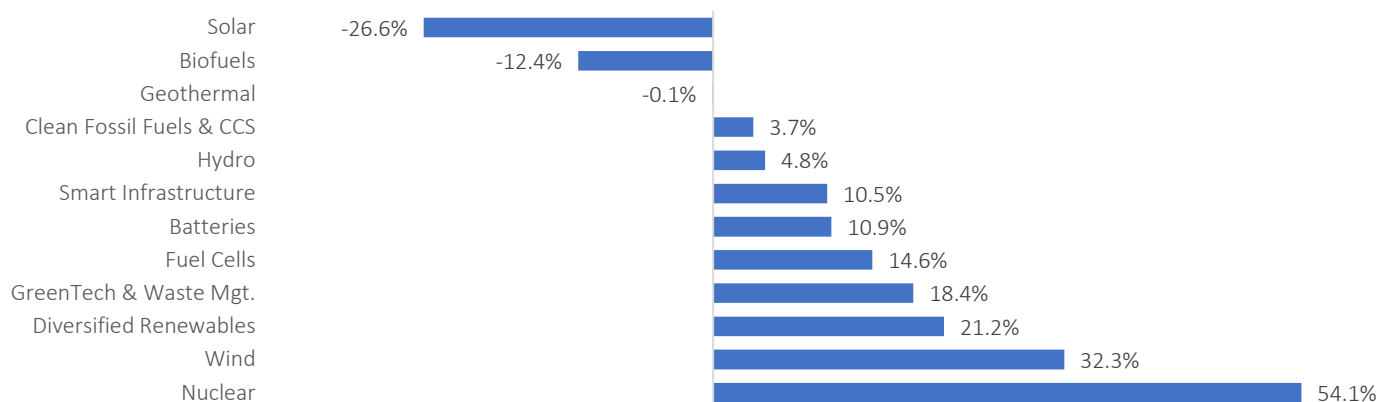
Chart 34: Top 10 YTD Cleantech Losers



Source: Intro-act, FactSet. Data as on October 16, 2024

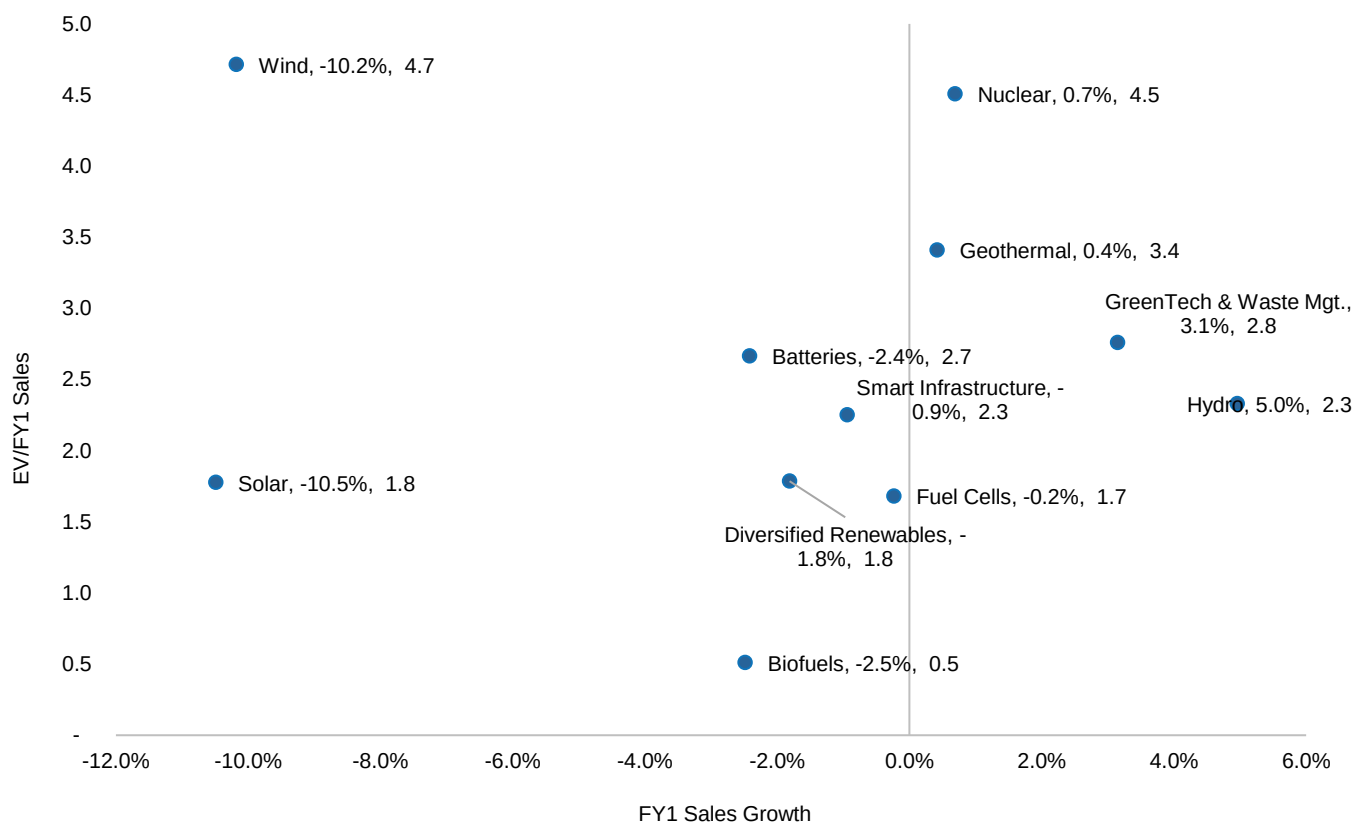
SEGMENT RETURN AND VALUATION

Chart 35: YTD Stock Price Returns by Segment



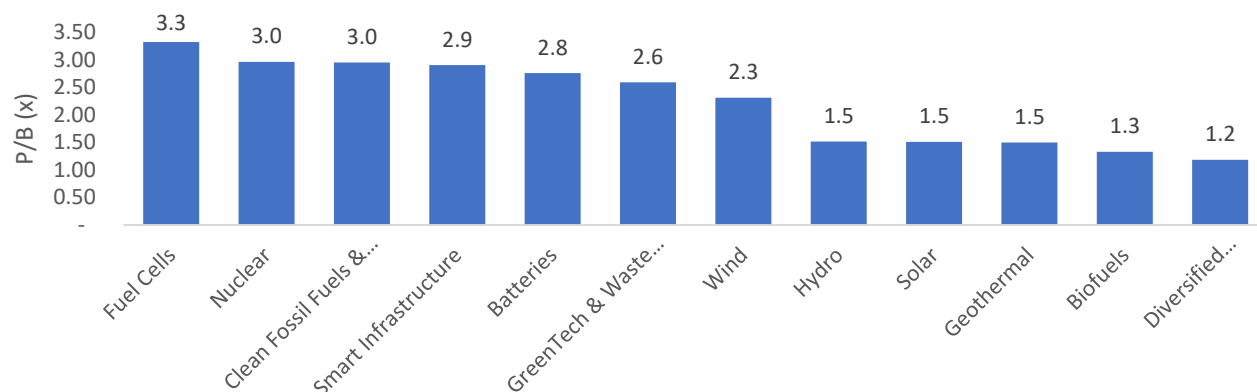
Source: Intro-act, FactSet. YTD Data as on October 16, 2024.

Chart 36: Cleantech Industry Growth and Valuation by Segment



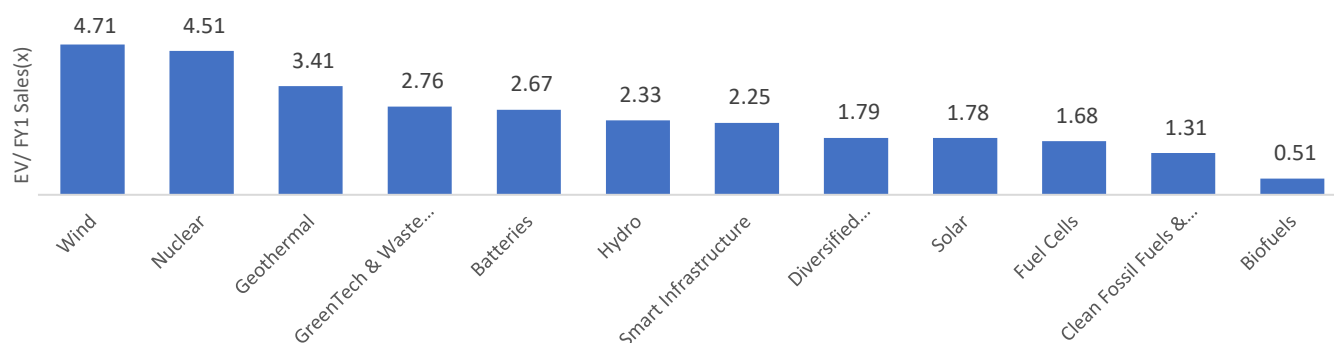
Source: Intro-act, FactSet. Data as on October 16, 2024. FY1 data is the first unreported financial year.

Chart 37: Price-to-Book Multiple by Segment



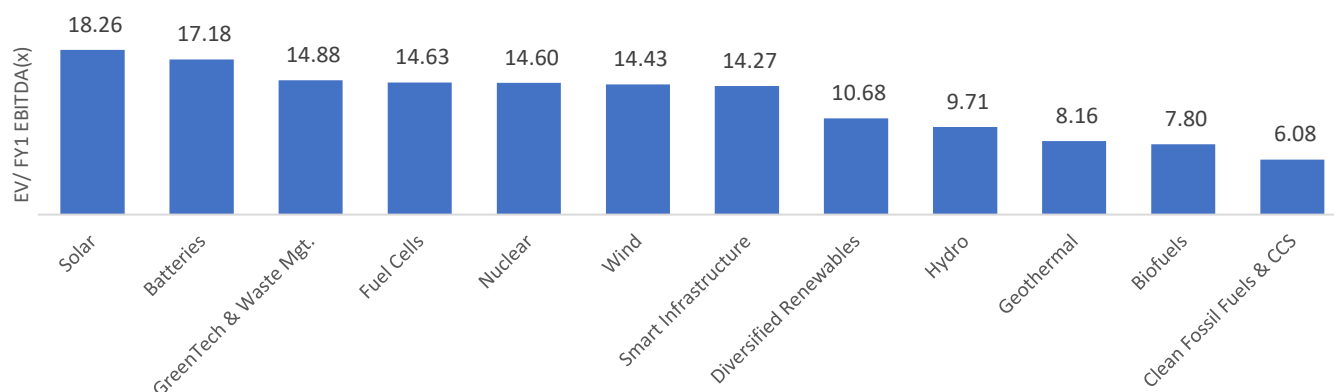
Source: Intro-act, FactSet. Data as on October 16, 2024.

Chart 38: EV to FY1 Sales Multiple by Segment



Source: Intro-act, FactSet. Data as on October 16, 2024. FY1 data is the first unreported financial year.

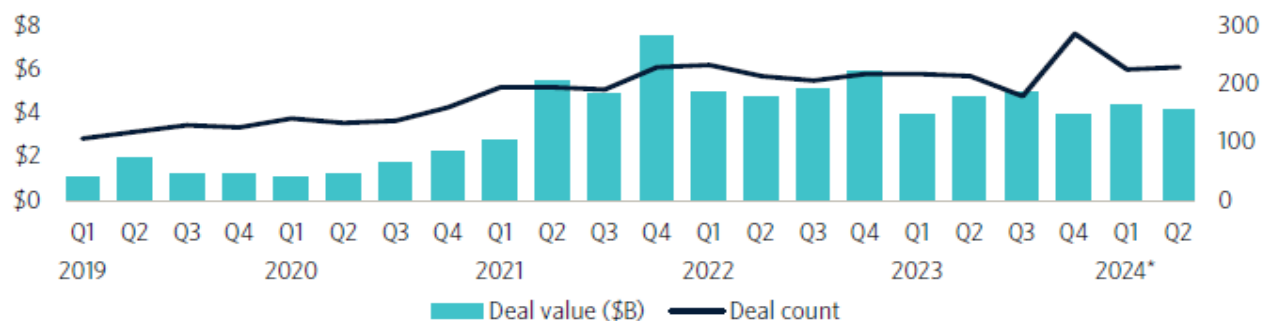
Chart 39: EV to FY1 EBITDA Multiple by Segment



Source: Intro-act, FactSet. Data as on October 16, 2024. FY1 data is the first unreported financial year.

