

WEC Energy Acknowledges Need To Change

Image Source: WEC Energy Group Inc – IR Presentation

By Callum Turcan

WEC Energy Group Inc. (WEC) is a regulated electric and natural gas utility based in Milwaukee, Wisconsin, that serves 4.5 million customers across the Midwest primarily in the following states; Wisconsin, Illinois, Michigan and Minnesota. That includes power generation, transmission, and natural gas delivery operations that are supported by its natural gas storage assets. Shares of WEC yield 2.6% on a forward-looking basis as of this writing. We aren't interested in WEC Energy given its heavy reliance on coal-fired power plants at a time when natural gas and renewables (aided by government subsidies) are increasingly dominating the power generation landscape. Furthermore, we caution that domestic utilities that are overly reliant on coal-fired power plants will likely face major regulatory and environment hurdles in the medium-term, especially if the Clean Power Plan or some version of it is reinstated and that plan is enforced with the teeth of federal regulators.

Dividend Commentary

In 2018, WEC Energy generated \$0.3 billion in free cash flow (defined as net operating cash flow less capital expenditures) while spending \$0.7 billion on dividend payments. Debt issuance was used to cover the gap. We like the stability of WEC Energy's free cash flows over the past three full fiscal years, which averaged \$0.4 billion during this period, but caution the firm needs to maintain access to capital markets

to cover both its dividend commitments and growth trajectory. We would like to note that if WEC Energy didn't pursue significant growth activities its free cash flows would likely be much stronger (as its capital expenditures would be materially lower).

However, the company is seeking growth opportunities as many are available and capital markets are very willing to keep lending WEC Energy more money. We'll cover that growth runway in greater detail in a moment. Having investment grade credit ratings and positive free cash flows make this process significantly easier.

WEC Energy prefers to use debt issuance, and not equity issuance, to fund its growth trajectory and please note the company has historically repurchased a marginal amount of its stock each year to offset dilution (from activities like stock-based compensation). At the end of June 30, 2019, WEC Energy had a net debt load of \$11.9 billion (inclusive of short-term debt). Lower interest rates in the US will make refinancing activities significantly easier, and should lower WEC Energy's cost of debt.

Shifting Away from Coal

As you can see in the graphic below, 48% of WEC Energy's rated electric generation capacity was represented by its coal-fired power plants at the end of last year. Most of the remainder is made up by older less economical peaker plants (fueled by oil and natural gas) which are turned online during times of elevated demand (cold winters, hot summers, unplanned outages at baseload facilities). Only a quarter of WEC Energy's rated power generation capacity is represented by more modern (and most importantly, very economical) combined cycle natural gas-fired power plants. Please note that natural gas prices in America have been very low for some time and are likely to remain subdued going forward given the abundance of domestic

and Canadian gas supplies. Renewables made up just a tiny portion of WEC Energy's rated power generation capacity at the end of 2018.

WEC Energy is making major investments to change this picture, which we can appreciate. In its 2018 Annual Report, the company notes it planned to retire 1,800 MW of coal-fired power generation capacity by 2020. Last year, the firm retired 1,500 MW of coal-fired power generation capacity as part of that effort. This year, WEC Energy retired the coal-fired Presque Isle power plant. That capacity is being replaced with natural gas-fired generation capacity at WEC Energy's Upper Michigan Energy Resources ("UMERC") subsidiary. U MERC turned two new gas-fired power plants online this year with a combined 180 MW of power generating capacity. WEC Energy is also investing in a handful of renewable energy projects as well.

Betting Big on Wind

By the end of 2019, WEC Energy expects that its Coyote Ridge Wind Farm project in South Dakota will be completed. WEC Energy has already signed an offtake agreement with Alphabet Inc.'s (GOOG) (GOOGL) Google Energy to buy 100% of that power generation for 12 years. The utility mentions that over three dozen wind turbines made by General Electric Company (GE) will be used to create the wind farm, which is expected to have almost 100 MW of power generation capacity.

Keep in mind that Google Energy is likely to need power indefinitely, so there are reasons to believe that its 12-year deal with WEC Energy could be extended given that Alphabet wants to source as much of its electricity consumption as possible from renewable energy. Avangrid Renewables, a subsidiary of Avangrid Inc. (AGR), is developing the wind farm and will be the operator once completed. WEC Energy acquired

an 80% stake in this development in early-January 2019 for \$145 million. That asset is expected to qualify for the federal production tax credit.

