EAGLE GLOBAL ADVISORS

Quarterly Commentary Q1 2020

EGA Renewables Infrastructure

From the EGA Portfolio Management Team

Flattening More Than The Covid-19 Curve

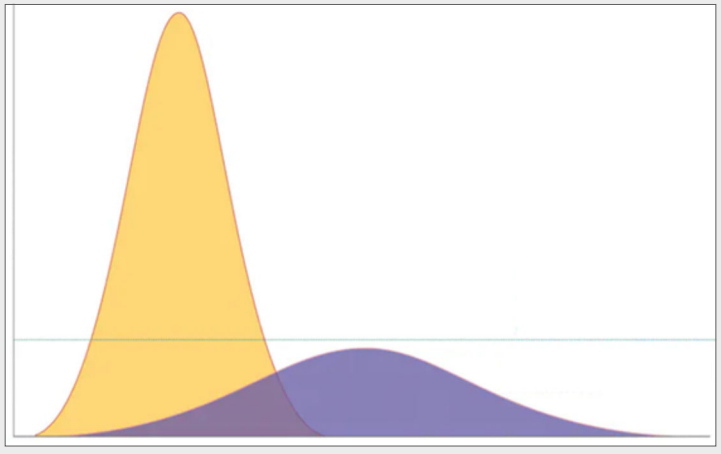
Our inaugural edition of the Renewables Quarterly comes at a time of monumental disruption within energy. Traditional energy has been a veritable witch's brew of COVID-19 driven demand destruction and oversupply from the breakdown of OPEC+. Energy investors have been force fed this awful cocktail and the recurring question is "how bad can it get, before it gets better?" Meanwhile the emerging Renewables Infrastructure asset class' performance during this period of extreme volatility should catch investors' eyes, as both our Global index (RENEW) and North American index (RENEWNA) have materially outperformed the broader markets, less focused renewables indices, and other income-oriented sectors. The sector even outperformed the Utility index (IXU), long thought of as a safe haven asset class during periods of extreme market turmoil.

	Average Trailing Total Return (Trailing CAGR)			
	YTD	TTM	3 Years	5 Years
Eagle Global Renewables Infra Index (RENEW)	(10.23%)	6.78%	12.22%	7.53%
Eagle North American Renewables Infra Index (RENEWNA	(8.97%)	16.80%	11.58%	6.27%
S&P Global Clean Energy Index *	(17.88%)	0.04%	6.98%	(2.07%)
S&P 500 Index	(19.60%)	(8.04%)	5.10%	6.73%
MSCI World Index	(21.05%)	(11.40%)	1.92%	3.14%
PHLX Utility Index	(12.31%)	0.49%	7.02%	8.57%
DJ All REIT Equity Index	(23.28%)	(15.67%)	0.13%	1.93%
Barclays US Corp High Yield Bond Index	(12.68%)	(7.11%)	0.77%	2.76%
S&P 500 Energy Sector	(51.06%)	(54.97%)	(24.25%)	(17.02%)

* - the S&P Global Clean Energy Index is a diversified mix of clean energy production and clean energy equipment & technology companies

Source: Bloomberg

It's become common to say "flatten the curve" when talking about the U.S.' strategy to defeat COVID-19 though what many don't realize is this statement has been used for some time in the renewables community. We are not trying to stake a claim to the popular statement, rather we're simply highlighting the statement's relevance in today's society as we seek to defeat a global crisis (COVID-19) and attempt to ward off another (climate change).



Source: Eagle Global Advisors

The Current Global Crisis (Covid-19) And The Near-Term Fate Of Renewables

Flattening the sickness curve is imperative to saving lives as it spreads out demand on a hospital system not designed to treat large numbers of patients. Unfortunately, the flip side to this argument is the longer the economic lockdown lasts the more permanent damage is inflicted upon both the domestic and global economy. While everyone has an opinion about the long-term impact, we don't think investors should put much weight in any opinion until COVID-19 passes. Therefore, we chose to instead focus on the near-term impacts this crisis will have on renewables and renewables infrastructure.