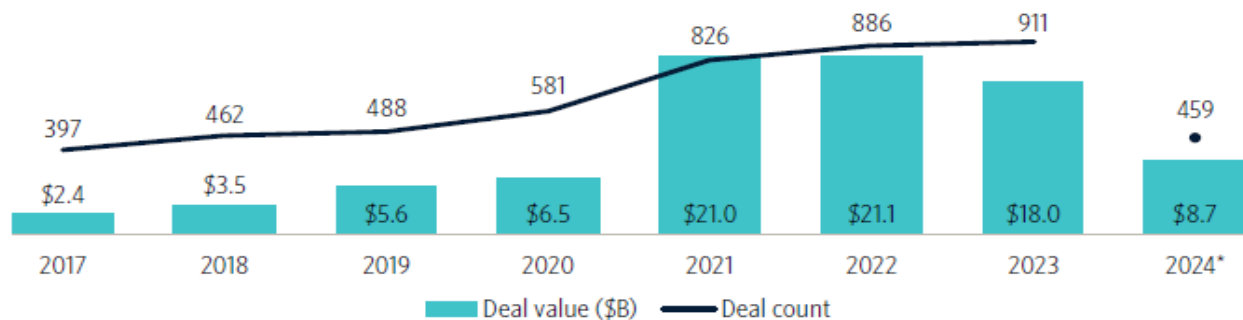
CLEANTECH CAPITAL MARKET TRENDS

Chart 40: Clean Energy VC Deal Activity by Quarter



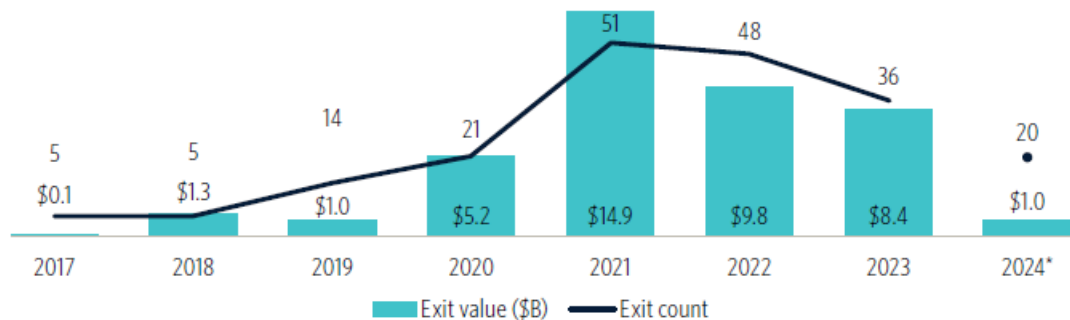
Source: Intro-act, Pitchbook, *Data as of June 30, 2024.

Chart 41: Clean Energy VC Deal Activity



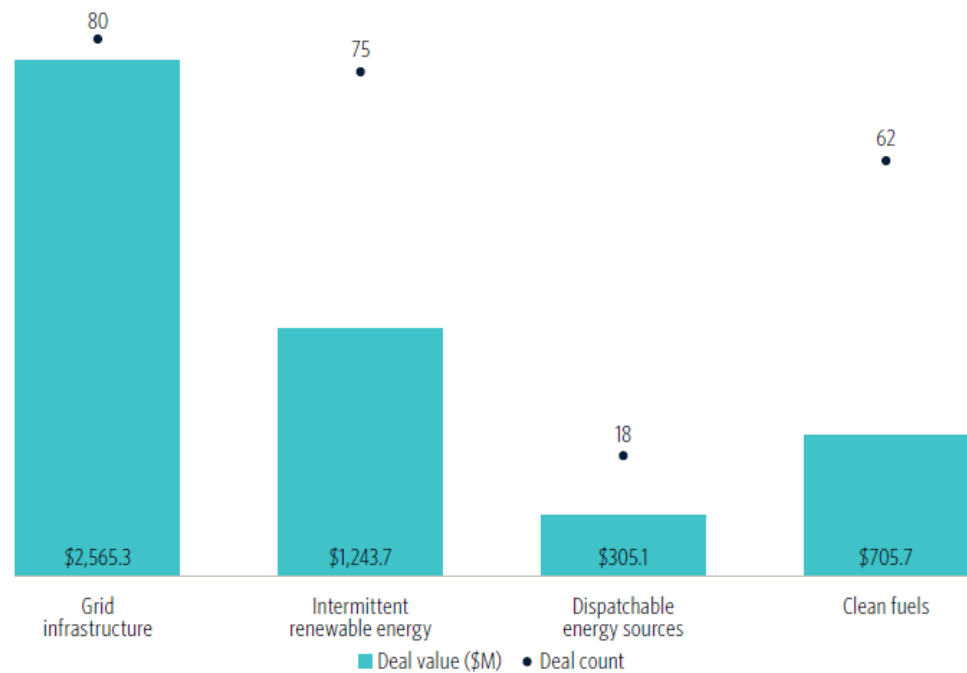
Source: Intro-act, Pitchbook, *Data as of June 30, 2024.

Chart 42: Clean Energy VC Exit Activity



Source: Intro-act, Pitchbook, *Data as of June 30, 2024.

Chart 43: Q224 Clean Energy VC Deal Activity by Segment



Source: Intro-act, Pitchbook, *Data as of June 30, 2024

Chart 44: Trailing 12-Month Clean Energy VC Deal Activity by Segment*



Source: Intro-act, Pitchbook, *Data as of June 30, 2024

Chart 45: Top-10 Clean Energy VC Deals in Q224

Company	Close date	Category	Deal value (\$M)
EnerVenue	6/5/2024	Battery storage	308.1
Hysata	5/8/2024	Hydrogen	112.6
Rondo Energy	6/10/2024	Nonbattery storage	105
Xcimer	6/4/2024	Nuclear fusion	100
Type One Energy	4/29/2024	Nuclear fusion	50
M2X Energy	6/20/2024	Clean conventional fuels	40
Aether Fuels	6/27/2024	Waste to energy/fuel	34
LanzaJet	6/25/2024	Waste to energy/fuel	30
enspired	5/14/2024	Analytics & grid management	27.3
Molten Industries	6/20/2024	Hydrogen	25

Source: Intro-act, Pitchbook, *Data as of June 30, 2024.

Chart 46: Top VC-backed Clean Energy Companies by Total VC Raised to Date*

Company	VC (\$M) raised to date	Category
Northvolt	6867.5	Battery storage
SVOLT	3231.3	Battery storage
Commonwealth Fusion Systems	1999	Nuclear fusion
TAE	1314.7	Nuclear fusion
Sila	1308.5	Battery storage
Form Energy	928	Battery storage
Hithium	909.5	Battery storage
Enerkem	893.9	Waste to energy/fuel
Nexamp	865.5	Solar photovoltaic, battery storage
TerraPower	865	Nuclear fission

Source: Intro-act, *Data as of June 30, 2024.

CLEANTECH SPAC ACTION

Chart 47: Cleantech SPACs (Searching)

S. No	SPAC Name	Ticker	Trust Value (\$ Mn)	IPO Date	Completion Date
1	Global Lights Acquisition Corp	GLAC	69	11/14/2023	5/14/2025
2	Legato Merger Corp. III	LEGT	201	2/6/2024	5/6/2026
3	Nabors Energy Transition Corp. II	NETD	300	7/13/23	7/13/25
4	Spring Valley Acquisition Corp. II	SVII	230	10/12/2022	10/17/2025
5	EQV Ventures Acquisition Corp	EQV	350	8/6/2024	8/6/2026

Source: Intro-act, Boardroom Alpha

Chart 48: Cleantech SPACs (Business Combination Agreement Announced)

S.No	SPAC Name	Ticker	Target Company	EV (\$ Mn)	Expected Closing
1	AltC Acquisition Corp.	ALCC	Oklo	850	3Q23
2	Aquaron Acquisition Corp.	AQU	Bestpath	1200	2Q24
3	Blue World Acquisition Corp	BWAQ	Vietnam Sunergy Cell Company	0	2Q24
4	ESGEN Acquisition Corp	ESAC	Sunergy	475	2Q23
5	Finnovate Acquisition Corp.	FNVT	Scage International Limited	1,000	2Q24
6	Focus Impact BH3 Acquisition Company	BHAC	XCF Global Capital	1,840	3Q24
7	Project Energy Reimagined Acquisition Corp.	PEGR	Heramba Electric	450	1Q24
8	Portage Fintech Acquisition Corp.	PFTA	Rbio Energy	350	3Q24
9	RMG Acquisition Corp. III	RMGC	H2B2 Electrolysis Technologies	0	3Q23
10	TMT Acquisition Corp.	TMTC	eLong Power Holding Limited	450	4Q24
11	TortoiseEcofin Acquisition Corp. III	TRTL	One Energy Enterprises LLC	300	3Q23
12	Roth CH Acquisition V Co.	ROCL	New Era Helium Corporation	90	1Q24
13	Inflection Point Acquisition Corp. II	IPXX	USA Rare Earth, LLC	870	4Q24

Source: Intro-act, Boardroom Alpha

Chart 49: Cleantech SPACs (Closed Deals Since January 2022)

S. No	SPAC Name	Ticker (Old)	DE-SPAC	Ticker	Closing Date
1	Decarbonization Plus Acquisition Corporation II.	DRCN	TRITIUM DCFC LTD	DCFC	13-Jan-22
2	Ivanhoe Capital Acquisition Corp	IVAN	SES Holdings	SES	3-Feb-22
3	CITIC Capital Acquisition Corp	CCAC	Quanergy Systems	QNGY	8-Feb-22
4	Novus Capital Corporation II	NXU	Energy Vault	NRGV	11-Feb-22
5	Spartan Energy Acquisition Corp.	SPAQ	Fisker Inc.	FSR	15-Mar-22
6	Poema Global Holdings Corp.	PPGH	GOGORO INC	GGR	4-Apr-22
7	Spring Valley Acquisition Corp	SV	Spring Valley Acquisition Corp	SMR	2-May-22
8	ArcLight Clean Transition Corp. II	ACTD	OPAL FuelsGroups	OPAL	21-Jul-22
9	Founder SPAC	FOUN	Rubicon Technologies	RBT	15-Aug-22
10	Kensington Capital Acquisition Corp. IV	KCAC	Amprius Technologies	AMPX	14-Sep-22
11	Chardan NexTech Acquisition 2 Corp.	CNTQ	Dragonfly Energy Corp.	DFLI	7-Oct-22
12	Executive Network Partnering Corp	ENPC	Granite Ridge Resources	GRNT	24-Oct-22
13	ACE Convergence Acquisition Corp	ACEV	Tempo Automation	TMPO	22-Nov-22
14	Decarbonization Plus Acquisition Corp IV	DCRD	Hammerhead Resources	HHRS	23-Feb-23
15	Roth CH Acquisition IV Co.	ROCG	Tigo Energy Inc	TYGO	23-May-23
16	Rice Acquisition Corp. II	RONI	NET Power	NPWR	8-Jun-23
17	ROC Energy Acquisition Corp.	ROC	Drilling Tools International	DTI	20-Jun-23
18	Freedom Acquisition I Corp	FACT	Complete Solar, Inc.	CSLR	17Jul-23
19	TLG Acquisition One Corp.	TLGA	Electriq Power	ELIQ	31-Jul-23
20	Genesis Unicorn Capital Corp.	GENQ	Environmental Solutions Group Holdings Limited	ESGL	2-Aug-23
21	Perception Capital Corp. II	PCCT	Spectaire Inc.	SPEC	19-Oct-23
22	HNR Acquisition Corp	HNRA	Pogo Resources, LLC	HNRA	15-Nov-23
23	Nabors Energy Transition Corp.	NETC0	Vast	VSTE	18-Dec-23
24	Dune Acquisition Corporation	DUNE	Global Hydrogen Energy	HGAS	21-Dec-23
25	Clean Earth Acquisitions Corp.	CLIN	Alternus Energy Group Plc	ALCE	22-Dec-23
26	Nubia Brand International Corp.	NUBI	Honeycomb Battery Co.	STI	2-Feb-24
27	ESGEN Acquisition Corp	ESAC	Sunergy	ZEO	13-Mar-24
28	Power Digital Infrastructure Acquisition II Corp.	XPDB	Montana Technologies	AIRJ	14-Mar-24
29	Keyarch Acquisition Corp	KYCH	ZOOZ Power Ltd.	ZOOZ	4-Apr-24
30	Global Partner Acquisition Corp II	GPAC	Stardust Power, Inc.	SDST	9-July-24
31	Blue World Acquisition Corp.	BWAQ	Vietnam Sunergy Cell Company	TOYO	1-July-24