39 GE wind turbines with a capacity of ~97 MW



Infrastructure Investment
Coyote Ridge Wind Farm

- Currently being built by Avangrid Renewables in Brookings County, South Dakota, within MISO footprint
- Total investment: \$145 million for an 80% ownership interest and substantially all of the tax benefits
- Expected returns are higher than those in our regulated business
 - Approximately mid-8% unlevered internal rate of return
- Expected to qualify for 100% bonus depreciation and production tax credits
- 12-year offtake agreement with Google Energy LLC for 100 percent of the energy produced
- Projected in service date: End of 2019

WEC Energy Group 28

Image Shown: An overview of WEC Energy's Coyote Ridge Wind Farm project. Image Source: WEC Energy – IR Presentation

The Coyote Ridge Wind Farm project is one of many renewable energy endeavors WEC Energy is pursuing. WEC Energy increased its stake in the 132 MW Bishop Hill III wind farm in Illinois to 90% from 80% last year, and at the start of 2019, WEC Energy acquired an 80% stake in the ~203 MW Upstream Wind Energy Center in Nebraska. Both of those power plant facilities are now operational. The revenue streams generated through the power produced and sold from these assets are secured by long-term contracts.

On September 3, 2019, WEC Energy agreed to acquire an 80% stake in the 330 MW Thunderbird Wind Energy Center in Nebraska

for \$338 million. By the end of 2020, commercial operations are expected to commence. 108 GE wind turbines are expected to be used to develop this wind farm, and the venture is supported by an offtake agreement for 100% of the energy produced.

Management is serious about bulking up WEC Energy's renewable asset base, with the production tax credit meaningfully enhancing the expected returns on these developments. Please note that as things stand today, the production tax credit is expected to phase out soon, which is why it's very important that the developers WEC Energy is working with bring these wind farms online on-time.

When it comes to solar, WEC Energy teamed up with a subsidiary of MGE Energy Inc. (MGEE) to bring an additional 150 MW of power generation capacity at the Badger Hollow Solar Farm in Wisconsin online. That's on top of the 150 MW of power generation capacity already planned at the site. The expansion was announced on August 1, and the joint venture expects to begin commercial operations by the end of 2020 from the development's first phase. The second phase is forecasted to start commercial operations a year later in 2021. At peak capacity, the Badger Hollow Solar Farm will add 300 MW of gross renewable power generation capacity to WEC Energy's asset base.

Concluding Thoughts

WEC Energy has accepted it needs to shift its power generation operations away from coal (which faces major medium- and long-term regulatory and environmental hurdles) and towards cleaner options. Natural gas represents America's bridge fuel as the country slowly shifts towards a world where renewables will no longer play second fiddle to coal, natural gas, nuclear, or hydro-conventional sources of electricity generation. That being said, we still aren't interested in shares of WEC here as we see better income growth opportunities out there.

Disclosure: I/we have no positions in any stocks mentioned, and no plans to initiate any positions within the next 72 hours. I wrote this article myself, and it expresses my own opinions. I am not receiving compensation for it (other than from Seeking Alpha). I have no business relationship with any company whose stock is mentioned in this article.

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**Stanford researchers make
unique wind energy farm
discovery**

**A new study conducted by
researchers from Stanford could be**

good news for wind farms.

The researchers have discovered that a wind energy farm can generate more electricity if its turbines are angled slightly away from the wind, instead of pointing directly into it.

This method of generating wind is called wake steering.

Unlike solitary wind turbines, which generate the most power when they are pointing directly into the wind, wind energy farms – spaces filled with rows of tightly packed turbines – struggle to function at their maximum potential when positioned this way.

The reason is that when these tightly packed turbines face the wind head-on, wakes from upstream generators can interfere with those positioned downstream. The wake from a wind turbine lowers the output of those behind it in a similar way to how a speedboat can be slowed by choppy water from a boat sailing in front of it.

Positioning turbines away from an oncoming wind is called wake steering. The newly published Stanford wind energy farm study found that wake-steering can lower the interference and improve both the quality and quantity of power from these farms as well as has the potential to lower operating costs.

“To meet global targets for renewable energy generation, we need to find ways to generate a lot more energy from existing wind farms,” said John Dabiri, professor of civil and environmental engineering and of mechanical engineering, and senior author of the paper, reports Stanford.edu.

