

Renewables Will Be An Engine – Now Let’s Do This Right

By Yuri Horwitz

Introduction

When we started Sol in 2008 most people questioned whether the renewable energy industry would ever be cost competitive, or scale, or be financeable. Solar was unrealistic, cute, or at best, quixotic. Time has been the great arbiter.

Solar is now the single least expensive form of electricity in over 75% of the globe and the single largest source of new energy generation in the United States. As we noted a few years ago, [solar is poised to dominate](#) the US electricity markets over the next decade. And yet we’ve just begun the journey. By combining renewables with storage, solar and wind will power upwards of 50% of our electricity within a decade, scaling 100-fold.

And with that realization must come another. Renewable energy will be an economic growth engine for the United States and the globe. And those of us that are building the industry have a tremendous opportunity (and responsibility) to ensure that this engine benefits all communities, including those that have been left behind during previous economic expansions.

[Each year we write a letter](#) to our partners, our clients, and the industry to reflect on the changes in the renewable energy industry and the opportunities and challenges ahead. This year, we focus on technology, policy, and our collective responsibility to build a more impactful industry.



Technology

The [U.S. installed 19.2 GWdc of solar PV](#) capacity in 2020 to reach 97.7 GWdc of total installed capacity, enough to power 17.7 million American homes. Solar accounted for 43% of all new electricity-generating capacity added in the U.S. in 2020, representing the solar industry’s largest ever share of new generating capacity and ranking first among all technologies for the second year in a row. Solar is the single largest source of new electricity generation.

Looking ahead, the U.S. solar market will install over [160 gigawatts \(GWdc\) from 2021-2025](#), a 42% increase over the last half a decade. Solar energy is driving energy procurement and reform in almost every segment of the U.S. economy, especially for corporations, large investors, and municipalities. In 2020 alone, corporates inked 20+ GWs in new solar energy Power Purchase Agreements (PPAs).

Much of this new build will include energy efficiency and storage so that solar can better meet the needs of each customers - whether municipal, corporate, residential or other. Most storage solutions utilize lithium-ion batteries, the same batteries powering Teslas,

the Ford Mustang, F-150 Lightnings, and the ever-elusive Rivian. Driving energy storage at a global scale will rapidly drive down costs, which are already expected to [fall by upwards of 50% over the next decade](#). By 2025, one-fifth of new utility-scale solar systems, one-third of new residential solar systems, and one-quarter of new non-residential solar systems will be [paired with energy storage](#).

Most (if not all) of our [new cars will be powered by electricity by 2035](#). That is a massive change, even for a state like California where 8% of all vehicles are currently electric. This transition will dramatically [increase demand for electricity generation](#) and require infrastructure investment to upgrade the current electric grid to be more sophisticated. It will also significantly increase demand for batteries, further driving down costs.

With a focused investment on distribution and smart-charging technology, utilities will utilize demand from electric vehicles to optimize grid efficiency and reduce congestion and interconnection timelines. This is why federal, state, and utility incentives that reward the co-location of charging stations with distributed solar projects where people live or work is so important. In the long-term, lithium-ion batteries will not provide sufficient storage capacity for load shifting, which is absolutely imperative for 24/7 renewable energy, [an effort that Google](#) is thoughtfully leading on. To enable this future we will need create, refine and deploy multiple storage technologies like [pumped water storage and hydroelectric generation and other technologies](#). This is where we must innovate.

The historic expansion of solar and storage will exponentially increase the demand for raw materials and finished product in an inflationary period where [commodities are already in short](#)

[supply](#). We expect an effort to “on-shore” much of this work in the United States, with a focused ramp-up of domestic manufacturing for both solar and storage. In just one example, [First Solar recently announced a plan](#) to increase U.S. module manufacturing by over 3 GW in Ohio alone.

We expect the Biden Administration to [incentivize the wholesale reorganization of supply lines](#) (lithium, cobalt, graphite, and other rare earth materials) within the battery market and fund new research and development into battery and alternative energy technology. This will mean more mining in the United States, but also more processing, almost all of which is currently done in China. Building these networks is complex and will be a minimum of a [four- to five-year process](#) as indicative of the timeline for infrastructure build-out in Europe.