Source: Intro-act, Boardroom Alpha

CLEANTECH EVENTS CALENDAR

S. No.	Event	Place	Dates
1	Paper & Plastics Recycling Conference	Chicago, IL	October 23, 2024
2	Tomorrow. Blue Economy World Congress	Barcelona, Spain	November 05, 2024
3	MassChallenge’s BlueTech Demo Day	Boston, MA	November 12, 2024
4	GCV Asia 2024: Congress	Tokyo, Japan	November 13, 2024
5	London Climate Technology Show	London, UK	November 27, 2024
6	AIVP World Conference Cities & Ports	Lisbon, Portugal	November 27, 2024

Source: Intro-act, Multiple web sources

CLEANTECH COMP TABLE

					Price Performance			Sales			EBITDA		EV/ EBITD A		Book Value	
		Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1			Book/ Share	P/ Book
Peer Set																
Biofuels		Ticker	142,343	231,538			-12%	463,750	452,219	0.5 x	41,192	29,700	7.8 x			1.3 x
1	VALERO ENERGY CORP	VLO	134.7	43,139	51,442	37%	-11%	4%	144,766	128,566	0.4 x	14,580	6,803	7.6 x	79.41	1.7 x
2	ARCHER DANIELS MIDLAND CO	ADM	57.7	27,574	35,484	34%	-12%	-20%	93,935	87,450	0.4 x	6,185	4,695	7.6 x	46.33	1.2 x
3	WILMAR INTERL LTD	F34-SG	2.5	15,745	38,285	10%	-10%	-4%	67,155	68,932	0.6 x	3,565	3,733	10.3 x	3.35	0.8 x
4	BUNGE GLOBAL SA	BG	94.7	13,412	18,944	21%	-9%	-6%	59,540	53,798	0.4 x	3,531	2,529	7.5 x	70.61	1.3 x
5	DARLING INGREDIENTS INC	DAR	35.1	5,585	10,141	46%	-7%	-30%	6,788	5,966	1.7 x	1,612	1,183	8.6 x	28.06	1.3 x
6	ENERGY ABSOLUTE PC	EA-TH	0.3	939	2,724	452%	-65%	-80%	837	626	4.4 x	353	294	9.3 x	0.32	0.8 x
7	COSAN SA	CSAN3-BR	2.1	4,025	17,529	91%	-2%	-46%	7,930	28,331	0.6 x	4,493	3,373	5.2 x	1.95	1.1 x
8	SD GUTHRIE BERHAD	5285-MY	1.1	7,574	9,377	8%	-20%	13%	3,825	4,298	2.2 x	707	863	10.9 x	0.63	1.7 x
9	VALMET OYJ	VALMT-FI	26.4	4,879	6,061	27%	-21%	-8%	5,951	5,828	1.0 x	771	794	7.6 x	14.74	1.8 x
10	VERBIO SE	VBK-DE	17.2	1,097	1,177	131%	-6%	-48%	1,846	1,925	0.6 x	136	152	7.7 x	16.23	1.1 x
11	SAO MARTINHO SA	SMT03-BR	4.8	1,580	2,843	64%	-6%	-19%	1,306	1,347	2.1 x	586	671	4.2 x	3.54	1.3 x
12	GREEN PLAINS INC	GPPE	11.7	756	1,231	173%	-1%	-54%	3,296	2,528	0.5 x	44	41	29.9 x	13.42	0.9 x
13	FIRST RESOURCES	EB5-SG	1.1	1,780	1,970	6%	-12%	6%	981	975	2.0 x	274	353	5.6 x	0.86	1.3 x
14	COFCO BIOTECH	000930-CN	0.8	1,542	2,128	17%	-25%	-11%	2,812	-	-	6	-	-	0.80	1.0 x

15	ANDERSONS INC	ANDE	48.3	1,646	1,906	27%	-8%	-16%	14,750	11,513	0.2 x	405	325	5.9 x	38.47	1.3 x
16	MONTAUK RENEWABLES	MNTK	5.6	809	822	94%	-40%	-37%	175	210	3.9 x	48	66	12.4 x	1.80	3.1 x
17	ADECOAGRO S A	AGRO	11.2	1,165	2,163	12%	-20%	1%	1,442	1,513	1.4 x	470	505	4.3 x	13.30	0.8 x
18	RAIZEN SA	RAIZ4-BR	0.5	725	13,615	63%	-8%	-35%	42,446	41,851	0.3 x	3,028	2,705	5.0 x	0.40	1.3 x
19	GREENVOLT ENERGI	GVOLT-PT	9.1	1,481	2,870	3%	-37%	0%	370	654	4.4 x	115	217	13.3 x	3.62	2.5 x
20	CROPENERGIES AG	CE2-DE	14.0	1,218	1,158	8%	-47%	10%	-	-	-	-	-	-	9.88	1.4 x
21	LONGYAN ZHUOYUE	688196-CN	3.5	426	408	87%	-28%	-25%	388	352	1.2 x	18	-	-	3.26	1.1 x
22	SHANDONG MINHE ANI	002234-CN	1.2	410	512	66%	-14%	-31%	288	311	1.6 x	(31)	(25)	-	0.86	1.4 x
23	REX AMERICAN RES	REX	44.7	785	529	36%	-20%	-5%	833	627	0.8 x	-	85	6.2 x	30.72	1.5 x
24	ENVIVA INC	EVA	0.0	0	1,591	264900 %	-95%	100%	-	-	-	-	-	-	4.16	0.0 x
25	AUDAX RENOVABLES	ADX-ES	2.0	904	1,251	9%	-43%	39%	2,487	2,131	0.6 x	106	127	9.9 x	0.51	3.9 x
26	JALLES MACHADO SA	JALL3-BR	1.1	329	874	69%	-1%	-33%	352	418	2.1 x	234	277	3.2 x	1.26	0.9 x
27	HENAN BCCY ENVIRON	300614-CN	1.5	233	314	135%	-25%	-45%	-	-	-	-	-	-	1.36	1.1 x
28	DALMIA BHARAT	500097-IN	6.4	519	627	8%	-37%	29%	347	419	1.5 x	49	60	10.4 x	4.32	1.5 x
29	CAMLIN FINE	532834-IN	1.2	196	266	70%	-18%	-28%	194	224	1.2 x	14	25	10.7 x	0.62	1.9 x
30	GEVO INC	GEVO	2.1	498	324	10%	-76%	79%	17	20	16.5 x	(44)	(38)	-	2.17	1.0 x
31	TUNAS BARU LAMPUNG	TBLA-ID	0.0	252	976	33%	-14%	-5%	-	1,103	0.9 x	-	145	6.7 x	0.09	0.5 x
32	ALTO INGREDIENTS	ALTO	1.7	132	216	188%	-26%	-35%	1,223	1,013	0.2 x	21	13	17.3 x	3.47	0.5 x
33	DHAMPUR SUGAR MILL	500119-IN	2.5	165	275	45%	-9%	-17%	261	-	-	32	-	-	2.01	1.3 x

34	AEMETIS INC	AMTX	2.7	128	558	159%	-20%	-48%	187	301	1.9 x	(22)	(11)	-	(5.44)	-0.5 x
35	DHAMPUR BIO	543593-IN	1.7	111	233	23%	-19%	-9%	-	-	-	-	-	-	1.82	0.9 x
36	CODEXIS INC	CDXS	3.4	240	209	45%	-55%	11%	70	65	3.2 x	(48)	(41)	-	0.87	3.9 x
37	LGI LIMITED	LGI-AU	2.0	177	191	4%	-40%	46%	23	24	7.8 x	10	12	16.4 x	0.41	4.8 x
38	AGRIA GROUP	AGH-BG	10.9	74	258	23%	-5%	-4%	-	-	-	-	-	-	25.60	0.4 x
39	COMSTOCK INC	LODE	0.4	85	57	74%	-69%	-25%	1	2	25.4 x	-	-	-	0.47	0.9 x
40	FERMENTALG	FALG-FR				-	-	-	-	-	-	-	-	-		-
41	GREENLANE	GRN-CA	0.1	8	2	211%	-13%	-49%	43	-	-	(8)	-	-	0.12	0.4 x

			Price Performance						Sales			EBITDA		Book Value		
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITD A	Book/ Share	P/ Book
Peer Set																
Clean Fossil Fuels & CCS		Ticker		152,169	191,674			4%	145,062	146,542	1.3 x	33,319	31,528	6.1 x		3.0 x
42	AIR PRODS & CHEMS	APD	323.2	71,859	85,661	2%	-34%	18%	12,600	12,151	7.0 x	4,702	5,013	17.1 x	67.94	4.8 x
43	ENI SPA	ENI-IT	15.2	50,006	76,129	13%	-5%	-7%	100,947	100,483	0.8 x	22,530	20,750	3.7 x	17.29	0.9 x
44	SHANXI LU'AN ENVIR	601699-CN	2.3	6,752	4,195	76%	-20%	-27%	5,958	5,132	0.8 x	1,999	1,390	3.0 x	2.20	1.0 x
45	HENAN SHENHUO COAL	000933-CN	2.6	5,777	8,016	37%	-29%	9%	5,212	5,415	1.5 x	1,488	1,207	6.6 x	1.30	2.0 x
46	CNOOC ENERGY	600968-CN	0.6	6,257	5,594	15%	-41%	53%	6,811	7,659	0.7 x	820	925	6.0 x	0.35	1.7 x
47	CALIFORNIA RES	CRC	51.0	4,571	3,668	13%	-16%	-7%	2,801	2,815	1.3 x	866	1,019	3.6 x	30.23	1.7 x
48	KEDA INDUSTRIAL GR	600499-CN	1.1	2,043	2,637	63%	-15%	-27%	1,343	1,597	1.7 x	350	350	7.5 x	0.85	1.3 x
49	AKER SOLUTIONS ASA	AKSO-NO	3.8	1,854	860	36%	-13%	-6%	3,397	4,688	0.2 x	122	414	2.1 x	3.84	1.0 x
50	GUIZHOU PANJIANG R	600395-CN	0.8	1,638	3,487	24%	-14%	-12%	1,298	1,252	2.8 x	232	191	18.2 x	0.72	1.1 x
51	TECNICAS REUNIDAS	TRE-ES	12.8	1,029	890	14%	-41%	43%	4,475	4,878	0.2 x	194	230	3.9 x	4.91	2.6 x
52	AKER CARBON CA	ACC-NO	0.5	331	253	147%	-10%	-59%	149	194	1.3 x	(19)	(9)	-	0.10	5.4 x
53	TIDEWATER	LCFS-CA	1.4	52	285	379%	-8%	-77%	72	278	1.0 x	34	48	6.0 x	11.03	0.1 x

