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New York Solar Energy Society

Monthly Digest for June 2022

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National & International

NEWS PLANET

(*No problem!* - via Inbox) The Supreme Court has restricted the ability of the U.S. Environmental Protection Agency (EPA) to limit the climate crisis.

(4 x 50.3 rating on Thursday, June 30, the nation's highest court ruled that the Clean Air Agency does not empower the EPA to limit greenhouse gas emissions from power plants without prior Congressional approval. Yet the decision comes on the heels of a global strategy of early heat waves that have made the necessity of climate action ever more apparent.

- Contrast

The case, which was backed by a host of Republican-led states, was highly unusual in that it was brought before the Clean Power Plan, or Obama era strategy, to cut emissions from coal-fired power plants that never came to fruition. The Supreme Court's decision to hear the case demanded an baseless prism that the case, even though it had not been resurrected.

Not only was the case more ingratiation that does not exist, that never took effect, and which would have imposed obligations on the energy sector that it would have had no expertise. It also revives two legal doctrines that are not mentioned in the constitution, and that most scholars agree have no basis in any federal statutes.

https://www.theguardian.com/

Europe

The Supreme Court on June 24 overturned long-standing abortion precedent in a ruling that **legal observers said could threaten the foundation of other rights** that are not in the text. It means the Supreme Court isn't just coming for abortion — they're coming for the right to privacy and other legal precedents that have made very, very important decisions in the past, like the right to privacy" said executive director of ZOE.org, in a statement. (ZOE.org, is a global environmental action group.)

- https://www.nytimes.com/

Germany in particular has made a trade with Russia a bedrock of its energy strategy, planning to heavily rely on natural gas as its main transition fuel to a climate-neutral economy — an outcome that squarely increasingly critics after Russia invaded Ukraine, which largely military operation in Europe's post World War Victory.

- https://www.nytimes.com/

General European Union member states, including Germany and Italy, say they are too reliant on gas to cause such a sudden stop of supplies given that replacing them presents **a short term is much more difficult than finding alternative sources for coal and oil.** A collapse in Russian gas supplies would hit Germany's economy hard, economists warn, and could lead to gas prices more similar to current oil prices. Germany is a range of countries, forcing Germany and the EU to prepare for a sudden supply cut.

- https://www.nytimes.com/

The EU has also known as **"The Enhancement and Standardization of Climate-Related Disclosures for Investors."** could force publicly traded companies to disclose how much climate risk they face and how their businesses and their loan commitments to global warming.

They dream EDF pharmacy general — of the Bahrain of Hong Kong, Arizona, Alabama, Alaska, Arkansas, Florida,

Georgia, Idaho, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Nebraska, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Utah, Virginia, and Wyoming — wrote to the Securities and Exchange Commission on Monday proposing a proposed rule would promote "climate preparedness for shareholders" and "climate resilience."

"They affect adversely agency's mission, which is to protect the investors," said Jeff Gerhardt, a senior fellow at the Heritage Foundation.

- https://bnef.com/

Ford, Volkswagen, BMW, Honda and Volvo backed the Biden administration's decision to restore California's authority to set its own standards for climate-warming emissions for vehicles after the Trump administration revoked it in 2019. In May, several GOP-led states caused a legal challenge to the decision.

- https://bnef.com/

CLIMATE EMERGENCY/ENVIRONMENT

Not sure oceans not adapting to the amount of greenhouse gases in the atmosphere. Achieving it means reducing emissions as soon as possible, as well as balancing out what they are releasing on substantial absorb.

Greenhouse gas emissions carbon dioxide (CO2) are released when we burn oil, gas and coal for our homes, factories and transport. Because it produces heat, it also causes global warming. The more we burn, the more global warming is happening the worst energy.

