орто opportunities



THE TREND EXPERTS EXPECT TO HEAT UP IN 2021

Winter 20/21

First Trust NASDAQ Clean Edge Green Energy Index Fund [QCLN]

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BP [BP]
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Royal Dutch Shell [RDSA.L]

```
(First Solar [FSLR])
(SolarEdge Technologies [SEDG]
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Enphase Energy [ENPH]

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Xinyi Solar [00968]
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Sunrun [SUN]
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Jinko Solar [JKS]

Tesla [TSLA]

```
Ørsted [ORSTED.CO]
```

(Vestas Wind Systems [VWS.CO])

Albermarle [ALB]

[Siemens Gamesa [SGRE.MC]]

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Bloom Energy [BE]
```

(FuelCell Energy [FECEL])

Plug Power [PLUG]

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Drax Group [DRX]
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Algonquin Power & Utilities Corp [AQN]

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China Yangtze Power [600900]
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igl(Ceres Power Holdings [CWR] igr)

[ITM Power [ITM]

TPI Composites [TPIC]

Array Technologies [ARRY]

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iShares Global Clean Energy ETF [ICLN]
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[Invesco Solar ETF [TAN]
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[Invesco WilderHill Clean Energy ETF [PBW]
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VanEck Vectors Low Carbon Energy ETF [SMOG]

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Vanguard Energy ETF [VDE]
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Global X Lithium & Battery Tech ETF [LIT]

[First Trust Global Wind Energy ETF [FAN]

CASHING IN ON THE RUSH TO CLEANER ENERGY

Words: Peter Taylor-Whiffen

The tide finally turned for clean energy stocks in 2020. The rapid changes in renewables sparked a tailwind that has these stocks not only outperforming their fossil fuel counterparts, but the broader market too

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espite many false starts, the sun is finally shining on renewable energy stocks. The world's transition to cleaner energy sources sped up in 2020, after the coronavirus pandemic prompted the biggest drop in demand for fossil fuels since the Great Depression.

As the world ground to a halt last year, research by the International Energy Agency (IEA) predicts that the global demand for oil plunged 8%, while coal and natural gas use fell 7% and 3%, respectively. Renewables, by contrast, are expected to have grown by 5% to make up almost 30% of the world's demand for electricity.

"The plunge in demand for nearly all major fuels is staggering," Fatih Birol, executive director of IEA, says. "Only renewables are holding up. It's too early to determine the exact long-term impacts, but the energy industry that emerges from this crisis will be significantly different to the one that came before."

ABOVE:

First Solar was founded in 1990 by inventor Harold McMaster, dubbed "the glass genius"

OUTSHINING Returns

Renewable energy stocks lit up the market in 2020. The iShares Global Clean Energy ETF [ICLN], which tracks the S&P Global Clean Energy index, had only climbed 31.3% between 2018 and 2019. In 2020, it surged 138.7%, jumping from \$11.83 on 2 January to \$28.24 on 31 December, outperforming the S&P 500's 16.3% rise in the same period.

In fact, most clean energy funds cast a shadow over other sectors last year. Shining brightest was the Invesco Solar ETF [TAN], which was up 233.9% in 2020. The First Trust Nasdaq Clean Edge Green Energy index [QCLN] soared 184% in the same period, while the Invesco WilderHill Clean Energy ETF [PBW] and VanEck Vectors Low Carbon Energy ETF [SMOG] jumped 204.7% and 118.4%, respectively.

"THE ENERGY INDUSTRY THAT EMERGES FROM THIS CRISIS WILL BE SIGNIFICANTLY DIFFERENT TO THE ONE THAT CAME BEFORE"

— Fatih Birol, International Energy Agency

In contrast, fossil fuel-based energy incumbents took a huge hit. After BP [BP] was forced to nearly halve its dividends for the first time in a decade, the stock plunged to its lowest level in 26 years in October 2020. Royal Dutch Shell [RDSA.L] also cut its dividends for the first time since the Second World War last year, after its share price hit an alltime low in March.