			Price Performance						Sales			EBITDA		Book Value		
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITD A	Book/ Share	P/ Book
Peer Set																
Diversified Renewables		Ticker		416,674	771,929			21%	440,311	432,334	1.8 x	70,705	72,260	10.7 x		1.2 x
54	ENBRIDGE INC	ENB-CA	41.3	89,861	160,955	1%	-24%	14%	32,551	28,353	5.7 x	12,223	13,226	12.2 x	20.54	2.0 x
55	HITACHI	6501-JP	27.2	125,914	131,658	4%	-58%	89%	62,089	62,867	2.1 x	7,735	9,150	14.4 x	9.06	3.0 x
56	ENGIE	ENGI-FR	17.5	42,709	85,947	4%	-20%	0%	89,257	83,338	1.0 x	16,216	16,202	5.3 x	13.12	1.3 x
57	NIDEC CORPORATION	6594-JP	20.0	23,828	25,910	29%	-11%	3%	15,148	17,388	1.5 x	1,904	2,535	10.2 x	10.78	1.9 x
58	RWE AG	RWE-DE	34.7	25,790	36,026	34%	-6%	-24%	31,103	26,789	1.3 x	9,122	5,872	6.1 x	48.43	0.7 x
59	CHUBU ELEC POWER	9502-JP	11.3	8,538	28,218	27%	0%	-13%	23,042	23,311	1.2 x	3,402	2,378	11.9 x	25.72	0.4 x
60	ZHEJIANG ZHENENG	600023-CN	0.9	11,571	17,473	25%	-35%	33%	13,244	13,800	1.3 x	2,302	2,798	6.2 x	0.73	1.2 x
61	BROOKFIELD RENEWABLE	BEP	25.8	7,366	79,322	11%	-23%	-2%	5,038	6,079	13.0 x	2,130	2,383	33.3 x	16.39	1.6 x
62	TOKYO ELEC POWER	9501-JP	4.3	6,891	46,760	68%	-7%	-18%	43,883	45,647	1.0 x	-	-	-	13.90	0.3 x
63	FUJI ELECTRIC CO.	6504-JP	55.4	8,277	8,459	25%	-33%	35%	7,014	7,533	1.1 x	993	1,151	7.3 x	30.11	1.8 x
64	MERCURY NZ LTD	MCY-NZ	4.1	5,729	6,833	9%	-19%	-2%	2,106	2,204	3.1 x	539	507	13.5 x	2.21	1.8 x
65	BHARAT HEAVY ELECT	500103-IN	3.2	11,250	11,572	24%	-58%	39%	2,871	3,827	3.0 x	50	206	56.2 x	0.84	3.9 x
66	SOJITZ CORPORATION	2768-JP	22.5	5,073	10,962	27%	-14%	3%	15,316	17,083	0.6 x	835	1,312	8.4 x	31.27	0.7 x
67	ULTRAPAR	UGPA3-BR	3.7	4,079	6,036	73%	-1%	-32%	25,374	23,138	0.3 x	1,215	979	6.2 x	2.40	1.5 x
68	HUBEI ENERGY GR	000883-CN	0.7	4,504	10,965	25%	-20%	17%	2,576	3,010	3.6 x	797	1,100	10.0 x	0.73	0.9 x
69	IHI CORPORATION	7013-JP	56.4	8,727	11,760	2%	-69%	194%	8,501	10,802	1.1 x	(12)	1,315	8.9 x	18.45	3.1 x

70	CIA ENERG MG-CEMIG	CMIG4-BR	2.0	3,744	7,242	13%	-16%	8%	7,011	6,284	1.2 x	1,578	1,517	4.8 x	1.71	1.1 x
71	ELEC POWER DEV	9513-JP	16.0	2,933	13,362	11%	-10%	-1%	8,070	7,824	1.7 x	1,438	1,303	10.3 x	48.04	0.3 x
72	ENCAVIS AG	ECV-DE	18.8	3,033	5,250	4%	-38%	9%	505	498	10.5 x	354	336	15.6 x	6.61	2.8 x
73	CENTRAIS ELET BRAS	ELET6-BR	7.6	2,117	25,580	34%	-8%	-20%	7,405	6,775	3.8 x	3,499	3,681	6.9 x	8.73	0.9 x
74	TERNA ENERGY SA	TENERGY-GR	21.3	2,515	3,381	3%	-33%	22%	351	-	-	189	-	-	4.27	5.0 x
75	TAURON POLSKA	TPE-PL	0.9	1,513	5,009	28%	-21%	-9%	11,740	9,266	0.5 x	1,452	1,420	3.5 x	2.54	0.3 x
76	ROMANDE ENERGIE	REHN-CH	57.8	1,646	1,721	16%	-4%	-2%	998	933	1.8 x	220	153	11.3 x	98.79	0.6 x
77	RENEW ENERGY	RNW	5.9	1,497	9,662	32%	-11%	-23%	1,158	1,175	8.2 x	831	896	10.8 x	3.39	1.7 x
78	GEK TERNA S.A	GEKTERN A-GR	19.1	1,973	3,202	5%	-31%	37%	3,749	3,187	1.0 x	628	422	7.6 x	12.55	1.5 x
79	FIRST GEN	FGEN-PH	0.3	1,123	2,486	17%	-10%	-1%	2,542	2,516	1.0 x	820	974	2.6 x	0.93	0.3 x
80	KEPCO PLANT	051600-KR	32.5	1,462	1,281	6%	-27%	23%	1,149	1,155	1.1 x	186	201	6.4 x	21.40	1.5 x
81	BCPG PCL	BCPG-TH	0.2	602	1,238	31%	-29%	-22%	140	129	9.6 x	106	93	13.3 x	0.34	0.6 x
82	SHANGHAI ELECTRIC	2727-HK	0.2	659	9,236	29%	-22%	8%	15,883	16,648	0.6 x	735	-	-	0.47	0.5 x
83	ABO WIND AG	AB9-DE	51.1	472	768	30%	-17%	13%	326	374	2.1 x	64	70	10.9 x	24.09	2.1 x
84	PETROVIETNAM	NT2-VN	0.8	227	197	39%	-5%	-22%	259	206	1.0 x	47	29	6.9 x	0.58	1.4 x
85	AKER HORIZONS	AKH-NO	0.2	167	1,642	111%	-14%	-44%	-	-	-	-	-	-	0.52	0.5 x
86	ENER INNOV	EIDF-ES	6.0	355	388	128%	-40%	-13%	206	145	2.7 x	(11)	18	21.2 x	0.04	159.9 x
87	RENEWABLE JAPAN	9522-JP	3.9	117	922	156%	-8%	-54%	223	-	-	-	-	-	2.71	1.4 x
88	ALTIVUS RENEWABLE	ARR-CA	8.6	264	198	3%	-44%	43%	8	11	17.5 x	4	7	26.7 x	6.82	1.3 x

89	CLEARWISE AG	ABO-DE	2.0	149	310	23%	-15%	-17%	48	41	7.6 x	35	25	12.3 x	2.39	0.8 x
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			Price Performance						Sales			EBITDA		Book Value		
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITD A	Book/ Share	P/ Book
Peer Set																
Batteries		Ticker		347,266	401,294			11%	154,281	150,552	2.7 x	18,909	23,356	17.2 x		2.8 x
90	CATL	300750-CN	33.9	149,246	142,245	26%	-42%	48%	55,710	54,397	2.6 x	9,841	11,661	12.2 x	6.37	5.3 x
91	LG ENERGY SOLUTION	373220-KR	296.3	69,342	81,243	30%	-24%	-11%	25,254	19,378	4.2 x	3,202	2,995	27.1 x	67.48	4.4 x
92	ORSTED A/S	ORSTED-DK	63.7	26,783	37,932	6%	-45%	15%	11,876	11,550	3.3 x	2,700	3,963	9.6 x	20.11	3.2 x
93	LUCID GROUP INC	LCID	3.3	7,583	7,433	65%	-30%	-22%	595	777	9.6 x	(2,609)	(2,468)	-	1.52	2.2 x
94	SOLAREDGE TECH.	SEDG	18.2	1,042	1,075	617%	-6%	-81%	2,977	1,061	1.0 x	346	(398)	-	36.98	0.5 x
95	GENERAC	GNRC	170.2	10,239	11,587	3%	-53%	32%	4,023	4,263	2.7 x	638	747	15.5 x	39.39	4.3 x
96	LITTELFUSE INC	LFUS	257.6	6,384	6,743	7%	-17%	-4%	2,363	2,203	3.1 x	529	419	16.1 x	99.49	2.6 x
97	WUXI LEAD INTELLIG	300450-CN	2.5	3,907	4,227	61%	-27%	-30%	2,292	2,095	2.0 x	341	280	15.1 x	1.08	2.3 x
98	CHINA SHIPBUILDI.G	600482-CN	3.3	7,282	6,176	15%	-35%	29%	6,224	7,419	0.8 x	286	866	7.1 x	2.41	1.4 x
99	CNGR ADVANCED	300919-CN	5.2	4,840	8,281	32%	-28%	5%	4,730	5,712	1.4 x	538	662	12.5 x	3.06	1.7 x
100	ENERSYS	ENS	101.6	4,088	4,644	11%	-18%	1%	3,582	3,744	1.2 x	516	551	8.4 x	44.93	2.3 x
101	SHENZHEN KEDALI	002850-CN	12.9	3,487	3,633	18%	-40%	8%	1,452	1,775	2.0 x	305	341	10.7 x	5.67	2.3 x
102	GOTION HIGH-TECH	002074-CN	3.0	3,997	10,043	20%	-25%	1%	4,363	5,375	1.9 x	401	574	17.5 x	1.99	1.5 x
103	VOLTRONIC POWER	6409-TW	66.8	5,858	5,616	12%	-41%	20%	600	718	7.8 x	146	169	33.3 x	2.75	24.3 x
104	WUXI AUTOWELL	688516-CN	6.7	2,117	2,358	72%	-31%	-26%	873	1,405	1.7 x	222	322	7.3 x	1.84	3.7 x
105	FARASIS ENERGY	688567-CN	1.7	2,047	2,304	67%	-31%	-27%	2,270	2,269	1.0 x	(91)	124	18.6 x	1.19	1.4 x

106	FLUENCE ENERGY INC	FLNC	21.3	2,748	2,433	31%	-39%	-10%	2,218	2,760	0.9 x	(61)	58	41.8 x	3.27	6.5 x
107	ZHUHAI COSMX	688772-CN	2.2	2,451	3,026	46%	-29%	-30%	1,582	1,733	1.7 x	293	240	12.6 x	0.87	2.5 x
108	BEIJING EASPRING	300073-CN	5.8	2,799	2,226	30%	-35%	7%	2,093	1,255	1.8 x	322	158	14.1 x	3.65	1.6 x
109	HUNAN CHANGYUAN	688779-CN	0.7	1,440	1,643	63%	-22%	-27%	1,481	1,190	1.4 x	15	71	23.1 x	0.55	1.3 x
110	ZHEJIANG HANGKE	688006-CN	2.5	1,508	1,228	41%	-23%	-25%	553	533	2.3 x	129	111	11.0 x	1.22	2.0 x
111	GUANGZHOU GREAT	300438-CN	4.5	2,258	2,732	21%	-49%	13%	957	798	3.4 x	87	-	-	1.54	2.9 x
112	SHENZHEN SENIOR	300568-CN	1.3	1,576	2,258	72%	-27%	-40%	416	538	4.2 x	167	191	11.8 x	1.04	1.2 x
113	KEHUA DATA CO	002335-CN	3.2	1,464	1,865	44%	-26%	-19%	1,123	1,376	1.4 x	186	186	10.0 x	1.41	2.2 x
114	ZHEJIANG NARADA	300068-CN	2.8	2,461	3,665	12%	-64%	56%	2,024	1,879	2.0 x	109	182	20.2 x	0.91	3.1 x
115	ANKER INNOVATIONS	300866-CN	11.4	2,238	5,564	25%	-41%	18%	2,416	3,210	1.7 x	286	317	17.6 x	2.20	5.2 x
116	SUNNOVA ENERGY	NOVA	6.2	778	9,364	163%	-46%	-59%	721	853	11.0 x	275	629	14.9 x	13.97	0.4 x
117	W-SCOPE CHUNGJU	393890-KR	13.5	456	715	209%	-7%	-61%	228	298	2.4 x	72	59	12.2 x	23.28	0.6 x
118	V-GUARD INDUSTRIES	532953-IN	5.3	2,297	2,333	30%	-36%	50%	575	671	3.5 x	51	68	34.4 x	0.50	10.6 x
119	SINENG ELECTRIC CO	300827-CN	5.7	2,039	2,188	20%	-55%	33%	681	964	2.3 x	65	90	24.2 x	0.75	7.6 x
120	GUIZHOU ZHENHUA E-	688707-CN	1.5	752	878	127%	-25%	-49%	950	249	3.5 x	57	(22)	-	1.33	1.1 x
121	PEOPLE AND TECH.	137400-KR	41.3	980	1,042	57%	-36%	8%	404	770	1.4 x	62	120	8.7 x	17.02	2.4 x
122	NIKOLA CORP	NKLA	4.3	215	228	804%	-4%	-84%	36	134	1.7 x	(540)	(387)	-	10.80	0.4 x
123	VARTA AG	VAR1-DE	3.6	155	762	623%	-77%	-84%	887	909	0.8 x	23	67	11.4 x	4.59	0.8 x
124	FREYR BATTERY	FREY	1.0	143	(57)	326%	-11%	-45%	0	0	-	(75)	(100)	-	4.00	0.3 x