Policy

The Biden Administration has pledged to [reduce United States greenhouse gas emissions by at least 50% by 2030](#), which is one of the initial steps in their commitment to reach a net zero emissions economy-wide by 2050. We fully embrace these goals and are working on solutions to support President Biden’s plan. But these goals are as ambitious as they are laudable. Given the importance of bipartisan leadership, three priorities will prove instrumental to success.

First, we must immediately reduce tariffs that do little to end a trade war with China. This would improve the United States’ ability to compete within the global solar energy market. Since 2018, over [60,000 renewable energy jobs and nearly \\$20 billion have been lost due to solar import tariffs](#). Cutting solar import tariffs would reduce the costs of solar modules by at least 20%, driving significant clean energy

investment and jobs growth throughout the U.S. If we want to incentivize domestic production, we should do so through tax cuts or low interest loans.

Second, one of the biggest hurdles to scaling renewable energy is the existence of old and aging electricity infrastructure. Utilities, the federal government, and the industry must work together to take a coordinated approach to investing in and rebuilding our aging transmission and distribution infrastructure. The same utilities that will benefit from an increase in load from electric cars are economically aligned with the renewable energy industry in retrofitting and rebuilding our grid in a more efficient, equitable and sustainable way. While the renewable industry may not be aligned with utilities on all policies, we should be aligned here.

Third, as noted recently by Energy Innovation, the single most important policy framework to facilitate the transition to a clean energy economy is through the implementation of a national [market-based renewable portfolio standard \(RPS\)](#) or a clean energy standard (CES). Today, [37 states have an RPS](#) and a national RPS has growing bipartisan support within Congress, too. A RPS is already a well-known framework for major banking and financial institutions and would set a blueprint with incremental goals to meet 100 percent clean energy. As Congress and the new Administration begin to transition to a clean energy economy, accuracy, credibility, and tested solutions will be critical to the success of our national energy goals.

Impact

As noted above, as America shifts to a clean energy economy, there must be a proportionate commitment to do so in a more thoughtful and impactful way. Renewable energy development and operations create a generational opportunity to drive real long-term investment and jobs in communities that have historically been left behind, as well as those communities that will be impacted by the transition to renewable and clean energy. We think this can be accomplished in a few ways.

First, our industry has a very real opportunity to better attract, retain and promote both minorities and women. Current industry leaders can do that work by collaborating on best practices, mentoring, and focusing on community impact and investment – which are the core priorities for the executives working on the [Renewables Forward Initiative](#). There are few things we can do as human beings that have more of an impact than what we do every day at work. Lean in, spend the time, and spend the money within your organization (or advocate for others to do the same) so that we can continue to build the world that we all deserve.

Second, many of the largest customers and investors in the world are focused on developing and implementing structures and strategies within their own businesses that benefit under-resourced communities, communities of color, and those communities that have been disproportionately impacted by climate change or otherwise left behind. Solar developers and operators have a responsibility

(and frankly an opportunity) to lean in with these customers and investors to develop renewable energy assets more thoughtfully. Sol recently worked with the University of Illinois on a zero-waste project, we've done work in and around DC, we've designed a ground-breaking [Power Purchase and Community Investment Agreement with Microsoft](#), and we're undertaking a number of other initiatives with our other partners and clients. We are also working with several industry associations to help customers innovate on similar models, and we urge others to do the same.

Third, our industry must work with adjacent organizations focused on these priorities. Driving diversity into the renewable and clean energy industry requires an integrated approach that creates temporal pathways for support and success. These pathways must begin early with high school students, then college students, then within our own industry and in parallel industries. This is why we support the [Urban Alliance](#) in their work with urban high-school students; as well as CELI's [EDICT](#) initiative, a program that pairs BIPOC college students with opportunities in the renewable and clean energy industry. This is why we urge our industry to explore collaborating with organizations like the [Black Oak Collective](#), [BOSS](#), and [AABE](#).

Conclusion

The path ahead for renewable energy has never been so clear or so promising. The industry will continue to scale, with an increased focus on the locational value of assets, load shifting, the development of new and innovative storage, and a very close focus on customers and their expanding needs.

However, restructuring our electricity infrastructure invariably has political dimensions and ramifications; and we must also be thoughtful about what we advocate for on the federal and state level so that policy remains stable. These tools must be both pragmatic and impactful. Equally important, we must be thoughtful about how we invest in the communities we are working in so that the industry we continue to build mirrors the society we all hope to build. It's the right thing to do, and it's the smart thing to do.