Of course, returns across renewables have been overtaking more traditional energy sources for years. Between 2017 and the start of 2020, the iShares Global Clean Energy ETF [ICLN] climbed 50%, while the oil-dominated Vanguard Energy Index Fund ETF [VDE] fell 22%. Research conducted by Imperial College London and the IEA found renewable investments in the US to have yielded the largest returns globally of 200.3% over the past five years, compared with 97.2% for fossil fuels. Germany and France, meanwhile, generated renewable returns of 178.2% against a

ETFs

Invesco Solar ETF **[TAN]** First Trust Global Wind ETF **[FAN]** VanEck Vectors Uranium+Nuclear Energy ETF **[NLR]** United States Oil Fund **[USO]** United States Natural Gas Fund

STOCKS

[UNG]

First Solar [FSLR]		
Vestas Wind		
Systems [VWS]		
China Yangtze		
Power [600900]		
Energy Fuels [EFR]		
FuelCell		
Energy [FCEL]		
ExxonMobi l [XOM]		
Chevron [CVX]		
Nacco		

Industries [NC]

fall of 20.7%. In the UK, it was 75.4% versus 8.8%.

While fossil fuels have bounced back in the past, the shift to clean energy appears to be more permanent. The pandemic has brought sweeping changes to how we live, work and travel. And combined with mounting pressure to commit to carbon neutrality to slow climate change, the sector is riding a tailwind that will power more than just turbines.

TECHNOLOGY ELECTRIFIES RENEWABLES

"The stock market is valuing pure renewable pure energy companies at twice, two-and-a-half times the multiple that it's valuing conventional energy companies," Mark Lewis, global head of sustainability research at BNP Paribas Asset Management, tells *Opto.* "And not just in energy, look at the multiples that Tesla [TSLA] is trading on. And there's a scarcity value to these pure play renewable energy transition stocks."

The draw of renewable energy stocks is in the resource itself, which will never run out and has only got cheaper as ways to capture it become more efficient. "Fossil fuel energy is essentially an intrinsically inflationary source. You exploit the easy-to-access resources first, then you push up



ANNUAL PERCENTAGE GAIN/LOSS BETWEEN 2017-2020:

There are many growth trends in the clean energy space, from the renewable energy funds in solar and wind to the pure play stocks like First Solar and Vestas Wind Systems. Solar stands out at the fund level, while FuelCell Energy has emerged as a top performing pure play for biomass.

SOURCE: Yahoo Finance 11.1.21



the cost curve over time," adds Lewis.

"But renewables are a deflationary source. It's not like going out to drill an oil rig in the North Sea or Arctic or underneath salt deposits 500 miles off the coast of Brazil, where the risks are high and you don't know if you're going to find anything. You know where the sun shines and wind blows.

"It's almost a misnomer to call this an energy industry because what you have instead is essentially an infrastructure business, which is inherently much lower risk. And, as you build infrastructure, it gets cheaper because of economies of scale and how technology improves over time."

The technology that underpins renewables is at the heart of many funds' success. The majority of TAN's holdings, for instance, were in tech stocks. Its top three stocks — SolarEdge Technologies [SEDG], Enphase Energy [ENPH] and Xinyi Solar Holdings [00968] — all make photovoltaic equipment. At the start of January, the fund had 65.5% of its weighting in tech, while 23.3% was in utilities, 4% in property and 2% in industrials.

COVID-19 INTENSIFIES RUSH TO CLEAN ENERGY

Improving technology amid falling renewable costs and faster construction times for wind and solar farms means the power surge across clean energy companies is going in only one direction, explains Marlene Motyka, global renewable energy leader at Deloitte.

"The pandemic was a decarbonisation catalyst," she tells *Opto*. "In the US, with lockdowns and demand reduction, low-cost renewables — and renewables alone recorded increased output and [record] hourly [energy consumption]. By demonstrating that the grid can continue to reliably operate with such high levels of renewables, the pandemic helped further the case for an accelerated move to [clean energy]."

In fact, the IEA revised its forecast figures for global renewable capacity upwards by 18% in November from its previous report in May. It expects clean energy sources to account for almost 90% of the increase in total power capacity in 2020 and predicts that it will accelerate even further next year to their fastest growth since 2015.