“The traditional focus has been on the performance of individual turbines in a wind farm, but we need to instead start thinking about the farm as a whole, and not just as the sum of its parts.”

The wind energy farm study was conducted on a working wind farm.

Before testing their theory, the Stanford group came up with a quicker way to calculate the optimal misalignment angles for turbines. They tested these calculations on a wind turbine farms in Alberta, Canada in collaboration with the farm's operator, TransAlta Renewables.

Through their study, the researchers found that the overall power output of the farm boosted by up to 47% in low wind speeds, depending on how the turbines were angled, and by 7 to 13% in average wind speeds. Additionally, wake steering reduced the ebbs and flows of energy that are typically challenging with wind electricity generation.

"Through wake steering, the front turbine produced less power as we expected. But we found that because of decreased wake effects, the downstream turbines generated significantly more power," said Michael Howland, a mechanical engineering PhD student and lead author on the study.

The Stanford wind energy farm study was published in the journal "Proceedings of that National Academy of Sciences".

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PICS: Hundreds of youth take to SA streets over climate change

Hundreds of youth in Cape Town and Pretoria marched on Friday to demand that the government urgently act on climate change.

About 300 people marched from Parliament to the City Hall in Cape Town to hand over a memorandum demanding government take "immediate action on the climate crises".

The march was organised by the African Climate Youth Alliance and was part of the global Fridays for Future youth climate protest.

Protesters, the majority of whom were under the age of 18, marched through the city streets with placards chanting, "Hey hey, ho, ho, fossil fuels have got to go!" , "Save our planet" and "There's no planet B".

They want government to publicly declare that the climate crisis is happening; to place a moratorium on new coal, gas and oil mining licences; to have 100% renewable energy by 2030; and a mandatory education curriculum on climate change.

This follows a march on 15 March where thousands of school learners protested, calling on government to act against climate change.

A memorandum was handed over to Marian Nieuwoudt, Mayco member for Spatial Planning and Environment.

About 150 people, mostly youth, picketed at the Union Buildings in an attempt to put pressure on government to act on climate change. Photo: Ashanti Maluleke

About 150 people, mostly youth, picketed at the Union Buildings in an attempt to put pressure on government to act on climate change. Photo: Ashanti Maluleke

In Pretoria, about 150 people, mostly youth, from various environmental organisations picketed at the Union Buildings in an attempt to put pressure on government to act on climate change.

Some of the organisations included 350 Africa.org, Extinction Rebellion, Walter Sisulu Environmental Centre and Co-operative and Alternative Policy Centre (COPAC). The Well Worn Theatre Company, an organisation that uses theatre to bring awareness to climate change, also performed at the march.

But high school learners, some still dressed in their uniforms, and young children were at the forefront of the picket.

One of the organisers from 350 Africa.org, Alex Lenferna, said the upcoming Youth Day on Sunday was an important day to reflect on issues that affected young people in South Africa and one of those issues was climate change.

“Climate change is one of the gravest threats to young people’s future ... If we do not act, we will be leaving them a world that is ravaged by climate change,” he said.

Solomon Kutumela from the Walter Sisulu Environmental Centre said the centre brought some high school learners from Mamelodi township to the march.

He said it was important for the learners to be at the march because they were passionate about fighting climate change and the march was a space for their voices to be heard.

Kutumela said the centre focuses on teaching learners about waste, energy, water and biodiversity in Mamelodi. “It has also inspired learners to take part in marches like these and

think about careers in sustainable energy and environmental work,” he told GroundUp.

One of the learners from Mamelodi East, 15-year-old Jeffrey Mashela, said: “I’m here today to show that the environment is very important to us and as the youth, we should think about the next generation and how it is going to be for them.”

He urged government to listen to the voices of the youth. “That is why we are here today, to make [the government] listen,” he said.



Youth march in the streets of Cape Town against climate change. Photo: Ashraf Hendricks

Another learner from Mamelodi, Dzunani Makwakwa, said the world is going to change in the near future if we do not address climate change. “If we don’t stand up as the youth, change is not going to happen ... We have to show the older generations and the generations that come after us that we care about our environment.”

COPAC Executive Manager, Jane Cherry, said the organisation was calling for a “deep and just transition” that would ensure that workers who previously worked on coal mines would be skilled to work in sustainable energy.

“We also don’t want power to be transferred from one big multinational corporation to another one that owns solar energy ... We want workers to benefit from these sustainable alternatives,” she said.

