Public Comment

August 24, 2023
RCEA Board of Directors
Regular Meeting

From: Ken Miller
To: Lori Taketa
Subject: Could Rooftop Solar Really Provide Enough Electricity For The Entire World?
Date: Saturday, August 5, 2023 7:38:02 PM

Dear Ms Taketa, Please share with RCEA Board and CAC

https://www.forbes.com/sites/davidrvetter/2021/10/11/could-rooftop-solar-really-provide-enough-electricity-for-the-entire-world/?sh=56edd57b22ee

Could Rooftop Solar Really Provide Enough Electricity For The Entire World?

David Vetter Oct 11, 2021,

Climate research, renewables and circularity

Luminalt workers install solar panels on the roof of a home in San Francisco, California.

Getty Images

With countries racing to end their reliance on the fossil fuels that cause climate change, it's a boom time for renewable energy. Now, an international team of researchers has determined that if every available rooftop was equipped with solar panels, they could generate enough electricity to power the world.

At least, in theory.

In their assessment published in *Nature Communications*, a team led by energy researchers at University College Cork in Ireland calculated a figure for the total surface area of all the rooftops in the world: some 0.2 million square kilometres—an area almost the size of the U.K. The authors then worked out that, if all the surface area

was covered with solar photovoltaic panels, they could generate a total of 27 petawatt hours of electricity per year—more than the combined electricity consumption of the world in 2018.

That's a lot of power. But the authors, led by Siddarth Joshi, a PhD student at University College Cork in Ireland, aren't necessarily recommending that every rooftop on Earth must be festooned with panels. For one thing, the physical and logistical obstacles to such an operation would likely be insurmountable, and for another, the authors show that, from region to region, the costs of solar vary hugely. Just as crucially, electricity consumption could almost double in decades to come, according to McKinsey, dwarfing the total power consumption seen today.

But what the report does do is show how rooftop solar can best be deployed to help nations rapidly—and relatively cheaply—decarbonize and decentralize their power grids, as Siddarth Joshi himself explained.

"Rooftop solar has two unique attributes that set it apart from other forms of renewable energy generation: fast deployment, and decentralised citizen-driven uptake. These attributes lend it specific advantages over other renewable generation technologies," Joshi told me. Rooftop solar therefore "brings significant advantages in terms of broad participation of society in the energy transition to a low carbon future, due to the use of residential and public buildings as the locations where the technology will be deployed."

He went on: "The assessment can aid intergovernmental agencies, governments, development banks and energy agencies in a) understanding where the rooftop hotspots are and b) how to prioritise investment in these hotspots within the distributed potential of each country."

MORE FROM FORBESFrom Climate Villains To Heroes? How The Rich Can Weaponize Their Influence To Fight Global Warming By David Vetter Joshi and his colleagues show that the cost of rooftop solar varies from $40 to $280 per megawatt hour (MWh), depending on the region. (These can be compared to sample global levelized electricity prices calculated by Lazard, which suggest a cost of $36 per MWh for utility-level solar, $40 for onshore wind, $112 for coal, and $164 for nuclear power in 2020.)

Vitally, the authors reveal that the lowest costs for rooftop solar can be attained in densely populated regions in China and India—the world's two most populous nations, which face huge challenges in simultaneously cutting carbon emissions while providing increasingly more energy for their people. At a price of $66 per MWh in India and $68 per MWh in China, rooftop solar in these countries is cost competitive.

"Our assessment shows that India and China have a sizable potential for RTSPV [rooftop solar photovoltaics], along with lowest cost to deployment of these technologies. Adding in the component of manufacturing and low cost labour, India and China can truly reap the benefits of RTSPV in first displacing their current fossil fuelled generation mix and second by introducing additional generation capacity that is less carbon intensive," Joshi said.

In addition, rooftop solar has the advantage of both reducing local air pollution—where it replaces conventional fossil fuel-based energy generation—and reducing transmission network loads by decentralizing electricity supply. And, unlike almost any other form of energy generation, it can do all that without impacting the land and ecosystems, as it is installed exclusively on existing buildings.

Nevertheless, to achieve the full potential of rooftop solar, certain

necessary conditions would have to be met. Crucially, given that solar power by definition can only generate power during the day, the deployment of storage in the form of batteries and smart grids that can coordinate supply and demand will be critical.