Clean energy report

RENEWABLE ENERGY FUNDS LIGHT UP RETURNS

Among the top performing renewable energy funds in 2020 was the Invesco Solar ETF, which rallied a powerful 233.9% throughout the year. At the time of writing, the fund's net assets totalled \$3.6bn and had top holdings in Enphase Energy, SolarEdge Technologies, Xinyi Solar Holdings, Sunrun and First Solar. The Invesco WilderHill Clean Energy ETF, meanwhile, soared 204.7% in the same period. The windfocused fund is heavily weighted towards stocks such as Blink Charging [BLNK], FuelCell Energy, Plug Power, NIO [NIO] and Livent [LTHM]. It had net assets of \$2.1bn at the start of January.

In comparison, the 183.9% surge in the First Trust Nasdaq Clean Edge Green Energy index is an indication of returns from a more diversified approach. The index had net assets of \$2bn in early January. Its top five holdings included Tesla [TSLA], Enphase Energy, NIO, SolarEdge Technologies and Albermarle [ALB].

"Over the first 10 months of 2020, China, India and the European Union have driven auctioned renewable power capacity worldwide 15% higher than in the same period last year," says the report. "[This is] a new record that shows expectations of strong demand for renewables over the medium and long term."

From an investor's point of view, Lewis believes there is an unusual combination of attributes that make renewables highly attractive. "The first is a huge growth potential because everyone in the world now wants to do as much as possible via renewables. The second is that the risk profile is becoming better understood with each year that passes, and actually becoming less and less risky. Thirdly, we have negative interest rates — a beneficiary of the strange times we're living in at least for sovereign debt, which means the cost of borrowing is extremely low," he explains.

BELOW:

First Solar is the biggest manufacturer of advanced thin film photovoltaic modules



Motyka concurs, saying: "Globally we're seeing far more tailwinds in terms of the underlying fundamentals. [This includes] falling costs for wind and solar, improving capacity factors, supportive policies and growing customer preferences for cleaner energy sources in both the residential and commercial segments."

"In addition, wind and solar are increasingly being paired with battery storage as it travels down the cost curve," she says, explaining that it makes them more dispatchable and competitive.

GREEN GAINS GROUND

The permanent shift from fossil fuels to renewables will not just benefit the environment, it could actually power the global economy's recovery from the pandemic crisis — and not for the first time. In the years following the Financial Crisis of 2008, it wasn't the traditional "economic engines" of banks and financial institutions that led the UK's recovery but the green economy. Indeed, it contributed to a third of the country's growth, according to a Confederation of British Industry report from 2010-11.

"After the last financial crisis, the UK's green economy contributed substantially to new fiscal growth, supporting tens of thousands of jobs and finding new export markets around the world," Nathan Bennett of RenewableUK told *The Guardian.* "Once again, our industry will play a proactive role in getting the economy back on track, as we move out of lockdown. Renewables are a UK-wide opportunity to have a sustainable, forward-looking recovery and to boost productivity across the economy."

Rising revenues could spark a global political shift too. Much of the history of the 20th century is defined by the rush for oil, from the battle of Caucasus in 1942 to the first Gulf War in 1990.

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While the COVID-19 crisis has boosted demand for renewables — to the extent that BP has increasingly had to revise its projected peak in oil demand with one projection claiming it peaked as early as 2019 — the sector has not been immune from adverse effects like a slow down in capital investments.

"The world is set to add only 167 gigawatts (GW) of renewable power capacity (in 2020) – 13% less than in 2019," says an IEA report, which blamed the decline on delays in construction due to supply chain disruptions, lockdown measures and emerging financing challenges.

The virus is not likely to slow renewables' momentum for long, but the inexorable rise of the sector may, ironically, not be the good news that many investors predict. Christopher Brown, head of investment companies research at JPMorgan Cazenove, believes advances in the sector may slash energy costs over the next 25 years, which will bring down the high premiums and dividends.

"Essentially, renewables [will] become a victim of their own success by 'cannibalising' their own revenue base," he warned in a note to investors. Despite these misgivings, renewables are still clearly the inevitable way forward and one source of power shines brighter than the rest.

"THE PANDEMIC WAS A decarbonisation Catalyst"

Marlene Motyka, Deloitte

ABOVE

First Solar has developed several large-scale solar parks and farms around the globe

SOLAR IN THE SPOTLIGHT

Thomas Edison, an American inventor, encouraged harnessing the power of the sun nearly a century ago. "I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that," he said.