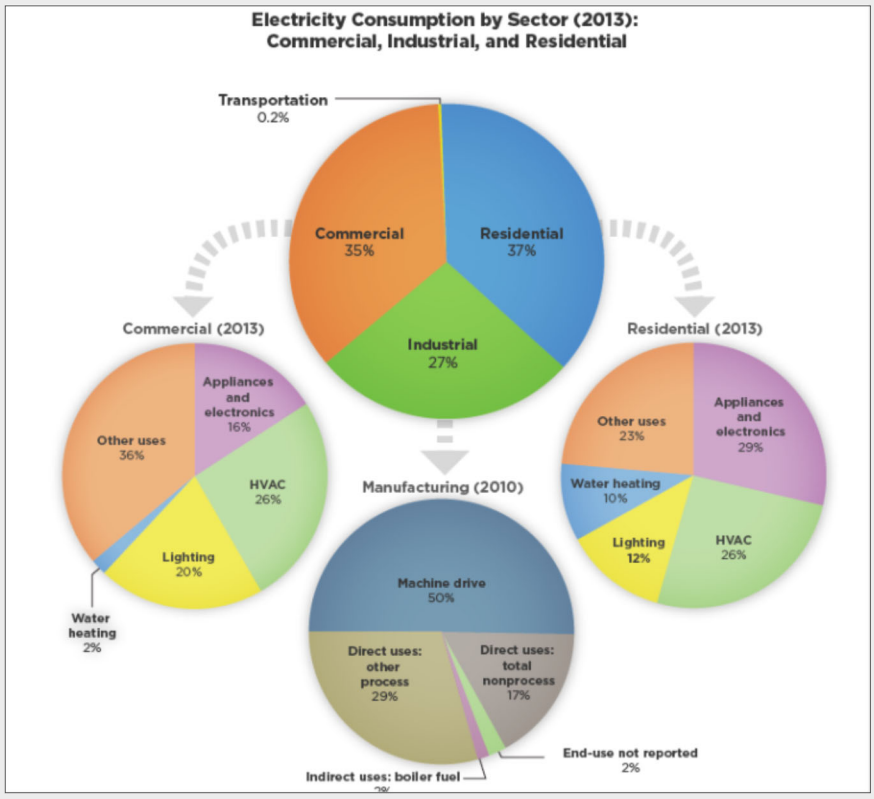
We highlight three major factors to consider when evaluating renewables in the near-term: (1) cash costs for renewables are close to zero; (2) higher residential usage will at least partially offset declines in commercial/industrial usage; and (3) the vast majority of power purchase agreements (PPAs) are with investment grade credit rated demand pullers, not supply pushers.

Cash costs are close to zero. The vast majority of renewable energy's cost structure is incurred during construction. Once a renewable energy facility is generating energy the cash costs are very small because there is no fuel input. Sunshine and wind are free of charge. This compares favorably against fossil fuels that rely on highly volatile inputs like natural gas or distillate. As the lowest cost provider of electricity, we therefore fully expect our companies will continue to get paid on their PPAs.

Plant type	Capacity factor (percent)	Levelized capital cost	Levelized fixed O&M[2]	Levelized variable O&M	Levelized transmission cost	Total system LCOE	Levelized tax credit[3]	Total LCOE including tax credit
Dispatchable technologies								
Combined cycle	87	7.48	1.59	26.40	1.13	36.61	*NA*	36.61
Combustion turbine	30	16.10	2.65	46.51	3.44	68.71	*NA*	68.71
Geothermal	90	20.36	14.50	1.16	1.45	37.47	-2.04	35.44
Non-dispatchable technologies								
Wind, onshore	40	23.51	7.51	0.00	3.08	34.10	*NA*	34.10
Wind, offshore	45	84.00	27.89	0.00	3.15	115.04	*NA*	115.04
Solar photovoltaic[4]	30	24.12	5.77	0.00	2.91	32.80	-2.41	30.39
Hydroelectric[5,6]	73	28.89	7.64	1.39	1.62	39.54	*NA*	39.54