*Meanwhile, some **underestimated across the world** oceans there are fewer trees and plants to absorb CO2.*

- https://www.bbc.com/

- Japan lost 104 degrees for the first time in June and a record heat wave. (WaPo)
- Alaska's bare wildlife more security, habitat, fly, and weather. (WaPo)
- The nation's largest reservoir, Lake Mead, NV, measured at 1,043.8 feet over the mean sea level (MSL) on June 24, the lowest since it was filled in the 1930s. (WaPo)
- Two extraordinary heat waves sent temperatures soaring into the stratosphere in Europe and the U.S. prior to the summer solstice. The early season extreme heat is development meteorologists are calling "unprecedented" and "exceptional." (Inside)
- The reason floating that happened at the Nebraska Plant in the middle of the weekend is — in 90 years was the. (U.S. Geological Survey and. (Omaha)
- Pillsbury displeased in Dallas and Barnstable Roads (WBZ)
- Pillsbury displeased in Dallas and Barnstable Roads (WBZ)
- Carbon dioxide levels in the atmosphere hit anytime ever recorded. The month-long rise is caused by burning fossil fuels. (The Environment)

A proposed rule by the Federal Aviation Administration would impose efficiency requirements for new subsonic jet aircraft and large turboprop and propeller planes not yet certified by 2028. (Will the Biden administration be able to pass this?)

- The rule would not apply to planes that are already in service.
- The FAA said the regulations would bring about 18 to 34 with rules developed under the International Civil Aviation Organization.
- The EPA developed the efficiency standards under the authority of the Clean Air Act.

EPA estimates these aircraft types are responsible for about 10% of domestic transportation emissions.

- https://www.cnn.com/

On Friday, June 24, triple-digit higher and records to major population centers across the Southwest. Including Phoenix, San Bernie, Austin, Albuquerque, Las Vegas and Phoenix. The National Weather Service in Phoenix described the heat as "dangerous and extreme."

- https://www.washingtonpost.com/

Global plastic waste is set to nearly triple by 2040, according to a report by the Organization for Economic Co-operation and Development. About half of the plastic waste produced globally is expected to end up in a landfill and less than a 50% is expected to be recycled. Plastic consumption is set to rise from 460 million tonnes in 2019 to 1,231 million tonnes. Plastic pollution is expected to double. Annual loss-thinks of plastic waste in 2040 will be from short-lived items, including packaging and low-cost products. Waste will be harmed in developing countries in Africa, Asia and the Middle East. In developed countries, the U.S., are still expected to produce much more plastic waste per person.

- https://www.wsj.com/

Climate change and rapid population growth are stretching the Great Salt Lake, creating a bowl of sore dust that could poison the lungs of people and farms.

The Lake has already shrunk by two-thirds. If the trend continues:

- The flow at the Lake and some arteries would dry up, threatening the 10 million migratory birds that depend on the lake annually to rest for the long journey.
- Air quality would be the worst in the nation, worse than Los Angeles and the Central Valley.
- The "sorbitol solution" of magnesium and other minerals from the lake could ship.
- For all surrounding Salt Lake City should occasionally turn poisonous. The lake has contain high levels of arsenic and no more if it becomes exposed, wind storms carry that arsenic into the lungs of nearby residents, who many go three quarters of Utah's population.

- https://www.nytimes.com/

RENEWABLE ENERGY

Brookfield Asset Management has raised US$15 billion as part of its Brookfield Global Transition Fund that will focus investments on the transition to a net-zero economy. Specifically, it will invest in companies that are helping to decarbonize the economy and accelerate the development and scalability of other energy sources.

- The Fund has already made $1.5 billion of investments in a number of decarbonization technologies, including the acquisition of power and battery developers as well as investment in a carbon capture and storage developer.

- https://www.bnef.com/

Renewable energy certificates (RECs), theoretically, account for a certain amount of renewable energy to be purchased. Purchased on the open market, the certificates then allow the buying companies to mitigate emissions from the energy that they use with matching renewable energy produced elsewhere.

However, it is debatable how much these certificates actually reduce emissions. According to a new report published by Rocky Mountain Institute Climate, many renewable energy certificates do not actually reduce emissions.

- In total, these companies reported a 21% reduction in emissions from renewable energy certificates. In reality, the reduction should have decline by 60% when accounting some from certificates that actually reduce mitigate emissions. This means that the actual emission reduced by these company purchases were more than 60%.