Cherry said COPAC was currently drafting a People’s Climate Justice Charter that it hoped would eventually be adopted in Parliament.

“We are currently hosting roundtable talks with different groups ... We recently had one with drought affected communities and we’re still going to have talks with students, organisations, youth, labour and the media,” she said.

This was to table the various groups’ demands and include it in the document.

The memorandum was accepted and signed by Calvin Humbles from the office of the President. He said it would be acknowledged within seven days.

Someone from the crowd shouted: “That’s not enough ... Our President was on the board of Lonmin so how can we trust him to care about the environment?”

To which Humbles responded: “Let’s wait and see.”



Ruby Sampson is a grade 12 learner from Wynberg Girls High. She is one of the founders of the African Climate Alliance (ACA) and head of ACA's youth wing. After the protest in March, Samoson said that they heard nothing from government. She said that although the first protest was "fantastic", they didn't really achieve much. This time they are marching and going to hand over a list of demands "from the youth of South Africa to government". Photo: Ashraf Hendricks



Nicole Anthony (left) and her friend Widaad Abrahams from Lotus High joined the protest. Anthony, who is 16 and in grade 10, said that she joined the protest because “we are the future”. Anthony said that if nothing changes there will be no food and “we will die”. When questioning Anthony on why there aren’t many adults at the protests she said that “they already got their time”. “We are the next generations” she said. Photo: Ashraf Hendricks



“I want change,” said Zaahir Jacobs, a 13-years-old Grade 7 pupil from Littlewood Primary School in Mitchells Plain. Jacobs said that we need renewable resources in our lives like “sun and wind power”. Jacobs said adults don’t realise the importance of the climate crises. He said that he wants adults to stand with the youth. Photo: Ashraf Hendricks



Lily Shaw said that she isn't attending school anymore because she is on a "permanent climate strike". Shaw is 13 and a youth organiser for Extinction Rebellion Mzansi . She on a climate strike since the start of the year and has entered its 24th week now. Shaw said that if she does nothing for her future "I'm going to be extinct as well as all of the other humans and most of the species". Shaw said that climate change has become popular in the media but "when it actually matters, we're not really not doing anything about it". Photo: Ashraf Hendricks



Sasha Rodenacker, a 16-year-old grade 11 learner from Herzlia High, said that the protest was incredibly important because it was run by the youth. "We want a place to live as well," he said. Rodenacker said that the youth are mostly active in this fight against climate change because "we are going to be living here so much longer than adults are". Rodenacker said there were still a considerable number of people who deny climate change, or who don't care, but "this issue is seriously going to affect you at some point". "It's better to start acting now, when we can maybe still do something".
Photo: Ashraf Hendricks

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Storing Energy in Salt—Vattenfall Testing Technology at Berlin Plant

Vattenfall is rebuilding the Reuter thermal power plant, preparing to retire its coal-fired unit and adding a power-to-heat facility. Courtesy: Vattenfall

Swedish power company Vattenfall is testing a technology that stores energy in salt, with a goal of proving whether the process would be useful for storage of renewable energy such as from wind and solar farms. The pilot project, commissioned April 11 at the Reuter thermal power plant in Berlin (Figure 1), is being conducted with Swedish company SaltX Technology, which has said its system has been proven to store up to 10 times more energy in salt than in water, and for longer periods. SaltX's technology uses salt crystals coated in a nano material, which is heated with electricity, with the heat released when the crystals are discharged.

SaltX on its website calls the system "Thermo-chemical energy storage," saying the energy "is stored chemically, by separating salt from water, and then released by combining them again. The technology allows thermal energy to be stored and used hours, days, or months later," for both small- and large-scale projects. The company says, "SaltX Thermo chemical energy storage can be charged with both electricity and heat and then be released as heat up to 500C (930F)."

The project at Reuter has a total storage capacity of 10 MWh and is the first test of the system on an industrial scale. Sandra Kühberger, head of media relations and content for Vattenfall in Germany, told *POWER*: "Data should be collected in the coming months to better understand the processes. After

the pilot phase, [at the] end of summer, the gathered data will be evaluated.” Markus Witt of Vattenfall, who is responsible for the project, said, “Some questions are how large amounts of salt can be used, how quickly the storage medium reacts, and how the process can be controlled.”