Had Edison invested in solar then, the returns would be blinding. In 2020, within the renewable market, solar stocks rule. The IEA predicts global renewable energy capacity will expand by 1,200 GW by 2024 — the approximate equivalent of the US' entire power capacity in 2019 — with solar accounting for 60%.

In the year preceding the pandemic, solar accounted for nearly half of the world's new power generation capacity. Shining the brightest was the Invesco Solar ETF. After years of underperforming the broader market — it returned just 10.4% between the start of 2016 and 2020 — the fund more than trebled in value in 2020 from \$31.35 on 2 January to \$102.76 by 31 December.

Driven by a focus on building a sustainable future, the fund had a return of 233.9% for the past year at the start of January and net assets of \$3.6bn. First launched in April 2008, Invesco's TAN was designed to track the MAC Global Solar Energy index.

First Solar [FSLR], which accounted for 6.1% of TAN ETF's portfolio at the start of January, also soaked up investors' rays in 2020. The company, which designs, builds and sells solar modules and power systems, as well as providing maintenance services, surged 76.8% last year. First Solar's innovation in building mass scale thin-film solar modules suggests it will continue to lead the market for a while to come.

But perhaps the single biggest development in solar companies in 2020 — and the most likely indicator of the sector's future power — was the mega-merger of America's two leading super solar powers. Sunrun's [SUN] \$3.2bn acquisition of Vivint Solar gave it a combined 17.5% share of the US residential solar market in 2019, according to Wood Mackenzie.

A BATTERY BOTTLENECK

The wider solar industry still has a way to go though. It has been almost 70 years since an American team led by physicist Daryl Chapin launched the first photovoltaic technology to convert the sun's heat into electricity and our ability to harness the power of the sun is still not quite where it needs to be. Storing energy is still such a challenge that — although solar and wind between them generated two-thirds of the world's power in 2019 — solar accounted for only 2.7% of it.

"A big challenge is still the intermittent nature of solar," Jennifer Runyon, editor at *Renewable Energy World*, tells *Opto*. "You need storage for that and battery prices are coming down, but they're still pretty high. The cost of storage needs to fall, particularly in batteries that need to deliver more than a short four-hour burst."

Such "bottlenecks", as Lewis describes them, are holding back the sector's progression. "We're building bigger and bigger turbines for wind, our efficiency rates are improving for solar, but we're reaching a point where some of the infrastructure bottlenecks need to be improved," he says.



BELOW:

Sunrun is a leader

solar and energy

services in the US

in residential

орто reports



Lewis agrees with Runyon that "the biggest single roadblock" is sufficient storage capacity. "You're building all this renewable energy capability and you need to be able to store it when it's not needed, but deliver it when it is and the sun isn't available," he explains. Without the ability to store energy for a long period, solar is still seen by some as an unreliable, geographically patchy energy source that could cut out at a moment's notice and leave you in the dark.

But investors are confident the technology is catching up. Global X Lithium and Battery Tech ETF [LIT] was up 123.4% from \$27.70 on 2 January to \$61.89 on 31 December, boosted by an explosion of demand from companies who rely heavily on the rare metal.

Utility-scale battery storage systems that require large amounts of the resource are being developed in countries like Australia, Germany, Japan and the UK. A study by IEEE using a 40MWh battery storage system showed the potential to cut 400 hours of congestion in the New York State grid and save more than \$2m in 2017. In the Caribbean island of Martinique, which doesn't lack sunshine, a similar, smaller project

ABOVE:

Ørsted's wind farm off the shore of Anholt, Denmark, has 111 turbines and a capacity of 400MW is pumping a constant supply of power into the grid, negating the need for a back-up system.

One of the biggest success stories in solar was when Lyndon Rive, head of the battery division at Tesla, managed to solve South Australia's power cuts in roughly 60 days back in 2016. His team resolved the region's black outs by building a back-up storage that would become the world's largest solar and wind power lithium battery.