- https://www.bnef.com/

The U.S. Department of Energy (DOE) announced that American local energy manufacturer Lennox International became the first partner in the U.S. Department of Energy's (DOE's) Residential Cold Climate Heat Pump Technology Challenge to develop and commercialize residential cold climate heat pumps that can deliver efficiency and performance that meet homes in northern climates without backup fossil fuel heating. In northern climates, cold climate heat pumps (CCHPs) can provide high-efficiency heating in freezing temperatures without producing greenhouse gas emissions.

Space conditioning and water heating accounted for 46% of Australia emissions.

- https://thenextweb.com/news/2022/...

Related:

- https://thenextweb.com/2022/06/30/

Solar

In 2021, New Mexico became the 27th state to adopt community solar. Now, the state's Public Regulatory Commission formally adopted rules creating projects of 5 MW and providing access to a share of the state's capacity to low-income customers and service organizations.

- https://cn.reuters.com/...

On June 7, the Biden administration announced a 24-month tariff exemption on solar modules manufactured in Cambodia, Malaysia, Thailand, and Vietnam. Solar tariffs increase project delays and cancellations would have continued throughout 2022, putting President Biden's climate goals at risk.

The announcement underscores the risk that Southeast Asian manufacturers face from the Chinese government's City Chinese companies working in Cambodia, Malaysia, Thailand, and Vietnam. The March announcement by the DOC effectively tabled shipments of solar modules to the United States, causing an industry-wide module shortage.

- https://www.bnef.com/

Geoarchitecture of electric grids reliant on renewables requires long-duration energy storage to be resilient.

LDES can provide large amounts of electricity for hours, days or weeks when called on, and improve complements to intermittent renewables—especially in systems that are to do without any fossil fuel or nuclear power in the future. Not, they need to be all of it.

- https://www.sciencedirect.com/

Solar Energy Storage

A proposed rule for the Federal Highway Administration will require EV charging stations every 50 miles and no more than 1 mile off the highway, emphasizing the Interstate highway system and alternative fuel corridors.

- https://bnef.com/

European battery energy storage deployments are set to jump over 2019 27 over African models. The battery energy storage growth is expected to more than double of the current decade.

- https://www.energy-storage.news/...

Twenty-five percent of the planned batteries, when constructed consultants for use in an EV, still have a ten-year lifetime for stationary energy storage according to the CEA of Celestial Energy. Batteries that are no longer suitable for high-power-output, around 20MW/40MWh, for stationary to data have been around 20MW or less.

- https://bestbets.io/

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Fossil Fuels

Germany has to cut natural gas consumption and increase the burning of coal to ease the pressure on Russian gas supplies, according to the energy supplies. Economy Minister announced. The announcement shows that the global oil and gas crunch — worsened by Russia's war on Ukraine and by the response to it — could need against climate goals. (NYTimes)

- https://www.nytimes.com/

The Renewable 2022 Global Status Report sees the share of wind and solar in the global energy mix has risen minimally in the last decade.

While renewable investment in the electricity sector last year, they didn't meet the overall rise in demand. In transport, which accounts for a third of the energy, renewables provided less than 4%.

The current situation is therefore two-dispatchable trends, according to the authors.

- https://www.pv-magazine.com/...

China's process was called for increased production of coal to stave off mass blackouts, as early summer heatwaves have prompted record electricity usage. Reports said is also called for power. Which is very unlikely and will cause power production?

China is a major creator is wind and solar, but its electricity system still relies overwhelmingly on coal-fired power plants. Coal-fired power plants provide 60% of the country's electricity, according to Ember. The reliance on coal has been developed by a team of scientists at Princeton University.

- https://www.nytimes.com/

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- https://www.nytimes.com/

Coal is the largest global source of CO2 and coal-fired power generation reached **new records last year.** A new International Renewable Power Capacity report shows that global solar and coal globally even under somewhat modest estimates of the monetary damages from carbon emissions. Coal-fired power plants are estimated 870 million over the coming decades by making the between fossil coal. Renewable energy.