Vattenfall and SaltX Technology initiated their collaboration in 2017, with the pilot plant installed over several months at Reuter. SaltX Technology says the nano-coated salt “is all-natural, very scalable and prevents corrosion. The salt has a good volumetric energy density and the nano-coating enables a long life to/for a low-cost material.” SaltX says the technology allows what it calls the “salt battery” to be charged thousands of times, with energy stored for weeks or months without loss.

“The energy sector is changing quickly, and we globally see an enormous need for energy storage. Germany is a country at the forefront of this development and we are proud to have Vattenfall as a partner. We are eager to launch our energy storage solution commercially as quickly as possible,” said Harald Bauer, CEO of SaltX Technology, in a statement.

Vattenfall said the project will run until the end of summer, with data and other results made available at the end of 2019. Vattenfall said the salt storage project is part of the company’s rebuilding of the Reuter plant, where Vattenfall said it will begin operation of Europe’s largest power-to-heat facility (p2h) later this year. That project is based on storage of hot water.

Kühberger told *POWER*: “By 2020, the p2h unit will provide district heating from electricity for up to 30,000 households. Vattenfall is investing almost €100 million [about \$112 million] in the next two years. After the commissioning of all heat boilers in the project, the [coal-fired] unit C of Reuter can be decommissioned as planned from the heating season 2019/2020 on.”

Vattenfall is retiring Reuter C coal-fired unit as part of its plan to phase out coal-fueled generation in Berlin by 2030. Reuter today is a 160-MW combined heat and power (CHP) plant that first operated as a coal-fired plant in 1930 in the Spandau district of Berlin. The plant, like many others in the region, was demolished after World War II, but was rebuilt starting in 1948. It was converted to a CHP plant in 1956. The plant includes a flue gas scrubber, with the turbine operated by steam from a nearby waste incineration plant.

-Darrell Proctor is a POWER associate editor (@DarrellProctor1, @POWERmagazine).

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You can save money and the planet – Martin Lewis

Your mind may not be on energy bills as we approach summer, but this is a good time to switch, says Martin Lewis

There's a hidden energy price war on. Switchers can get the cheapest prices we've seen in 2019. Yet most homes, 11 million in fact, have seen prices hiked, not cut recently. The only way to be an energy bill winner, not loser, is to take action. Fortunately, many of the cheapest current tariffs offer renewable energy, meaning switchers can often cut bills by over £300 a year, and help the environment too.

Of course, minds aren't on energy bills as we approach the summer, but this is a crucial time in the cycle. Here's five

key need-to-knows...

1. The price war is only for switchers. Over recent months, the wholesale price for energy (what the gas and electricity firms themselves pay for it) has plummeted. On the back of that many providers have put out much cheaper deals to try and get customers to switch to them. In fact since January for someone on typical use, the price of the market's cheapest deal has dropped by over £100/yr so it's now well under £900.

2. Most people are on the price cap that has gone up. In April, the price cap for 11m people on standard tariffs jumped by an average 10 per cent, a rise of £100 a year for those with typical usage meaning they now pay £1,254/year, and it will remain unmoved until October.

3. It only takes five minutes to find your cheapest. As your cheapest depends on where you live and how much you use, to find your winner use a comparison site. It only takes five minutes, just plug your details in to my www.moneysavingexpert.com/cheapenergyclub which also gives extra cashback if it can switch you, and by default includes the whole market's tariffs.

Alternatively www.Ofgem.gov.uk has a list of approved sites. However do remember some of these will automatically hide those that don't pay them.

4. Don't just go for the cheapest provider. This may seem a bit contradictory as I'm saying everyone should switch, but generally the cheapest providers are new firms you won't have heard of with possibly little financial backing (hence nine going bust within the last year).

So for ease and safety, it's best to scroll down a little to find more reliability and still make huge savings. Often you can find good customer service firms for only a per cent or two more money, meaning you still save large, but can breathe a little easier.

5. Less changes than you think when you switch. It's the same gas, same electricity, same pipes, same safety, only the customer service and the price changes.

It's worth thinking about going green too. The world is changing. Single-use plastics are now often unacceptable, 16-year-old Greta Thunberg recently spoke to Parliament, Extinction Rebellion's cause (if not method) was widely supported and for the first time since 1882, the UK went a whole week without generating electricity from coal.

In the past opting for renewable energy tariffs was often at a premium, but things have changed. Many of the best mid-sized energy firms have been around for a while, and have some cheap green tariffs as a way to bring in new sections of the market. So one company may have many different tariffs that vary in 'greenness'.