Unsurprisingly, Tesla is among LIT's top five holdings as well as Albemarle Corporation [ALB]. Shares in the chemicals giant have been a major driver behind the fund's performance in 2020, with its share price surging 100.7% from \$73.50 on 2 January to \$147.52 on 31 December. The North Carolinabased company has invested huge sums of money to increase its production in the area.

Lewis is confident that innovation will ease the 'bottlenecks', making battery and component firms a good buy for a while yet. "We just have to wait for the innovation to catch up," he says. "The good news is, the basic energy source isn't going to be depleted – it's not going anywhere."

A NUCLEAR HEADWIND

Similar developments and leaps in innovation will continue, according to Lewis, who believes that when such blue-sky initiatives are rolled out, solar will fly even higher.

"Solar is decentralised, it's flexible, it's cheap," he says. "It can be deployed on a really small scale or on a huge solar farm. You can deploy it on a decentralised basis, and build it very quickly — six, 12 months and, as a result, you get your return more quickly. The only other source of zero-carbon electricity generation, nuclear, is the exact opposite — very centralised, very capital intensive, takes a long time to build. But solar technology moves so quickly that if you built a nuclear reactor now, the opportunity cost is not just what you could have spent on solar or wind today, it's what you could have spent in seven to 10 years' time."

Perversely, that long-term return on nuclear capital investment may be another headwind for solar because governments that sanctioned large nuclear projects in the past five years will not want to replace a facility that could have another 25 years' lifespan.

"There will be tension in fast-growing emerging economies such as south east Asia, where there's been this big wave of building new fossil-fuel generation capacity," adds Lewis. "Those investments are premised on a 30-40 year life cycle and, if you start building lots of solar now because it's so cheap, you're not going to get your investment back. In those kinds of locations, you're going to run into this issue of stranded asset risk and vested interests, lobbying governments to prevent the deployment of solar, or at least slow it down."

BELOW:

Ørsted's wind farm in Burbo Bank can power over 80,000 homes annually in the UK claims the world's biggest offshore wind farm, 80 miles off the coast of Hull. Hornsea One spans around 250 square miles of the North Sea and its 174 turbines, each 190 metres tall, are so powerful that just a single, six-second rotation of one of their 75-metre long blades can power one home for more than 24 hours. Its creator, Danish multinational power company Ørsted [ORSTED. CO] has enjoyed a similarly powerful surge. Shares in the company had jumped 83.2% in 2020, pushing its market cap up to DKK572bn at the start of January.

"When it comes to power generation, wind and solar are pretty neck and neck," says Runyon. "And, of the two, wind maybe offers a little more capacity right now. It's a hugely exciting time for this sector."

As with solar, wind stocks have significantly outperformed the market. First Trust Global Wind Energy ETF [FAN] gained 61.1% in 2020. Its top holdings include Ørsted, a leader in turbine



WINDS OF Change

The UK's prime minister Boris Johnson has realised which way the wind is blowing. Seven years ago, he sneered somewhat colourfully that wind farms "couldn't pull the skin off a rice pudding". At the start of October, he pledged £160bn to the sector and claimed wind will power every UK home by 2030.

Perhaps he was convinced because Britain



"ESSENTIALLY, RENEWABLES [WILL] BECOME A VICTIM OF THEIR OWN Success by 'Cannibalising' their own revenue base"

- Mark Lewis, BNP Paribas Asset Management

manufacturing, Spanish-based firm Siemens Gamesa [SGRE.MC] and Danish giant Vestas Wind Systems [VWS.CO]. Shares in Vestas soared in 2020 to a high of DKK1,493 on 29 December, which marked an 116.7% climb from the start of the year. Siemens Gamesa's share price also reached new heights in 2020, gaining 112.3%.

Looking to the future, the Global Wind Energy Council predicts eight times more offshore wind capacity by 2030, much of it in Asia. China, the UK and Germany are expected to lead the way not just in expanding the capacity from 29.1 GW at the end of 2019 to more than 234 GW, but in innovation too.

"You need to be at the forefront of the development in order to help your customers drive [a more standardised cost of energy] further down," Markus Tacke, Siemens Gamesa CEO, said on the company's 6 May earnings call. "We will continue to push our technology developments to remain the spearhead of that industry."