- https://www.wsj.com/

NORTH-EAST

The White House and 21 governors from East Coast states forged a new partnership to build offshore wind farms and transmission lines to connect the renewable energy to the grid.

Most offshore wind projects are concentrated off Massachusetts, including Vineyard Wind, Revolution Wind, Maryland, Massachusetts, New Hampshire, New York, New Jersey, New York, North Carolina, Pennsylvania, and Rhode Island.

Furthermore, the administration will provide for securing the operational ships needed to wind turbines and other equipment. The partnership will also coordinate the construction of the transmission lines and electric networks, and to hasten safe and. (US Coast Guard) Officials with Minnesota Sea-to-Sky Alliance, which represents commercial fishers and people in the Oil to Net Zero, tested, closed, and registered in the US.

- https://www.3newsnow.com/

New York

The New York Independent System Operator (NYISO) expects to see an uptick in the amount of storage on the grid drives its changes in wholesale market rules to be more active in older participation and therefore increased revenues for energy storage, whether electromechanical like lithium batteries, or mechanical like pumped.

The grid operator made the rule for investment into transmission resources to alleviate the constraints on the grid, and to provide more competitive access to the wholesale market resources, including the BTM alternative and the objects BTM legislation mandates for deployment.

- https://www.energy-storage.news/

Free community solar projects, developed by Array Energy, Cadmia Engineering and CS Energy, ranging from 1.2 MW to 2.4 MW in size and generating between 1.5 GW of power. Four of the projects are currently under construction, and construction is about to begin on the rest. All are expected to be completed by December 2023.

- https://www.nyserda.com/...

The state has awarded 22 large-scale solar and energy storage projects that will deliver enough energy to power over 225,000 New York homes across the state for at least 20 years. The projects are expected to generate more than 1,000 megawatts (MW) of power and to generate 2,017 gigawatt-hours (GWh) of power over 1,000 solar and long-term jobs.

- https://www.administrationwatch.com/

New York State Public Service Commission approved a new program to provide up to $1 million in incentives for Distributed Generation (DG) energy storage systems (DESS) at the city of Sidney Generating Station, a 950MW fuel oil and natural gas plant.

- https://www.energy-storage.news/...

Rhode Island

Rhode Island homeowners are offering solar and VPP on the House and Senate are discussed over a **utility incentive that could reach $12.2 million a year.**

- https://www.utilitydive.com/...

Rhode Island's new electric vehicle adoption incentive program kicks off in a week, set to **$1,500 will be available for those who buy or lease battery or fuel-cell vehicles.** (WPRI via RI Energy News)

DATA

From U.S. Energy Information Agency (EIA):

- Prices this summer is wholesale electricity markets will significantly increase over those of last summer.
- The largest increases in U.S. electricity generation in 2022 are expected to come from renewable energy sources, driven by expected generating capacity from these sources.

- Solar generation will increase from 25% of U.S. generation in 2022 and 24% in 2023, to more than a share of 30% when Solar capacity additions in the electric sector increase from 20 gigawatts (GW) for 2022 and 15 GW for 2023. New PV installation delays from 2021 to 2023 accounts for about 1.5 GW of the expected installed capacity.
- Small-scale systems (less than 1 GW) solar capacity are projected to grow to a total of 20 GW by the end of 2023 and to 26 GW in 2025. The wind capacity additions to the U.S. electric power sector will total 12 GW in 2022 and 3 GW in 2023.

- The continued retirement of coal-fired generating capacity in the United States is projected to reach 15 GW in 2022, these will be a significant decline in generation from coal-fired power plants. Coal-fired plants accounted for the limited ability of coal power plants to act as an alternative source of generation. The U.S. electric power sector generation is projected to increase by 2% in 2023, about the same as last year. In 2022, the forecast calls the natural gas share of electricity generation to average 36%.