Rooftop solar, Joshi concludes, is therefore "not a one-size fits-all solution, but rather a sizable alternative low carbon generation source to displace fossil fuel derived energy sources from their power systems."

MORE FROM FORBESHow The West's Climate Campaign Against Meat Could Harm Millions In Developing World By David Vetter

The findings emerge in the context of what can only be described as the dawn of a golden age for renewable energy. According to the International Renewable Energy Agency (IRENA), between 2010 and 2020 the costs of generating electricity from utility-level solar fell a precipitous 85%. As reported in this column, some researchers believe the falling costs of renewables could push fossil fuels out of electricity generation altogether by 2035.

That's just as well. Under the net-zero emissions scenario developed by the International Energy Agency (IEA), which the agency says is the pathway the world needs to take to limit global temperature rise to 1.5 degrees Celsius, wind and solar power will need to provide at least 70% of total electricity generation by mid-century. Right now, the IEA says, 25 million rooftops around the world already have solar PV installed. To get to net zero emissions, "the number increases to 100 million rooftops by 2030 and 240 million by 2050."

This ought to be feasible. So far, 80 nations have ratified the International Solar Alliance (ISA) framework agreement, which aims to coordinate efforts between "solar-resource-rich countries" to increase the deployment of solar energy technologies "in a safe,

convenient, affordable, equitable and sustainable manner." ISA says its member nations are aiming to mobilize $1 trillion in investments by 2030 in order to achieve this.

But it remains to be seen whether rich nations will hold up their end of the bargain: next month, all eyes will be on Glasgow for the COP26 climate summit, to see whether the richest countries will finally make good on their promise to deliver $100 billion every year in climate finance to support developing countries.

The rooftop solar assessment report can be read here.

...

Ken Miller
[redacted]
Mckinleyville, Ca 95519

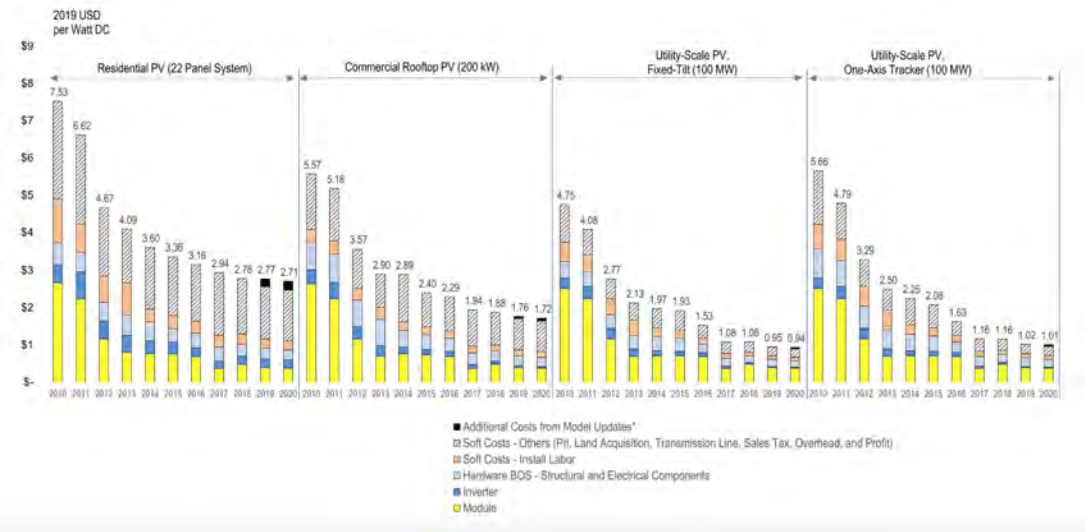
[redacted]

3.0 - Oral/Written Communications

From: Jesse Noell
To: Lori Taketa
Subject: Cost of residential rooftop solar v. offshore wind
Date: Sunday, August 6, 2023 11:43:54 AM
Attachments: Screen Shot 2023-08-06 at 11.25.21 AM.png
Screen Shot 2023-08-06 at 11.11.10 AM.png

Dear Lori Taketa,
Please share with the RCEA Board and CAC

Per watt cost of residential rooftop PV continues to decline:



While floating offshore wind is projected to remain uncompetitive until beyond 2030:

- Automate production and fabrication of the floating substructures
- Access higher wind speeds through remote siting that are enough to offset the higher O&M and installation costs associated with greater distances to shore and harsher meteorological conditions.