Gary Bills, UK country manager at solar and wind infrastructure consultancy K2 Management, agrees. "This might give the industry the space and the kick-start to push forward with innovation," he tells *Opto*. "Wind farms are still turning and making money for investors. As an investment, right now it's still the place to be and this is an encouraging outlook."

WIND RESISTANCE

Yet the industry is facing some wind resistance. While governments are keen to be seen embracing all forms of renewable energy, the sheer aesthetic impact of huge turbines in a country landscape means they loath to upset NIMBY (not in my backyard) residents.

In Germany, one of the world's greenest economies, the country's leading turbine manufacturer Enercon saw its domestic orders plunge 87% in 2019 after its installation rate fell to its lowest in 30 years — despite renewable energy providing a record 43% of Germany's electricity during the same period.

The company has seen its market hold up outside of Germany, but blamed its domestic performance on political reforms and a new law that prevented the construction of a turbine RIGHT: The Three Gorges Hydroelectric Dam in China is the world's largest power station in terms of total installed capacity at 22,500 MW

BELOW: Water is released from the Three Gorges Dam on the Yangtze river to relieve flood pressure







THE SMALL-CAP CLEAN ENERGY STOCKS TO WATCH

Ceres Power Holdings [CWR.L] is a British fuel cell engineering company providing clean and cheap energy. Valued at £2.3bn at the start of January 2021, the stock climbed 403.8% in 2020. Its partnership with South Korean conglomerate Doosan is expected to be a major tailwind.

ITM Power [ITM.L],

which hit a market cap of £3.2bn earlier this year, converts excess power that might otherwise be wasted into hydrogen. Its share price quintupled last year, following positive news such as the £30m investment from Italian natural gas transporter Snam.

TPI Composites [TPIC]

has the wind behind it. The Arizona-based manufacturer of turbine blades had a market cap of \$2.3bn at the start of January, after its share price rose 185.1% in 2020. It announced a partnership with Nordex in August last year, totalling about \$800m of new business.

Array Technologies

[ARRY] may have just debuted on the Nasdaq in October, but it's been in operation since 1989. It's the world's secondlargest supplier of solar tracking systems, with a 17% market share. Despite the pandemic, it more than doubled in valuation to sit at \$6.2bn in early January. The stock gained 18.3% in 2020.



"GREEN HYDROGEN WOULD EXTEND THE OPPORTUNITY FOR SOLAR-Plus-storage synergies by enabling long-duration storage"

— Marlene Motyka, Deloitte

within one kilometre of a residential area.

It's been a similar story in the US where according to Mike Casey, founder of renewable energy consultants Tigercomm — "half-a-billiondollar power projects are killed because 50 people shout at officials in a county commission meeting".

As a result, onshore wind does have a disadvantage compared to solar — the aesthetic impact of a field of sleek, typically five-metre tall panels is considerably easier on the eye. But many companies working with wind are doing well, most notably those in offshore projects.

INVESTING IN HYDROPOWER

There are of course other renewable energy options, some of which are further ahead in the race for effective storage. "If you want something that can run all night, you need something more powerful, so then you look at technologies like hydrogen, pump hydro, hydropower," Runyon says. Indeed, pumped storage hydropower accounts for 95% of America's utility-scale energy storage. That said, the inflexible locations needed for hydro power plants and solar gaining ground in battery storage suggests a better long-term future for the latter.

As with other renewable technologies, China leads the way in hydropower. The gargantuan 22.5GW Three Gorges, the world's largest hydroelectric plant, is in Yichang, Hubei province. However, the region's leading

ABOVE:

Drax transports its sustainable biomass from the US port of Baton Rouge in Loiusiana company in the field, China Yangtze Power [600900], only returned 8.1% in 2020.

Lewis is sceptical about hydro as a new investment. "All the best sites have been taken," he says. "In Europe, it is already built in the obvious places – Norway's the standout, but in the UK that's the Scottish highlands, Snowdonia, plus the Peak District and Lake District. Smallscale hydro may still be possible in a few locations, but hydro may already have run its course as an investment possibility. Yes, hydro assets are very valuable when you can get them, but there's no scope to build new ones."

A BIOMASS MESS?