125	SHENZHEN CLICK	002782-CN	1.6	796	791	36%	-31%	-18%	-	-	-	-	-	-	0.55	3.0 x
126	ENCHEM CO LTD	348370-KR	140.7	2,925	3,016	107%	-74%	128%	-	-	-	-	-	-	16.40	8.6 x
127	LI-CYCLE	LICY	2.3	52	507	915%	-48%	-50%	18	27	19.1 x	(149)	(92)	-	10.48	0.2 x
128	HNAC TECHNOLOGY	300490-CN	1.1	444	581	63%	-24%	-31%	-	-	-	-	-	-	1.00	1.1 x
129	GOGORO INC	GGR	0.6	156	379	418%	-14%	-78%	350	329	1.2 x	29	33	11.4 x	0.95	0.6 x
130	MICROVAST	MVST	0.2	68	183	739%	-16%	-85%	307	-	-	(20)	-	-	1.52	0.1 x
131	ZHEJIANG POWER	688184-CN	1.8	109	381	71%	-16%	-30%	-	205	1.9 x	-	(45)	-	2.37	0.8 x
132	CALB GROUP CO LTD.	3931-HK	1.5	920	9,426	70%	-6%	-33%	3,736	4,476	2.1 x	379	643	14.7 x	2.72	0.6 x
133	FUJIAN NEBULA	300648-CN	3.4	505	625	30%	-46%	-9%	-	-	-	-	-	-	0.79	4.3 x
134	ENERGY VAULT	NRGV	1.3	194	82	150%	-40%	-45%	342	76	1.1 x	(62)	(54)	-	1.30	1.0 x
135	W-SCOPE CO	6619-JP	2.4	130	957	206%	-3%	-63%	322	368	2.6 x	77	91	10.5 x	7.47	0.3 x
136	EOS ENERGY	EOSE	3.4	728	870	9%	-82%	208%	16	62	13.9 x	(133)	(118)	-	(0.88)	-3.8 x
137	ALLIS ELECTRIC	1514-TW	3.6	964	1,000	55%	-60%	51%	301	298	3.4 x	33	29	34.2 x	0.64	5.6 x
138	VITZROCELL CO LTD	082920-KR	14.3	328	243	21%	-20%	16%	131	144	1.7 x	36	37	6.5 x	8.71	1.6 x
139	VULCAN ENERGY	VUL-AU	3.2	611	551	13%	-61%	67%	7	9	60.3 x	(38)	(48)	-	1.71	1.9 x
140	NHOA	NHOA-FR	1.4	379	347	2%	-59%	108%	295	-	-	(18)	-	-	0.97	1.4 x
141	LEOCH INTL	842-HK	0.2	289	809	12%	-34%	33%	1,864	-	-	-	-	-	0.45	0.5 x
142	FORSEE POWER	FORSE-FR	0.8	57	99	313%	-4%	-72%	183	167	0.6 x	(7)	1	193.0 x	0.88	0.9 x
143	LARGO INC	LGO-CA	2.1	132	187	48%	-33%	-11%	199	136	1.4 x	5	(6)	-	3.15	0.7 x

144	FDK CORPORATION	6955-JP	3.8	133	205	43%	-4%	-23%	403	-	-	-	-	-	3.31	1.2 x
145	MPLUS CORP	259630-KR	7.6	93	114	40%	-6%	-14%	-	-	-	-	-	-	4.86	1.6 x
146	NIPPON DENKAI LTD	5759-JP	4.8	48	122	139%	-2%	-36%	107	144	0.9 x	-	-	-	4.77	1.0 x
147	FLUX PWR HLDGS	FLUX	3.0	50	65	95%	-12%	-27%	-	-	-	-	-	-	0.33	9.2 x
148	PIONEER PWR	PPSI	5.9	64	58	24%	-43%	-14%	41	52	1.1 x	1	2	24.3 x	1.45	4.1 x
149	IDEAL PWR INC	IPWR	7.5	57	37	87%	-13%	-4%	0	-	-	-	-	-	2.79	2.7 x
150	GELION UK LTD	GELN-GB	0.2	33	23	72%	-27%	-22%	3	3	9.0 x	(7)	(7)	-	0.15	1.6 x
151	KYOTO GROUP	KYOTO-NO				-	-	-	-	17	-	-	(4)	-	0.75	-

						Price Performance			Sales			EBITDA			Book Value	
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
Fuel Cells	Ticker			54,278	62,565			15%	37,308	37,220	1.7 x	1,541	4,276	14.6 x		3.3 x
152	CUMMINS INC	CMI	332.7	45,593	52,386	2%	-36%	39%	34,065	33,679	1.6 x	3,017	5,180	10.1 x	69.72	4.8 x
153	PLUG POWER INC	PLUG	2.1	1,812	2,253	283%	-22%	-54%	891	816	2.8 x	(1,073)	(682)	-	3.79	0.5 x
154	BLOOM ENERGY	BE	10.5	2,386	3,517	73%	-20%	-29%	1,333	1,450	2.4 x	73	128	27.5 x	1.86	5.6 x
155	NEL ASA	NEL-NO	0.4	650	468	112%	-8%	-43%	165	144	3.2 x	(48)	(20)	-	0.28	1.4 x
156	BALLARD PWR SYS	BLDP-CA	1.6	488	(158)	146%	-2%	-56%	102	98	-1.6 x	(153)	(136)	-	3.12	0.5 x
157	DOOSAN FUEL CELL	336260-KR	13.2	862	1,383	52%	-10%	-27%	195	331	4.2 x	15	31	44.3 x	4.79	2.7 x
158	SHINRY TECH.	300745-CN	2.3	389	342	120%	-25%	-38%	-	-	-	-	-	-	2.06	1.1 x
159	CERES POWER	CWR-GB	3.1	608	449	30%	-50%	35%	28	74	6.1 x	(63)	(30)	-	1.17	2.7 x
160	FUELCELL ENERGY	FCEL	0.3	183	109	459%	-4%	-79%	123	103	1.1 x	(105)	(94)	-	1.22	0.3 x
161	NANOFILM TECH.	MZH-SG	0.6	418	420	21%	-31%	-9%	132	153	2.7 x	27	40	10.6 x	0.45	1.4 x
162	SFC ENERGY AG	F3C-DE	22.2	385	326	22%	-23%	3%	128	165	2.0 x	16	23	14.3 x	8.74	2.5 x
163	POWERCELL SWEDEN	PCELL-SE	3.7	192	187	38%	-42%	-20%	30	32	5.9 x	(5)	(5)	-	0.46	7.9 x
164	HYZON MOTORS INC	HYZN	2.0	11	(40)	3242%	-4%	-95%	0	14	-2.9 x	(131)	(139)	-	10.74	0.2 x
165	BUMHAN FUEL CELL	382900-KR	11.3	99	146	92%	-5%	-27%	23	-	-	(2)	-	-	9.29	1.2 x
166	BEIJING SINOHYTEC	2402-HK	3.1	110	694	49%	-38%	0%	111	153	4.6 x	(19)	(14)	-	1.73	1.8 x
167	TECO 2030 ASA	TECO-NO	0.1	13	21	850%	-25%	-86%	7	-	-	(9)	-	-	0.02	2.5 x

168	S-FUELCELL	288620-KR	8.4	59	41	84%	-8%	-36%	-	-	-	-	-	-	7.73	1.1 x
169	ADVENT TECH.	ADN	1.8	5	5	980%	-2%	-74%	5	-	-	-	-	-	(1.09)	-1.6 x
170	CELL IMPACT AB	CI-SE	0.0	15	14	571%	-48%	-5%	5	8	1.7 x	(9)	(6)	-	0.04	0.5 x

			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	Price Perfor mance			Sales			EBITDA			Book Value	
			Share Price			% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITD A	Book/ Share	P/ Book
Peer Set																
Geothermal		Ticker		8,574	14,594			0%	4,260	4,278	3.4 x	1,699	1,789	8.2 x		1.5 x
171	ORMAT TECH.	ORA	77.0	4,656	7,006	2%	-24%	2%	829	893	7.8 x	482	533	13.1 x	39.22	2.0 x
172	PERTAMINA GEOTHERM	PGEO-ID	0.1	3,143	3,242	25%	-19%	0%	414	427	7.6 x	336	353	9.2 x	0.05	1.5 x
173	FIRST PHILIPPINE	FPH-PH	1.0	486	3,940	14%	0%	-7%	2,939	2,881	1.4 x	823	846	4.7 x	5.99	0.2 x
174	POLARIS RENEWABLE	PIF-CA	8.9	188	316	18%	-8%	-11%	79	78	4.0 x	58	57	5.5 x	12.90	0.7 x
175	ENVIRONMENT FRIEND	3777-JP	0.2	60	51	63%	-18%	-29%	113	-	-	-	-	-	0.08	2.8 x
176	BLUESTONE RES	BSR-CA	0.3	40	39	139%	-51%	60%	-	-	-	-	-	-	0.16	1.7 x

						Price Performance			Sales			EBITDA			Book Value	
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITDA	Book/Share	P/Book
Peer Set																
GreenTech & Waste Mgt.		Ticker		128,583	173,051			18%	60,766	62,680	2.8 x	9,705	11,628	14.9 x		2.6 x
177	WASTE CONNECTIONS	WCN	182.0	46,971	54,910	3%	-31%	22%	8,022	8,868	6.2 x	2,523	2,905	18.9 x	30.95	5.9 x
178	XYLEM INC	XYL	136.7	33,199	34,496	7%	-36%	20%	7,364	8,585	4.0 x	1,392	1,744	19.8 x	42.57	3.2 x
179	GFL ENVIRONMENTAL	GFL	40.8	14,884	22,825	7%	-34%	18%	5,562	5,767	4.0 x	1,483	1,634	14.0 x	13.09	3.1 x
180	CASELLA WASTE	CWST	103.9	6,404	6,947	5%	-30%	22%	1,265	1,540	4.5 x	295	367	18.9 x	17.85	5.8 x
181	STERICYCLE INC	SRCL	60.9	5,653	7,562	1%	-38%	23%	2,659	2,683	2.8 x	417	468	16.2 x	27.29	2.2 x
182	ACEA SPA	ACE-IT	19.4	4,133	10,174	2%	-42%	27%	5,071	4,925	2.1 x	1,517	1,557	6.5 x	12.38	1.6 x
183	KEPPEL INFRA.	A7RU-SG	0.4	2,185	5,004	7%	-12%	-5%	1,554	1,688	3.0 x	304	338	14.8 x	0.11	3.1 x
184	SIMS LTD	SMSMY	8.8	1,698	2,144	22%	-27%	-17%	5,776	5,150	0.4 x	211	277	7.7 x	8.87	1.0 x
185	CHINA TIANYING INC	000035-CN	0.6	1,568	2,813	34%	-32%	-6%	735	931	3.0 x	220	246	11.4 x	0.65	1.0 x
186	ENERGY RECOVERY	ERII	18.0	1,041	947	11%	-32%	-4%	128	147	6.5 x	29	32	29.6 x	3.81	4.7 x
187	SHANGHAI ENV.	601200-CN	1.1	1,512	3,047	17%	-20%	6%	883	915	3.3 x	242	252	12.1 x	1.16	1.0 x
188	PURECYCLE TECH.	PCT	9.7	1,605	1,929	10%	-75%	140%	0	19	100.8 x	(92)	(82)	-	1.77	5.5 x
189	MONTROSE ENV	MEG	26.9	920	1,261	86%	-27%	-16%	624	713	1.8 x	79	97	13.0 x	13.13	2.0 x
190	GS ENGINEERING	006360-KR	13.6	1,167	4,242	20%	-30%	18%	10,068	9,509	0.4 x	(144)	373	11.4 x	38.72	0.4 x
191	ENVIRI CORP	NVRI	10.4	833	2,315	23%	-46%	16%	2,069	2,442	0.9 x	293	334	6.9 x	6.06	1.7 x
192	NGL ENERGY	NGL	4.3	572	4,556	43%	-12%	-22%	6,957	6,564	0.7 x	610	659	6.9 x	(0.77)	-5.6 x