Source: Energy Information Administration (EIA)

Higher residential usage will offset some declines in commercial and industrial usage. The EIA indicates the electric generation market is split between residential (37%), commercial (35%), and industrial (27%), though COVID-19 is expected to have different impacts on each. As an example, Raymond James forecasts total demand will decline 12%-15%, but only because reductions in commercial/industrial will be greater than an increase in more inefficient residential usage. The point we're trying to make is that while overall power consumption will decline, there is this "residential vs. commercial/industrial" offset that should lessen the negative impact on Renewables Infrastructure companies.



Source: U.S. Environmental Protection Agency (EPA)

The vast majority of power purchase agreements (PPAs) are with investment grade (IG) credit rated demand pullers and not supply pushers. The importance of having IG credit rated counterparties is critical as the economy enters a recession. Equally important is a large number of these counterparties are demand pullers like regulated electric utilities. In addition, many of these regulated utilities place a high priority on renewable energy due to state mandates. As an example, we highlight the PG&E bankruptcy settlement (as it's currently written) has fully reaffirmed all of its renewable PPAs.

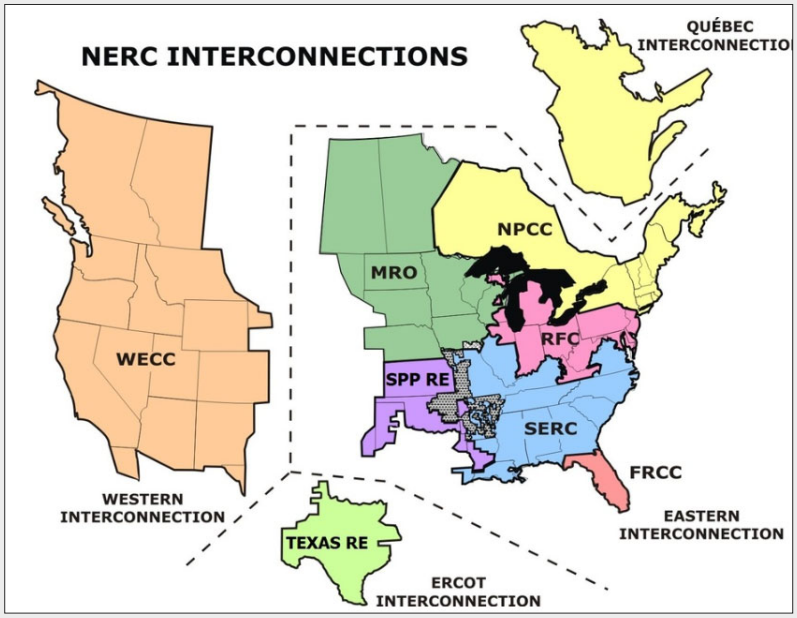
We emphasize these are just a few of the positives associated with Renewables Infrastructure during this time of crisis. It's equally important to mention each company should be evaluated independently and there are still plenty of risks in today's precarious environment. As an example, we're particularly worried about companies exposed to international markets, especially those operating in developing countries. We believe counterparty risk for these companies are complicated by governments who may not have renewables resolve or by contracts with less transparent or commodity sensitive companies that have outsized sensitivity to the economic cycle. Separately, access to the capital markets is critical for those companies that have organic growth programs, and another reason why we stress capital discipline with every management team we meet with.

In summary and is the case with all stocks, selection is key. We're concerned about the near-term impact on the broader economy and the dampening effect it may have on renewables long-term growth prospects. However, we're optimistic given this sector is well positioned to make it through this volatile period and believe many investors will get a real time lesson in its "sleep at night" virtues.