Then there's biomass. Drax Group [DRX] is planning the world's first carbon negative power station, which will be located in north Yorkshire and is said to combine sustainable biomass with carbon capture technology. Its innovation in the area — alongside a 30% increase in profits to £179m in July 2020 — has certainly fired up investors. The stock climbed 144% between January and November.

However, biomass is not, as it were, setting the whole world on fire. The renewable energy fuel it burns is wood pellet, which many critics say involves the destruction of forests. "Biomass is a little more challenging for the environmentalists as there's usually some sort of combustion involved," Runyon clarifies.

Lewis believes there may be more value in green hydrogen, which is created using electrolysis that runs an electrical current through water separating it into hydrogen and oxygen. "It's set to be a key pillar of the EU's sustainable development and emissions reduction plans to get it to net zero by 2050," he says. "For green hydrogen to be able to deliver on this promise, the price will need to fall to a level that incentivises its use. But it's produced using wind and solar-generated electricity, both of which will become more affordable."

The alternative renewable energy also excites Motyka. "Green hydrogen would extend the opportunity for solar-plus-storage synergies by enabling long-duration storage," she says. "This would help to integrate more solar by avoiding curtailment as solar penetration grows. At high solar penetrations, grid-following and gridforming inverters will also become increasingly important to grid stability."

Bloom Energy [BE], whose share price has doubled since the start of 2020, FuelCell Energy [FCEL] and Plug Power [PLUG] are all seen as major players in the space.

UP IN THE AIR

Despite the sector's outperformance in 2020, renewables are not an absolute guarantee of return. "Just because something is likely to have a big impact on the world doesn't necessarily make it a good investment," warns Jonathon Curtis, investment analyst at Hargreaves Lansdown.

He cites the AIC Renewable Energy infrastructure index, which from its launch in 2013 to the start of 2020 had outperformed the S&P Global Oil index but lagged the broader market. COVID-19 has, of course, pump-primed the sector and potentially permanently accelerated its growth. However, its underperformance to the broader market is a sign that "investing in renewable energy isn't a sure thing", according to Curtis.

In any event, pure renewable companies won't have it all their own way as traditional energy companies adjust. BP plans to cut its oil and gas production by 40% before 2030 and invest \$5bn (£3.8bn) a year into low-carbon projects. Shell is also exploring options for a low-carbon transition, with a focus on new transport fuels, such as advanced biofuels, hydrogen and charging for battery-powered electric vehicles.

Singapore-based oil trader Trafigura plans to spend \$2bn buying and building 2 GW of renewable storage products, while Swiss commodity trader Mercuria is set to invest \$1.5bn into renewable energy projects in 2021. Its CEO Marco Dunand said: "We don't have a choice — over the next five years we should have 50% of our investments into renewables."

"RENEWABLE GENERATION SOURCES HAVE BECOME Extraordinarily competitive from an Economic standpoint"

— Dan Shreve, Wood Mackenzie

A GREENER Future

In 2019, the International Energy Agency predicted that the world's renewable power supply would grow 50% by 2024. While the pandemic has shifted the power away from fossil fuels, the renewables sector was, like every single other sector, hit hard last year amid production delays and supply issues.

But analysts are confident renewables will lead the recovery in 2021. "Renewable generation sources have become extraordinarily competitive from an economic standpoint," Dan Shreve, head of global wind energy research at consulting firm Wood Mackenzie, told *Opto*. "It's a terrific story. Do we expect any of that to change in the near term? No, I don't think so."

Stocks considered as having strong long-term momentum include JinkoSolar [JKS], a Chinese manufacturer of solar panels. Its share price surged 175% in 2020. Canadian hydroelectric, solar and wind energy producer Algonquin Power & Utilities [AQN.TO] also saw its share price jump 17.8% in the same period.

"These are the market leaders," Runyon says, "but it's a quickly changing market where those players jockey for position. Partnerships are emerging all the time – fossil fuel companies team up with renewables, but you also get regular mergers such as Siemens and Gamesa, and I think we will see many more of these."

While she identifies that the sector is in a period of great momentum, its annual generation still isn't "very much". "We're not going back, but the key is to gauge how long our journey to completely renewable power is going to take." •

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BELOW:

Several Bloom Energy fuel cell servers are field tested



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