193	CECO ENVIRONMENTAL	CECE	26.2	917	1,029	20%	-42%	29%	545	607	1.7 x	58	71	14.6 x	6.73	3.9 x
194	WELLE ENV.	300190-CN	0.5	395	777	26%	-33%	-11%	305	367	2.1 x	35	58	13.4 x	0.68	0.7 x
195	TSUKISHIMA HOLDING	6332-JP	9.3	422	400	10%	-13%	3%	797	-	-	-	-	-	14.24	0.7 x
196	VERTEX ENERGY INC	VTNR	0.1	5	453	8812%	-47%	-98%	3,177	-	-	17	-	-	1.34	0.0 x
197	VA TECH WABAG	533269-IN	20.3	1,263	1,237	5%	-74%	169%	343	405	3.1 x	45	56	22.1 x	3.49	5.8 x
198	GREENTECH ENV.	688466-CN	1.8	216	233	57%	-26%	-29%	79	107	2.2 x	18	23	10.1 x	1.37	1.3 x
199	EKOPAK NV	EKOP-BE	18.4	272	329	20%	-22%	-13%	39	78	4.2 x	4	8	40.4 x	3.90	4.7 x
200	CSD WATER SERVICE	603903-CN	0.9	182	437	96%	-17%	-36%	-	-	-	-	-	-	0.92	1.0 x
201	DANIMER SCIENTIFIC	DNMR	0.4	45	422	391%	-24%	-63%	47	43	9.7 x	(39)	(34)	-	2.01	0.2 x
202	DYNAGREEN ENV.	1330-HK	0.4	166	2,156	18%	-32%	36%	547	499	4.3 x	205	241	8.9 x	0.79	0.5 x
203	GREEN IMPACT	GIP-CA	2.6	51	80	46%	-32%	-22%	118	117	0.7 x	(0)	1	100.1 x	3.28	0.8 x
204	ASCENT INDUSTRIES	ACNT	9.1	92	121	23%	-21%	-5%	193	-	-	-	-	-	9.98	0.9 x
205	TACMINA CORP	6322-JP	12.2	94	65	25%	-12%	5%	71	-	-	-	-	-	9.73	1.2 x
206	NAGAOKA INTL	6239-JP	8.0	57	42	56%	-28%	11%	64	-	-	-	-	-	7.00	1.1 x
207	EVERGEN INFRA.	EVGN-CA	1.4	20	42	39%	-7%	-24%	6	11	3.9 x	0	4	11.8 x	2.85	0.5 x
208	PUEQU CO LTD	9264-JP	8.4	39	58	91%	-19%	-6%	56	-	-	-	-	-	6.35	1.3 x

			Price Performance						Sales			EBITDA		Book Value		
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITD A	Book/ Share	P/ Book
Peer Set																
Hyd ro		Ticker		251,795	440,351			5%	179,927	188,852	2.3 x	41,304	45,367	9.7 x		1.5 x
209	VINCI	DG-FR	115.9	68,209	97,368	14%	-10%	-5%	74,052	78,108	1.2 x	12,839	13,682	7.1 x	55.81	2.1 x
210	CEZ	CEZ-CZ	37.1	19,957	24,696	20%	-8%	-13%	14,670	15,710	1.6 x	5,377	5,357	4.6 x	19.46	1.9 x
211	ENDESA SA	ELE-ES	21.4	22,700	35,457	4%	-20%	5%	27,584	25,992	1.4 x	4,092	5,540	6.4 x	7.99	2.7 x
212	HUANENG LANCANG	600025-CN	1.5	26,309	44,921	21%	-31%	20%	3,238	3,611	12.4 x	2,300	2,798	16.1 x	0.44	3.3 x
213	S.P.E.E.H. HIDRO	H2O-RO	27.0	12,123	11,629	12%	-9%	-5%	2,646	2,208	5.3 x	1,754	1,417	8.2 x	10.68	2.5 x
214	TATA POWER CO	500400-IN	5.5	17,624	24,228	7%	-50%	38%	7,364	8,409	2.9 x	1,296	1,486	16.3 x	1.21	4.6 x
215	MERIDIAN ENERGY	MEL-NZ	3.6	9,289	9,911	17%	-22%	2%	3,035	3,155	3.1 x	566	566	17.5 x	2.03	1.8 x
216	ORKLA ASA	ORK-NO	9.6	9,621	11,791	1%	-33%	24%	6,407	6,383	1.8 x	893	947	12.4 x	4.21	2.3 x
217	BROOKFIELD RENEWABLE	BEP.UT-CA	25.7	7,339	59,427	14%	-23%	-3%	5,038	6,079	9.8 x	2,130	2,383	24.9 x	12.13	2.1 x
218	NHPC LTD	533098-IN	1.1	10,761	15,076	32%	-46%	38%	1,141	1,365	11.0 x	585	737	20.5 x	0.46	2.3 x
219	BROOKFIELD RENEW.	BEPC	29.9	5,362	34,034	11%	-28%	4%	4,551	6,037	5.6 x	3,053	3,103	11.0 x	14.78	2.0 x
220	IDACORP INC	IDA	103.7	5,521	8,185	2%	-17%	5%	1,766	1,827	4.5 x	529	562	14.6 x	60.02	1.7 x
221	PORTLAND GEN	POR	48.3	4,974	9,708	2%	-19%	11%	2,923	3,174	3.1 x	880	1,036	9.4 x	33.80	1.4 x
222	CHINA SOUTHERN	600995-CN	1.4	4,397	6,874	22%	-22%	-1%	779	868	7.9 x	498	759	9.1 x	0.96	1.4 x
223	SJVN LTD	533206-IN	1.4	5,673	7,652	42%	-47%	32%	314	392	19.5 x	229	313	24.4 x	0.43	3.4 x

224	COLBUN S.A.	COLBUN-CL	0.1	2,253	3,580	28%	-5%	-20%	2,013	1,626	2.2 x	745	640	5.6 x	0.19	0.7 x
225	BORALEX INC	BLX-CA	25.3	2,601	5,138	7%	-27%	-1%	733	630	8.2 x	499	515	10.0 x	12.23	2.1 x
226	WEBUILD SPA	WBD-IT	2.8	2,827	2,531	4%	-40%	41%	10,882	12,418	0.2 x	892	1,018	2.5 x	1.73	1.6 x
227	INNERGEX	INE-CA	7.0	1,431	6,257	14%	-26%	1%	772	763	8.2 x	545	535	11.7 x	3.52	2.0 x
228	AKSA ENERJI	AKSEN.E-TR	1.0	1,237	1,974	51%	-4%	0%	1,092	840	2.4 x	247	258	7.7 x	0.86	1.2 x
229	ENEL GENERACION	ENGEPEC 1-PE	0.6	1,915	2,262	40%	-23%	-1%	-	-	-	-	-	-	0.28	2.2 x
230	TANGSHAN JIDONG	000401-CN	0.7	1,142	4,374	41%	-26%	-17%	3,907	3,623	1.2 x	351	576	7.6 x	1.49	0.5 x
231	BESTWAY MARINE	300008-CN	0.7	1,251	1,312	6%	-43%	29%	498	-	-	35	-	-	0.17	4.4 x
232	SCATEC ASA	SCATC-NO	7.4	1,178	3,481	17%	-34%	-8%	445	529	6.6 x	343	403	8.6 x	5.09	1.5 x
233	MANAWA ENERGY	MNW-NZ	3.3	1,026	1,309	5%	-30%	21%	289	334	3.9 x	88	68	19.2 x	2.43	1.3 x
234	CK POWER PUBLIC	CKP-TH	0.1	955	1,905	3%	-29%	23%	285	315	6.0 x	111	118	16.1 x	0.10	1.2 x
235	MEIDENSHA CORP	6508-JP	24.8	1,129	1,245	12%	-47%	44%	1,846	2,038	0.6 x	152	193	6.5 x	19.42	1.3 x
236	NAFCO CO LTD	2790-JP	15.7	469	344	28%	-24%	33%	1,226	-	-	-	-	-	41.66	0.4 x
237	TORISHIMA PUMP	6363-JP	19.4	563	495	15%	-40%	32%	522	585	0.8 x	55	64	7.7 x	13.86	1.4 x
238	NORTHWEST PIPE	NWPX	44.6	442	613	4%	-42%	47%	444	488	1.3 x	51	67	9.1 x	35.41	1.3 x
239	TOKYO ENERGY	1945-JP	7.7	269	259	27%	-19%	8%	569	-	-	-	-	-	14.23	0.5 x
240	LITHIUM IONIC	LTH-CA	0.6	94	92	123%	-52%	-53%	-	0	-	-	(17)	-	0.02	35.2 x
241	GIA LAI ELECTRIC.	GEG-VN	0.5	172	616	34%	-7%	-5%	-	104	5.9 x	-	77	8.0 x	0.43	1.1 x
242	INDIAN HUME PIPE	504741-IN	5.5	291	338	26%	-54%	89%	166	187	1.8 x	21	18	18.3 x	1.88	2.9 x

243	DAIDO METAL	7245-JP	3.3	159	447	45%	-4%	-14%	823	909	0.5 x	100	108	4.2 x	10.39	0.3 x
244	DAT PHUONG	DPG-VN	2.2	140	220	11%	-42%	36%	-	185	1.2 x	-	28	7.8 x	1.16	1.9 x
245	REACH SUBSEA	REACH-NO	0.8	214	357	26%	-53%	78%	184	232	1.5 x	88	102	3.5 x	0.33	2.4 x
246	INIZIATIVE	IB-IT	16.0	83	198	5%	-12%	-2%	27	-	-	19	-	-	15.61	1.0 x
247	IMAGINEER CO	4644-JP	6.7	71	34	12%	-7%	4%	38	-	-	-	-	-	8.71	0.8 x
248	SYNERTEC CORP	SOP-AU	0.0	24	18	210%	-5%	-54%	13	15	1.2 x	(4)	(1)	-	0.02	2.4 x