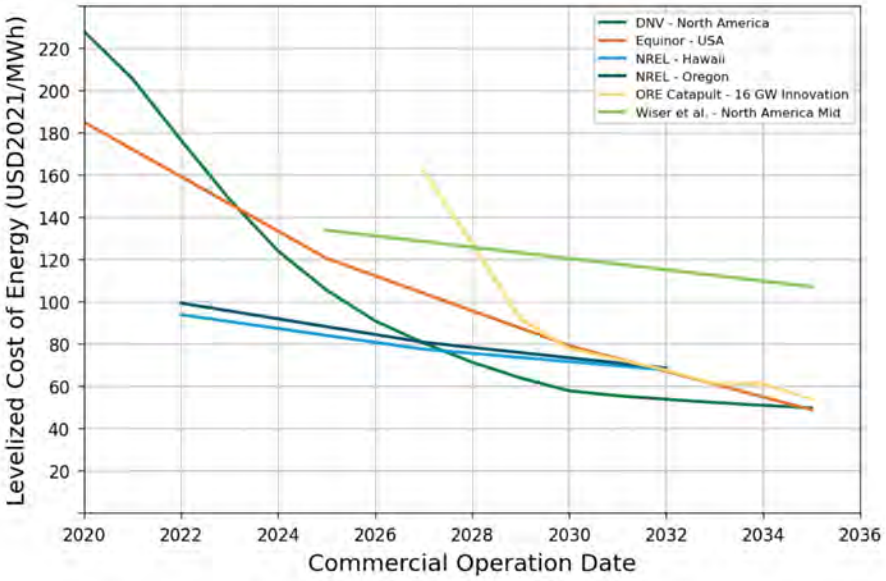


Figure 44. U.S. LCOE estimates for floating offshore wind technologies.

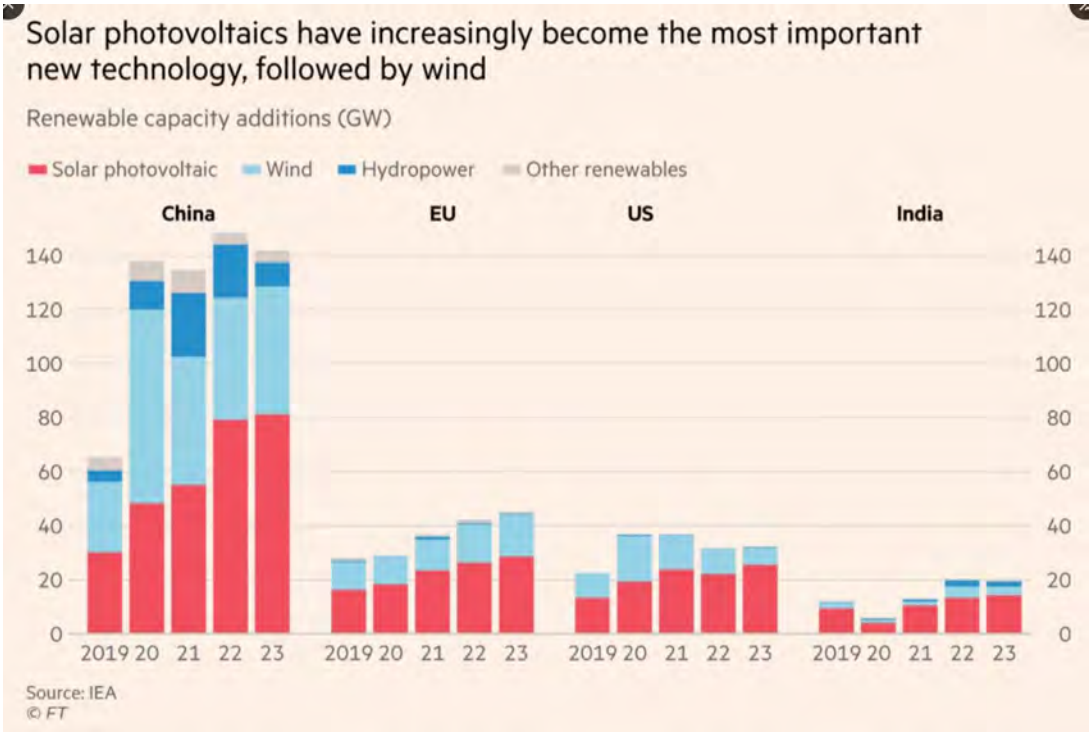
Sources: ORE Catapult (2021); Shields, Duffy, et al. 2021 (Hawaii), Musial, Duffy, et al. 2021 (Oregon); Wiser et al. (2021); Equinor (2021); DNV (2021)