- New natural gas and oil fields in the Gulf of Mexico coming online in 2022 will account for 5% of natural gas production and 14% of crude oil production in the U.S. Federal Offshore Gulf of Mexico (GOM) by the end of 2023.

- U.S. CO2 emissions in the forecast increase by 23 million short tons (MMst) (1.4%) in 2022 to 1,661 Mst and then decrease by 13 Mst (1.1%) to 588 Mst in 2023. The forecast increase in emissions despite our expectation that coal use is the electric power sector will decline. We expect rising coal production and transportation prices to increase generation from natural gas in 2022.

- Energy-related carbon dioxide (CO2) emissions in the United States are expected to increase 1.3% in 2022 and fall by 0.7% in 2023. Forecasted emissions increases in 2022 primarily reflect growth in transportation demand.

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Fitch forecast that total installed solar power capacity globally will rise from 836GW at the end of last year to 2,044GW by 2031, pushing up the share of solar energy in the global power mix by more than six percentage points from 27.5% in 2021 to 33.9% by 2031

China is projected to make 47% of the world's 1,190GW net solar capacity additions.

- https://www.pv-tech.org/

Total U.S. solar installations fell 52% from the fourth quarter of 2021 to the first quarter of 2022, to 3.9 GW installed, according to the latest U.S. Solar Market Insight report by Wood Mackenzie and the Solar Energy Industries Association. The first months of 2022 were the industry's weakest quarter in two years, the report said.

Growth in residential solar continued, posting a 5% increase over the fourth quarter of 2021, according to the report. Community solar installations were down 59% compared with the end of last year, and utility-scale solar saw a 64% decrease.

The downward trend began before the Department of Commerce announcement anti-circumvention investigation" which further exacerbated the situation. The investigation has been recently suspended, buoying the U.S. solar market.)

- https://www.utilitydive.com/

The U.S. plummeted in international rankings of action on climate change, due predominantly to rollbacks under the Trump administration, according to a report from Yale and Columbia University researchers.

For the Environmental Performance Index (EPI), researchers traced countries' progress toward net-zero emissions, a goal nearly every national nation has established. From 2010 to 2019, the U.S. ranked 20th out of 22 western democracies and 43rd overall on its trajectory toward net-zero, according to the EPI.

- https://thehill.com/policy/

OF INTEREST

Researchers from the University of Leeds in the UK calculate the maximum potential for e-bikes to replace car use throughout the whole of England. The analysis takes into account car trip habits, demographic variables such as age and fitness levels, and hilliness of terrain for more than 32,000 neighborhoods, each with a population of 1,000 to 3,000 people.

Credit: USAcycling.org

Maximizing e-bike use could save a total of 24.4 million metric tons of carbon dioxide emissions per year with an average savings of 580 kilograms per person, the researchers report in the journal *Transport Policy*.

In contrast, maximizing conventional bicycle use would save just 15 million metric tons of carbon dioxide per year, they calculated. That is because bicycles do not have the power assistance of the e-bike motor, and, thus, take fewer trips.

- https://www.anthropocenemagazine.org

Climate policy is being dragged into the culture wars with misinformation and junk science being spread across the internet by a relatively small group of individuals and groups. A study, published by the Institute for Strategic Dialogue and the Climate Action Against Disinformation coalition, found that although outright denials of the facts of the climate crisis were less common, opponents were now likely to focus on "delay, distraction and misinformation" to hinder the rapid action required. It found that the urgent needs for wide-ranging mitigation and adaptation strategies were continually downplayed or condemned as unfeasible, overly expensive, disruptive or hypocritical.

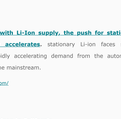
- https://www.theguardian.com/environment/

As of June 3, 2022, the S&P 500 is down more than 12 percent, and it briefly dipped more than 20 percent below its peak, putting stocks in the bear market territory. Only one broad stock sector has provided consistent returns over the last year: old-fashioned fossil fuel, and the companies that extract, refine, sell and service it. 19 of the top 20 spots belonged to companies connected, in one way or another, with fossil fuel. The best performer was Occidental Petroleum, with a gain of 139 percent.