The Looming Global Crisis (Climate Change) And The Long-Term Future Of Renewables

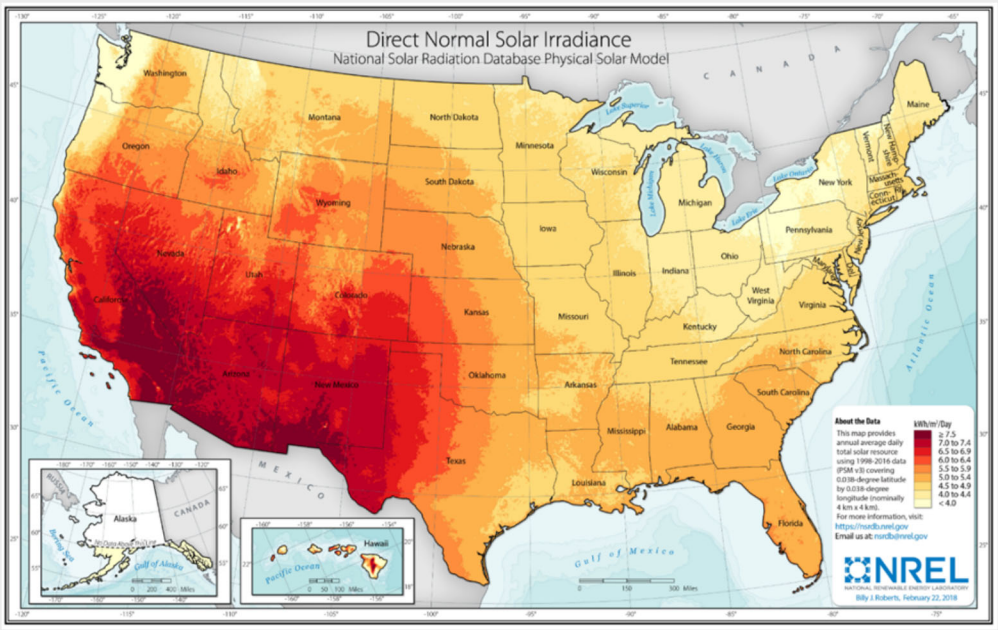
"Flatten The Curve" has an entirely different meaning when used in the context of peak power demand. The idea is that lowering peak demand and raising off peak demand (ie, flatten the curve) will put less demand on the power grid, and thereby decrease the need for "peaker" electric power plants. "Peaker" power plants are turned on to meet a surge in electric demand during perhaps only a few hours during the day, and the vast majority of these plants are natural gas fired power plants. In short, reduce demand for peak power and decrease the usage of fossil fuels. So how do we flatten the power curve? There are two ways to attack this problem, on demand and on supply.

The two most discussed supply side solutions are (1) battery technology and (2) increasing grid interconnectivity. For the first, the ability to efficiently and inexpensively store the intermittent power of renewable energy would flatten the curve by redeploying stored power during times when renewable energy isn't generating power. The other solution is increasing grid interconnectivity. The U.S. grid is made up of three interconnections: (1) Eastern, (2) Western, and (3) ERCOT (see below map). Increasing interconnections between these three grids (and even within each grid) could decrease intermittency issues long associated with renewables and in general allow for greater balancing (efficiency/reliability) as regulators manage supply.