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Peer Set																
Nuclear		Ticker		243,551	424,201			54%	93,429	94,073	4.5 x	26,972	29,052	14.6 x		3.0 x
249	CONSTELLATION	CEG	266.2	83,222	92,459	8%	-59%	128%	24,918	22,669	4.1 x	4,025	4,466	20.7 x	36.48	7.3 x
250	PUBLIC SVC	PEG	88.2	43,923	65,348	5%	-36%	44%	11,237	10,201	6.4 x	4,928	4,133	15.8 x	31.50	2.8 x
251	ENTERGY CORP NEW	ETR	133.4	28,516	56,242	1%	-32%	32%	12,643	12,730	4.4 x	4,590	4,895	11.5 x	68.13	2.0 x
252	CHINA NATL NUCLE.P	601985-CN	1.5	27,707	87,353	18%	-35%	39%	10,333	11,037	7.9 x	6,122	6,996	12.5 x	0.70	2.1 x
253	CAMECO CORP	CCJ	51.7	22,503	23,272	9%	-31%	20%	1,922	2,178	10.7 x	617	1,040	22.4 x	10.40	5.0 x
254	BWX TECHNOLOGIES	BWXT	118.9	10,872	12,032	5%	-39%	55%	2,496	2,642	4.6 x	472	502	24.0 x	10.92	10.9 x
255	CHINA NUCLEAR ENGI	601611-CN	1.2	3,517	16,125	11%	-28%	20%	15,105	16,542	1.0 x	1,104	1,286	12.5 x	0.94	1.2 x
256	CGN POWER CO LTD	1816-HK	0.4	4,254	52,126	23%	-39%	46%	11,422	12,146	4.3 x	4,911	5,502	9.5 x	0.32	1.2 x
257	NEXGEN ENERGY LTD	NXE	7.3	4,105	4,026	22%	-29%	4%	2	2	1,838.9 x	(52)	(39)	-	1.54	4.7 x
258	URANIUM ENERGY	UEC	7.3	3,020	2,856	14%	-45%	15%	0	140	20.3 x	(32)	31	92.0 x	1.90	3.9 x
259	LANZHOU LS HEAVY	603169-CN	0.7	900	1,456	31%	-21%	-21%	713	838	1.7 x	63	75	19.4 x	0.35	2.0 x
260	DENISON MINES	DNN	1.9	1,722	1,629	28%	-27%	9%	1	4	387.5 x	68	(42)	-	0.50	3.9 x
261	ENERGY FUELS INC	UUUU	5.7	1,111	770	52%	-26%	-20%	38	61	12.7 x	(27)	(12)	-	2.31	2.5 x
262	SINOSEAL HOLDING	300470-CN	4.9	1,020	875	30%	-18%	-6%	189	216	4.1 x	60	71	12.4 x	1.79	2.7 x
263	BEIJER ALMA AB	BEIA.B-SE	17.4	933	1,305	26%	-13%	-8%	658	694	1.9 x	120	127	10.3 x	6.58	2.6 x
264	JIANGSU SHENTONG	002438-CN	1.5	770	873	31%	-27%	-10%	294	333	2.6 x	68	83	10.5 x	0.94	1.6 x

265	CENTRUS ENERGY	LEU	61.3	954	913	26%	-43%	13%	320	395	2.3 x	62	52	17.6 x	4.71	13.0 x
266	EAGLE INDUSTRY	6486-JP	14.3	710	760	5%	-27%	38%	1,068	-	-	-	-	-	18.52	0.8 x
267	TAIHEI DENGYO	1968-JP	34.8	724	487	14%	-27%	14%	830	929	0.5 x	-	-	-	35.69	1.0 x
268	NUSCALE PWR	SMR	13.6	1,290	1,081	43%	-87%	314%	23	13	82.7 x	(147)	(132)	-	1.47	9.2 x
269	FISSION URANIUM	FCUUF	0.8	696	587	25%	-34%	-1%	0	0	-	(9)	(15)	-	0.47	1.7 x
270	UR-ENERGY INC	URG	1.2	427	288	70%	-18%	-23%	18	32	8.9 x	(16)	(23)	-	0.31	3.8 x
271	SUNG KWANG BEND	014620-KR	10.1	289	184	26%	-28%	10%	187	184	1.0 x	39	47	3.9 x	14.53	0.7 x
272	WOOJIN INC	105840-KR	5.7	117	126	43%	-10%	-18%	96	-	-	14	-	-	6.77	0.8 x
273	STUDSVIK	SVIK-SE	12.2	101	109	18%	-34%	-5%	79	89	1.2 x	6	8	13.1 x	4.84	2.5 x
274	CHINA NUCLEAR	611-HK	0.1	112	918	19%	-45%	69%	-	-	-	-	-	-	0.12	0.5 x
275	TVE CO LTD	6466-JP	14.6	36	(0)	27%	-21%	3%	62	-	-	-	-	-	33.22	0.4 x

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Peer Set																
Smart Infrastructure		Ticker		418,945	498,124			10%	223,247	221,142	2.3 x	36,894	34,916	14.3 x		2.9 x
276	SIEMENS AG	SIE-DE	199.4	159,480	208,415	4%	-37%	8%	84,593	83,036	2.5 x	14,919	14,702	14.2 x	70.38	2.8 x
277	ABB LTD	ABB	57.5	107,011	110,386	3%	-42%	31%	32,235	33,232	3.3 x	5,825	6,332	17.4 x	6.88	8.4 x
278	STMICROELECTRONICS	STMPA-FR	27.3	24,622	21,395	88%	-3%	-45%	17,286	13,326	1.6 x	6,154	3,322	6.4 x	20.53	1.3 x
279	SIEMENS INDIA LTD	500550-IN	93.7	33,361	32,470	3%	-58%	94%	2,346	2,596	12.5 x	289	359	90.4 x	4.66	20.1 x
280	EVE ENERGY	300014-CN	6.3	11,579	15,674	32%	-32%	5%	6,736	7,388	2.1 x	853	954	16.4 x	2.49	2.5 x
281	WESCO INTL INC	WCC	172.5	8,477	13,611	13%	-29%	-1%	22,385	21,726	0.6 x	1,705	1,528	8.9 x	98.82	1.7 x
282	SENSATA TECH.	ST	35.5	5,351	8,214	22%	-14%	-6%	4,054	3,986	2.1 x	907	900	9.1 x	19.95	1.8 x
283	ACUITY BRANDS INC	AYI	304.5	9,369	9,228	3%	-48%	49%	3,841	4,006	2.3 x	675	723	12.8 x	73.44	4.1 x
284	AGL ENERGY	AGL-AU	8.0	5,356	6,375	6%	-36%	23%	8,993	9,072	0.7 x	1,467	1,374	4.6 x	5.60	1.4 x
285	ADVANCED ENERGY	AEIS	106.6	4,017	4,052	12%	-23%	-2%	1,660	1,451	2.8 x	258	179	22.6 x	30.93	3.4 x
286	SHARP CORP	6753-JP	6.7	4,354	6,835	16%	-26%	-6%	14,949	15,398	0.4 x	354	390	17.5 x	1.79	3.7 x
287	HYUNDAI AUTOEVER	307950-KR	105.0	2,880	2,551	59%	-9%	-36%	2,294	2,600	1.0 x	234	266	9.6 x	45.30	2.3 x
288	ITRON INC	ITRI	109.1	4,906	5,273	4%	-49%	44%	2,174	2,406	2.2 x	226	300	17.6 x	27.58	4.0 x
289	VERRA MOBILITY	VRRM	26.9	4,436	5,380	15%	-30%	17%	817	881	6.1 x	372	404	13.3 x	2.66	10.1 x
290	BEIJING E-HUALU	300212-CN	3.8	2,752	3,552	55%	-49%	-13%	106	118	30.0 x	(157)	61	58.4 x	0.64	6.0 x
291	IREN SPA	IRE-IT	2.2	2,916	8,558	4%	-19%	4%	6,988	6,913	1.2 x	1,293	1,351	6.3 x	2.45	0.9 x

292	HANNON ARMSTRONG	HASI	35.0	4,076	8,032	3%	-54%	27%	320	377	21.3 x	247	214	37.5 x	19.63	1.8 x
293	FIBOCOM WIRELESS	300638-CN	2.0	1,510	1,586	56%	-28%	-27%	1,065	1,157	1.4 x	137	123	12.9 x	0.61	3.3 x
294	KEC INTERNATIONAL	532714-IN	12.2	3,253	3,585	4%	-46%	73%	2,384	2,702	1.3 x	146	201	17.8 x	1.90	6.4 x
295	TKH GROUP NV	TWEKA-NL	41.4	1,747	2,270	17%	-14%	0%	2,006	1,931	1.2 x	304	304	7.5 x	24.59	1.7 x
296	HEXING ELECTRICAL	603556-CN	6.0	2,920	2,479	28%	-52%	47%	580	733	3.4 x	147	195	12.7 x	1.94	3.1 x
297	NV5 GLOBAL INC	NVEE	23.4	1,523	1,765	23%	-7%	-16%	862	946	1.9 x	137	161	11.0 x	12.32	1.9 x
298	TAIWAN SECOM CO	9917-TW	4.3	1,948	1,973	8%	-19%	15%	-	-	-	-	-	-	0.83	5.2 x
299	TOPCON CORPORATION	7732-JP	10.7	1,163	1,558	21%	-22%	2%	1,388	1,498	1.0 x	143	178	8.7 x	7.36	1.5 x
300	ALFEN NV	ALFEN-NL	13.6	295	378	415%	-5%	-80%	541	533	0.7 x	60	30	12.8 x	8.63	1.6 x
301	COSCO SHIPPING	002401-CN	2.3	863	674	30%	-26%	-8%	245	-	-	-	-	-	0.64	3.6 x
302	KAZAKHSTAN ELEC.	KEGC-KZ	3.1	860	1,054	11%	-4%	-4%	560	-	-	245	-	-	5.28	0.6 x
303	PENTAMASTER CORP	7160-MY	0.8	560	512	46%	0%	-18%	145	167	3.1 x	29	38	13.5 x	0.26	3.1 x
304	SHANGHAI FUDAN	1385-HK	2.0	581	1,841	61%	-46%	13%	491	538	3.4 x	143	158	11.6 x	0.95	2.2 x
305	JIAYUAN SCIENCE	301117-CN	4.5	415	354	134%	-36%	-41%	31	48	7.4 x	(1)	9	37.6 x	2.03	2.2 x
306	HANGZHOU EZVIZ	688475-CN	4.4	1,772	2,952	32%	-22%	-3%	669	779	3.8 x	98	101	29.1 x	0.95	4.6 x
307	SHENZHEN LONGTECH	300916-CN	3.6	522	416	26%	-54%	5%	-	-	-	-	-	-	1.25	2.9 x
308	SHIJIAZHUANG KELIN	603050-CN	3.2	870	1,042	31%	-55%	51%	-	-	-	-	-	-	0.85	3.7 x
309	FARO TECHNOLOGIES	FARO	18.2	354	339	37%	-32%	-19%	359	337	1.0 x	12	30	11.3 x	13.22	1.4 x
310	AMERICAN SUPERCOND.	AMSC	23.3	891	781	41%	-75%	109%	146	206	3.8 x	(4)	5	169.7 x	3.83	6.1 x

311	JIANGSU TONGXIN.	301339-CN	3.0	363	859	23%	-49%	6%	103	129	6.6 x	38	-	-	0.91	3.3 x
312	BILLION ELECTRONIC	3027-TW	1.1	128	123	41%	-17%	-20%	-	-	-	-	-	-	0.60	1.9 x
313	ENERGY S.P.A	ENY-IT	0.8	46	58	220%	-4%	-60%	69	-	-	11	-	-	1.18	0.7 x
314	DRAGONFLY ENERGY	DFLI	0.6	35	78	161%	-24%	3%	64	63	1.2 x	(17)	(21)	-	0.09	6.5 x
315	INVINITY ENERGY SY	IES-GB	0.1	53	(35)	363%	-6%	-73%	28	17	-2.1 x	(27)	(27)	-	0.47	0.3 x
316	POWERFLEET INC	PWFL	5.3	694	685	10%	-69%	54%	134	336	2.0 x	7	68	10.1 x	3.63	1.4 x
317	CEPTON INC	CPTN	3.2	51	103	65%	-25%	0%	13	19	5.4 x	(41)	(24)	-	(2.66)	-1.2 x
318	INSEEGO CORP	INSG	18.5	227	350	12%	-91%	740%	196	217	1.6 x	17	27	13.2 x	(8.54)	-2.2 x
319	ARQ INC	ADES	5.3	220	194	55%	-70%	79%	99	104	1.9 x	(3)	5	40.9 x	5.27	1.0 x
320	ORION ENERGY SYS	OESX	0.9	28	38	77%	-6%	0%	91	102	0.4 x	(7)	(0)	-	0.58	1.5 x
321	MERUS POWER OYJ	MERUS-FI	4.7	36	32	35%	-18%	5%	-	33	1.0 x	-	(1)	-	1.14	4.1 x
322	FERROAMP AB	FERRO-SE	0.6	18	20	133%	-5%	-33%	34	26	0.8 x	(8)	(3)	-	0.70	0.8 x
323	TANTALUS SYSTEMS	GRID-CA	1.1	55	59	36%	-55%	82%	42	44	1.3 x	(0)	0	1,555.3 x	0.13	8.3 x