Both solar and wind require battery backup.
Solar rooftop can be achieved now, and provides local employment.
Why is RCEA pursuing offshore wind? Please provide your analysis of the advantage to ratepayers.

Sincerely,
Jesse Noell

3.0 - Oral/Written Communications

From: Jesse Noell
To: Lori Taketa
Subject: IEA on solar
Date: Sunday, August 6, 2023 10:42:41 AM
Attachments: Screen Shot 2023-08-06 at 10.38.37 AM.png



From:	Colin Fiske
To:	Public Comment
Cc:	Arroyo, Natalie; Sarah Schaefer
Subject:	Comments on Agenda Items 7.1 and 8.2
Date:	Wednesday, August 23, 2023 12:56:02 PM

RCEA Board Members,

Please accept the following comments on agenda items for your 8/24/23 Board meeting. To be clear, I am submitting these comments as an individual, and not as a representative of the Community Advisory Committee.

Item 7.1: (Solar) Net Billing Tariff Implementation

The recent end of net metering (NEM) for rooftop solar by investor-owned utilities (IOUs) in California is resulting in a crash in the rooftop solar industry - or as your staff report puts it, "a major slowdown in sales of new solar projects" - as was widely predicted. The IOUs and the CPUCs offered justifications for ending NEM related to customer equity, but the decision should be seen in the context of a decades-long campaign by IOUs across the country to undermine distributed generation that disrupts their business model.

In contrast, RCEA has specific adopted goals to increase rooftop solar and other distributed generation resources and to provide a NEM program. Yet staff are recommending that RCEA end its NEM program and instead "mirror" PG&E's new rate structure for solar - the exact approach that is killing the statewide rooftop solar industry. This is contrary to our adopted and widely popular goal of supporting local rooftop solar, and I urge you to reconsider. Please retain the existing NEM program.

If RCEA has concerns about the equity implications of its own NEM program, these concerns can and should be addressed without undermining the local rooftop solar industry. For example, RCEA could partner with organizations providing free or reduced-cost solar installations for income-qualified customers and/or provide pathways for multifamily/multimeter community solar projects to benefit renter households.

Item 8.2: Renewable Energy Certificate Purchase from Humboldt Sawmill Company

Please do not purchase Renewable Energy Certificates (RECs) from Humboldt Sawmill Company. This action would be contrary to the purpose of the RECs and undermine RCEA's goals.

The purchase of RECs is part of complying with the state's renewable energy standards, intended to support and subsidize the production of more renewable energy. But the staff report states clearly that HSC's RECs are "associated with energy production already taking place." In other words, HSC has been and would continue to burn this biomass for electricity regardless. Thus, even if you believe that biomass is a legitimate form of renewable energy, these RECs would not serve the intended purpose of incentivizing more renewables. Nor would their purchase support any additional local jobs or economic activity, because it would not result in any operational changes. It would merely fatten the profits of HSC's out-of-town owners.

Furthermore, the staff report argues in support of these RECs that HSC is a "trustworthy and cooperative" business partner. This is a somewhat surprising assertion, given recent revelations that HSC's plant has experienced numerous unreported air quality violations in

recent years, and HSC's recent failure to produce required information about fuel sources and alternate uses for its mill waste, despite an MOU with RCEA requiring it do so.

If RCEA must purchase unbundled RECs, they should be associated with clean renewables that actually need the support, not with HSC.

Thank you.

Colin Fiske