Even if you do go green, the gas and electricity coming into your house won't be, as that comes from the nationwide network that's fed from multiple sources. So what do the green options really mean?

100 per cent renewable electricity. While your energy won't all be green, your supplier will buy enough renewable energy (hydro, solar, wave or wind power that do not deplete the Earth's resources) to match your use, so the net effect of you using a 100 per cent renewable supplier is as if all your energy was renewable.

100 per cent green gas. This comes in two types. Firstly, there's renewable gas (from anaerobic digestion). But it's rare to have even 10 per cent renewable gas, let alone 100 per cent. Like with electricity above, your gas won't all be green, but your supplier will put the amount you use back into the network as renewable gas.

The other method, carbon offsetting, isn't actually renewable. Firms simply 'offset' the effect of 'dirty' gas by paying to

plant more trees, which is intended to have the same positive effect as your usage has a negative effect.

Most comparisons allow you to simply select only green tariffs, so you can see a range of them. Bigger names that have good customer service records and some green tariffs include Octopus (100 per cent renewable electricity) and Bulb (100 per cent renewable electricity, 100 per cent green gas – 10 per cent renewable, 90 per cent offset) and both can typically save people over £250/year.

Or if you want to stick with a big six firm – British Gas' Energy Plus Protection Green May 2020 tariff has a fixed rate till May 2020 and on typical usage costs £967/year – a no-brainer if you're loyal to British Gas or prefer a big name. But it's only available via comparison sites (like the ones above) – you can't call British Gas and ask for it.

It has 100 per cent green electricity and 100 per cent offset gas, and most also get 12 months' 'free' central heating, plumbing, drains and home electrical cover, but do note: the insurance auto-renews after a year, even if you switch energy (though you can cancel it any time).

Martin Lewis is the Founder and Chair of MoneySavingExpert.com. To join the 13 million people who get his free Money Tips weekly email, go to www.moneysavingexpert.com/latesttip

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Alternative Energy ETFs Are Impressing This Year

Over the years, exchange traded funds focusing on alternative energy themes have had their shares of struggles, but the group is surging this year. The **Invesco Solar ETF (NYSEARCA: TAN)** is one of this year's best-performing non-leveraged exchange traded funds.

TAN, which is nearly 12 years old, follows the MAC Global Solar Energy Index. That index "is comprised of companies in the solar energy industry. The index is computed using the net return, which withholds applicable taxes for non-resident investors," according to Invesco.

"What's behind the sector good fortune? After years of depending on regulation for growth, the clean-energy industry can now sell itself as the most cost effective source of electricity generation," reports Sophia Cai for Barron's. "Thanks to falling costs, some are beginning to out-compete traditional high-carbon energy resources like oil, coal and natural gas."

TAN and its components can be volatile investments and the solar industry has had its bouts of volatility and struggles in the past. The tariffs pinched the solar industry, creating job losses, but state initiatives, including California's push to require all new homes built in 2020 and beyond to include solar panels, are bolstering the solar industry.

"Costs of unsubsidized solar PV have fallen from \$359/MWh to \$43/MWh, a 88% decrease over the last nine years. Unsubsidized wind saw similar cost reductions over the same period: from \$135/MWh to \$42/MWh, a nearly 70% decrease," according to Barron's.

Another Clean Energy Investing Idea

Up 22% year-to-date, the **ALPS Clean Energy ETF (Cboe: ACES)** is another alternative energy ETF to consider. The ALPS Clean Energy ETF tries to reflect the performance of the CIBC Atlas Clean Energy Index, which is comprised of U.S. and Canadian companies involved in the clean energy sector including renewables and clean technology. ACES provides exposure to multiple clean energy themes.

The ETF's components provide the products and services that enable the evolution of a more sustainable energy sector. The green energy companies are engaged in renewable energy sources, including solar power, wind power, hydroelectricity, geothermal energy, biomass, biofuels, and tidal/wave energy; clean technologies, including electric vehicles, energy storage, lithium, fuel cell, LED, smart grid, and energy efficiency technologies; and other emerging clean energy activities and technologies.

"As costs continue to fall and clean energy becomes mainstream, clean-energy companies should experience accelerating growth and become better investment opportunities," reports Barron's. "Prospects for wind and solar technology are most upbeat since they have learned to stand on their own without subsidies."

For more information on the renewables space, visit our renewable energy category.

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