			Price Performance						Sales			EBITDA		Book Value		
			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/EBITD A	Book/ Share	P/ Book
Peer Set																
Solar		Ticker		89,776	128,741			-27%	80,938	72,447	1.8 x	9,709	7,049	18.3 x		1.5 x
324	FIRST SOLAR INC	FSLR	202.0	21,621	20,494	52%	-36%	17%	3,319	4,448	4.6 x	1,167	1,952	10.5 x	67.78	3.0 x
325	ENPHASE ENERGY	ENPH	92.0	12,464	12,137	54%	-20%	-30%	2,291	1,390	8.7 x	752	411	29.5 x	6.53	14.1 x
326	JA SOLAR TECH.	002459-CN	2.0	6,466	10,067	75%	-36%	-33%	11,262	10,913	0.9 x	1,691	572	17.6 x	1.41	1.4 x
327	XINJIANG DAQO	688303-CN	3.7	7,988	7,085	45%	-37%	-10%	2,259	1,200	5.9 x	1,051	(42)	-	2.83	1.3 x
328	TRINA SOLAR	688599-CN	3.2	6,885	12,709	40%	-34%	-21%	15,649	12,943	1.0 x	1,352	787	16.1 x	2.02	1.6 x
329	SUZHOU MAXWELL	300751-CN	13.4	2,582	3,601	52%	-27%	-27%	1,116	1,658	2.2 x	136	180	20.0 x	3.72	3.6 x
330	ARRAY TECH.	ARRY	7.1	1,073	1,849	185%	-21%	-58%	1,577	949	1.9 x	288	195	9.5 x	1.32	5.4 x
331	HENGDIAN GROUP	002056-CN	1.9	3,023	2,677	21%	-20%	0%	2,742	3,028	0.9 x	418	418	6.4 x	0.79	2.4 x
332	SUNRUN INC	RUN	15.1	3,373	16,110	48%	-44%	-23%	2,260	2,115	7.6 x	(1,427)	48	332.6 x	24.03	0.6 x
333	SHOALS TECH.	SHLS	5.1	853	1,005	242%	-5%	-67%	489	389	2.6 x	173	103	9.8 x	3.24	1.6 x
334	RISEN ENERGY	300118-CN	1.7	1,977	4,302	55%	-29%	-29%	-	-	-	-	-	-	1.77	1.0 x
335	DAQO NEW ENERGY	DQ	18.6	1,225	1,588	62%	-27%	-30%	2,309	1,043	1.5 x	942	(112)	-	69.91	0.3 x
336	CECEP SOLAR ENERGY	000591-CN	0.7	2,398	5,147	22%	-16%	-15%	1,318	1,161	4.4 x	-	-	-	0.85	0.8 x
337	NEXTRACKER INC	NXT	34.2	4,906	4,594	82%	-6%	-27%	2,500	2,855	1.6 x	521	625	7.4 x	7.82	4.4 x
338	WUHAN DR LASER	300776-CN	8.5	2,322	2,072	23%	-40%	0%	223	299	6.9 x	72	95	21.8 x	1.58	5.4 x
339	CANADIAN SOLAR	CSIQ	12.6	834	4,787	113%	-10%	-52%	7,614	6,884	0.7 x	719	683	7.0 x	40.15	0.3 x

340	JINKOSOLAR HLDG	JKS	21.4	1,136	6,622	81%	-22%	-40%	16,716	14,402	0.5 x	1,626	952	7.0 x	55.03	0.4 x
341	JOLYWOOD	300393-CN	1.0	1,107	2,168	60%	-31%	-30%	-	-	-	-	-	-	0.52	2.0 x
342	JIANGSU SHUANGXING	002585-CN	0.7	837	1,113	87%	-21%	-36%	698	-	-	53	-	-	1.14	0.6 x
343	BRAVIDA HOLDING AB	BRAV-SE	7.3	1,483	1,850	29%	-19%	-10%	2,814	2,853	0.6 x	222	212	8.7 x	3.87	1.9 x
344	SUNPOWER CORP	SPWR	0.0	0	291	6369900%	-99%	100%	1,749	1,539	0.2 x	(84)	(38)	-	2.41	0.0 x
345	DAEJOO ELECTRONIC	078600-KR	76.3	1,181	1,284	56%	-35%	18%	138	177	7.3 x	11	32	40.0 x	8.45	9.0 x
346	WONIK IPS CO LTD	240810-KR	23.3	1,145	1,056	42%	-11%	-11%	514	556	1.9 x	20	43	24.5 x	13.37	1.7 x
347	UNITED RENEWABLE	3576-TW	0.3	566	803	43%	-10%	-27%	-	-	-	-	-	-	0.23	1.5 x
348	MAXEON SOLAR	MAXN	6.2	94	660	14884%	-19%	-99%	1,125	605	1.1 x	4	(135)	-	(0.48)	-12.8 x
349	HUBEI HUITIAN NEW	300041-CN	1.3	700	906	30%	-25%	-8%	539	576	1.6 x	63	56	16.1 x	0.77	1.6 x
350	ABALANCE CORP	3856-JP	6.9	124	366	293%	-15%	-70%	1,402	-	-	-	-	-	9.47	0.7 x
351	JIANGSU YUXING	300305-CN	0.8	307	370	82%	-23%	-40%	233	-	-	23	-	-	0.99	0.8 x
352	TES CO LTD	095610-KR	12.9	256	142	84%	-8%	-7%	110	160	0.9 x	0	16	8.8 x	13.50	1.0 x
353	THAI SOLAR ENERGY	TSE-TH	0.0	67	168	112%	-20%	-37%	-	-	-	-	-	-	0.05	0.6 x
354	OTOVO ASA	OTOVO-NO	0.1	28	27	529%	-11%	-70%	102	65	0.4 x	(31)	(29)	-	0.23	0.4 x
355	CHUGAI RO CO LTD	1964-JP	18.0	140	134	29%	-25%	15%	186	-	-	-	-	-	24.93	0.7 x
356	SUZHOU DELPHI	688170-CN	3.3	266	291	112%	-21%	-39%	80	114	2.6 x	6	6	47.0 x	1.74	1.9 x
357	NPC INC.	6255-JP	6.2	137	92	49%	-33%	20%	72	80	1.1 x	17	18	5.1 x	3.14	2.0 x
358	INTEVAC INC	IVAC	3.7	98	41	25%	-15%	-16%	53	48	0.9 x	-	-	-	4.18	0.9 x

359	GANTAN BEAUTY	5935-JP	10.2	39	43	78%	-8%	-5%	92	-	-	-	-	-	10.18	1.0 x
360	SOLARMAX TECH.	SMXT	0.9	40	67	1705%	-32%	-	-	-	-	-	-	-	(0.06)	-14.1 x
361	SUPER TOOL	5990-JP	13.4	32	23	10%	-6%	-1%	37	-	-	-	-	-	32.01	0.4 x

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			Price	Mkt Cap (\$ Mns)	Ent Val (\$ Mns)	% to High	% to Low	% YTD	FY0	FY1	EV/Sales	FY0	FY1	EV/ EBITD A	Book/ Share	P/ Book
Peer Set																
Win d	Ticker			608,329	898,995			32%	212,309	190,700	4.7 x	54,761	62,297	14.4 x		2.3 x
362	NEXTERA ENERGY	NEE	82.8	170,163	260,960	4%	-38%	36%	28,114	27,227	9.6 x	14,758	16,527	15.8 x	23.91	3.5 x
363	GE AEROSPACE	GE	190.6	206,637	212,264	2%	-45%	49%	64,565	35,097	6.0 x	7,814	8,234	25.8 x	17.15	11.1 x
364	IBERDROLA SA	IBDRY	61.4	97,631	164,017	1%	-29%	20%	53,333	54,036	3.0 x	15,639	17,593	9.3 x	32.05	1.9 x
365	DOMINION ENERGY	D	57.6	48,331	91,078	5%	-32%	23%	14,393	15,402	5.9 x	6,420	7,038	12.9 x	30.66	1.9 x
366	EVERSOURCE ENERGY	ES	65.4	23,373	52,266	6%	-20%	6%	11,911	12,510	4.2 x	3,603	4,191	12.5 x	41.79	1.6 x
367	AVANGRID INC	AGR	35.7	13,832	28,600	5%	-20%	10%	8,309	8,478	3.4 x	2,222	2,897	9.9 x	51.39	0.7 x
368	NORTHLAND POWER	NPI-CA	15.6	4,037	9,411	21%	-11%	-14%	1,654	1,730	5.4 x	918	948	9.9 x	11.99	1.3 x
369	MING YANG SMART	601615-CN	1.4	3,263	5,043	51%	-24%	-12%	3,844	4,980	1.0 x	138	419	12.0 x	1.82	0.8 x
370	NEOEN SA	NEOEN-FR	42.7	6,526	10,632	3%	-45%	28%	568	686	15.5 x	514	584	18.2 x	20.01	2.1 x
371	SUZLON ENERGY	532667-IN	0.9	11,967	11,816	17%	-63%	91%	785	1,350	8.7 x	125	219	54.0 x	0.04	23.6 x
372	TITAN WIND ENERGY	002531-CN	1.1	2,028	3,546	75%	-21%	-31%	1,066	1,239	2.9 x	268	330	10.7 x	0.71	1.6 x
373	CECEP WIND-POWER	601016-CN	0.4	2,802	5,720	19%	-19%	3%	708	-	-	610	-	-	0.38	1.1 x
374	NORDEX SE	NDX1-DE	14.1	3,336	3,036	24%	-34%	23%	7,023	8,135	0.4 x	2	300	10.1 x	4.58	3.1 x
375	CLEARWAY ENERGY	CWEN	27.8	2,303	14,098	11%	-26%	1%	1,314	1,387	10.2 x	1,058	1,169	12.1 x	18.31	1.5 x
376	CS WIND CORP	112610-KR	49.4	2,081	2,838	12%	-35%	-8%	1,128	2,235	1.3 x	133	270	10.5 x	18.23	2.7 x
377	QINGDAO TIANNENG	300569-CN	0.7	707	1,253	49%	-23%	-31%	-	-	-	-	-	-	0.79	0.9 x

378	INOX WIND LTD	539083-IN	2.7	3,472	3,886	18%	-79%	77%	209	555	7.0 x	32	86	45.4 x	0.16	17.1 x
379	WINDEY ENERGY	300772-CN	1.6	1,102	1,896	27%	-39%	5%	2,586	3,098	0.6 x	27	29	65.8 x	1.09	1.4 x
380	ALIMAK GROUP	ALIG-SE	11.5	1,242	1,521	4%	-53%	44%	681	676	2.2 x	128	132	11.6 x	6.68	1.7 x
381	VRL LOGISTICS	539118-IN	7.1	624	745	35%	-15%	-23%	347	387	1.9 x	47	54	13.8 x	1.29	5.5 x
382	JIANGSU HAILI WIND	301155-CN	6.4	570	1,583	53%	-27%	-23%	233	273	5.8 x	17	52	30.6 x	3.60	1.8 x
383	FICONT INDUSTRY	605305-CN	3.9	829	612	20%	-30%	20%	153	205	3.0 x	33	46	13.3 x	1.59	2.5 x
384	EUROGROUP	EGLA-IT	3.5	330	855	48%	-11%	-14%	902	978	0.9 x	173	129	6.6 x	2.92	1.2 x
385	GURIT HOLDING AG	GURN-CH	25.5	119	193	289%	-3%	-74%	520	509	0.4 x	39	40	4.8 x	20.73	1.2 x
386	GOLDWIND SCI&TECH	2208-HK	0.8	586	10,064	28%	-55%	68%	6,952	7,954	1.3 x	714	985	10.2 x	1.19	0.6 x
387	CS BEARING CO LTD	297090-KR	4.5	122	128	100%	-26%	-48%	59	74	1.7 x	2	5	26.8 x	2.47	1.8 x
388	TPI COMPOSITES INC	TPIC	4.8	227	809	20%	-66%	15%	1,451	1,337	0.6 x	(86)	5	166.8 x	(5.77)	-0.8 x
389	BROADWIND INC	BWEN	2.1	45	85	126%	-2%	-26%	203	148	0.6 x	21	12	6.9 x	2.65	0.8 x
390	WINDAR PHOTONICS	WPHO-GB	0.5	43	41	29%	-28%	-14%	5	12	3.5 x	0	4	11.7 x	0.07	7.7 x

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