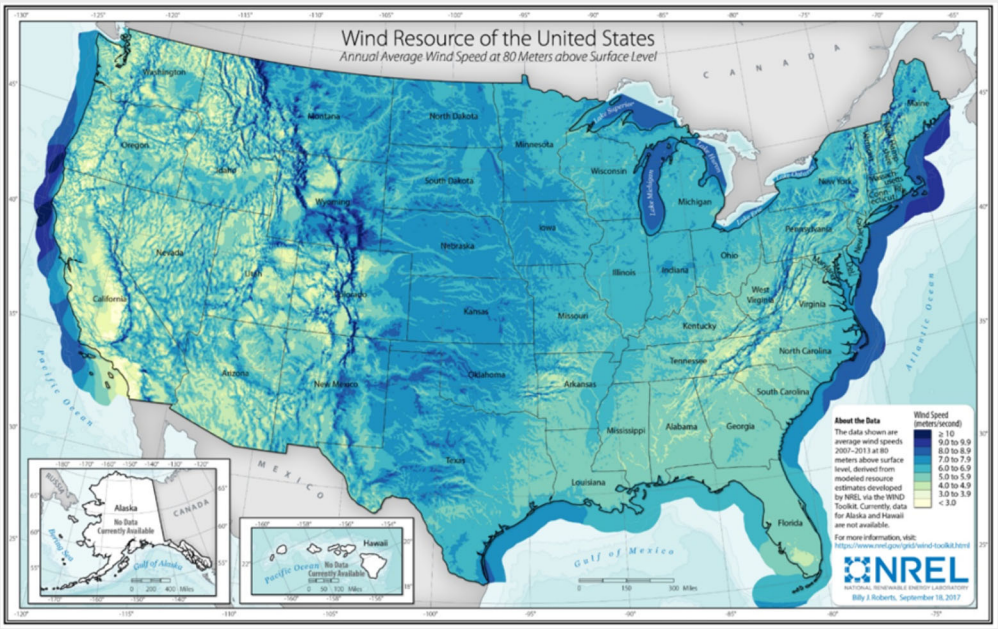


Source: NERC

Why does this matter? In a perfect world of interconnectivity, solar resource from the Southwest U.S. and wind resource from offshore and the Great Plains would deliver electricity to demand centers first in the Eastern U.S. and then directionally west over the course of the day. To the extent one area was cloudy or calm, another area (in theory) would be able to make up for this supply shortfall. Adding an inexpensive and efficient battery to the mix would allow for greater flexibility.



Source: National Renewable Energy Laboratory (NREL)



Source: National Renewable Energy Laboratory (NREL)

Impacting demand involves adjusting human patterns either through energy conservation or load management. Energy conservation steps such as better windows, more efficient appliances, "smart" thermostats, smaller houses/ offices, and the like have been around for some time, and have had a meaningful impact on power demand. We see no reason why energy conservation will not continue to increase efficiency and have an offsetting impact on power demand.

Load management focuses on how to disperse energy demand across the hours of the day. This is easier said than done because the peak load is between 6pm-9pm when consumers come home from work and go through their evening routines. It may be impossibly difficult to alter these routines without some paradigm shift in the workday. However, every so often there is an opportunity for revolutionary change. The Wall Street Journal published an op-ed titled "Crisis Means a New Business Era" detailing how traumatic events can change business forever. With a

large part of the world population working remotely from home, perhaps business leaders will see minimal change in work productivity and ask themselves are offices worth the expense? Putting aside what may be an overall increase in worker satisfaction (happiness), a shift to remote work experience could do wonders in terms of load management. Even a small spreading out of that peak evening power load could impact the market in a positive way by helping flatten the curve.

We're realists though and see the solution coming from the supply side and less so from the demand side. In the end and as Bob Dylan says, "The times they are changin'". We at Eagle Global Advisors would rather the times come to us and not the other way around.

Renewables Infrastructure Team Update

There were no significant team related news items to highlight this quarter. We continue to focus on the research and portfolio execution effort as well as our indexing initiative. We are in constant dialogue with industry experts and management teams, and we met with several Renewables Infrastructure companies before the COVID-19 shutdown and found both sentiment and the overall outlook was healthy. We look forward to communicating the results of your investment next quarter.

We thank you for your continued patronage and confidence in Eagle Global Advisors, and we truly hope you and those close to you remain safe and healthy during these trying times.

- The Eagle Renewables Infrastructure Team