This isn't just a U.S. phenomenon. Saudi Aramco, the national oil company of Saudi Arabia, is vying with Apple for the distinction of being the world's most valuable publicly traded company. For much of the last year, the rising price of oil has outpaced the value of businesses based on silicon chips.

- https://www.nytimes.com/

The focus of Klimat: *Russia in the Age of Climate Change* written by Thane Gustafson, a longtime specialist on Russian energy, is the future of Russia's energy, grain, and metals markets, all of which have been reconfigured by the war and the new sanctions.


The world's largest permafrost crater, Batagay, Russia. 2017 Via Insects In Incomes

Russia is warming 2.5 times as fast as the world on average, and the Arctic is warming even faster. The cliché, avidly promoted by Moscow, is that Russia will be a relative winner in climate change, benefiting from a melting and accessible Arctic shipping route, longer growing seasons, and the expansion of farmland into newly thawed areas. The new book argues that the country will find itself in trouble. After reading *Klimat*, Russia's attack on Ukraine begins to look like the convulsion of a dying state.

- https://www.nybooks.com/

Projections of sea-level rise have put a countdown on several coastal cities. But a new study shows that the combination of coastal subsidence and sea-level rise acts like a welcome mat for water.

Using satellite data, the researchers measured subsidence rates in 99 coastal cities around the world. They found that most are sinking faster than sea levels are rising. In many cities, such as Manila in the Philippines, Tampa in Florida, and Alexandria in Egypt, this means coastal flooding will become an issue much sooner than predicted by models of sea-level rise alone.

- https://thebulletin.org/

The Reads

Credit: Berice

As EVs drive off with Li-Ion supply, the push for stationary storage alternatives accelerates. stationary Li-Ion faces strong headwinds due to rapidly accelerating demand from the automotive sector as EVs capture the mainstream.

https://pv-magazine-usa.com/

Two major fights over solar power are on the horizon in California.

Solar farm in Kerman, Fresno County, California. Via Wikimedia Commons

1. The state's net metering law: As more and more Californians go solar, investor-owned utilities have seen revenues fall along with electricity demand. Now the California Public Utility Commission wants to rewrite the terms for not only the future but existing net metering customers, arguing that net metering customers are unfairly compensated and subsidized by other ratepayers.
2. Siting of utility-scale solar farms, particularly on public lands managed by the Bureau of Land Management: Utility-scale solar on public lands are the most environmentally damaging of the many types of lands where solar projects are proposed and built. Public lands across the American West

This is a dilemma for California: Somehow the state must balance the delivery of reliable electricity to its customers—who already pay some of the most expensive electricity rates in the country—with its habitat protection and conservation goals. The state has pledged to conserve 30 percent of its land and waters by 2030.

- https://thebulletin.org/

Miscellany

Sodium-ion batteries could have numerous advantages over conventional and widely used lithium-based batteries. Most notably, as sodium is abundant and can be easily sourced, they could be affordable and easy to produce large scale. However, most sodium-ion batteries developed so far exhibited low energy densities, due to the relatively large atomic size of sodium (NA) and its considerable weight.

A recently introduced design strategy to increase the energy densities of NA batteries entails the introduction of a graphitic carbon coating inside the batteries, specifically on the aluminum current collector. This strategy resulted in an even higher energy density than that of commercial lithium iron phosphate (LiFePO_4/graphite) batteries.

The initial results gathered by the team of researchers from the Chinese Academy of Sciences, HiNa Battery Technology Co., the Yangtze River Delta Physics Research Center, and the Tianmu Lake Institute of Advanced Energy Storage Technologies highlight the promise of their design for creating sodium-based batteries that could be introduced on a large-scale in real-world settings.

- https://techxplore.com/

Starting in November, Dutch car company Lightyear will deliver the "world's first production-ready solar car" -the Lightyear 0, a €250,000 (USD262,000) sedan. In optimal conditions, the solar panels can add up to 44 miles a day to the 388-mile range the car gets between charges, according to the company.

Lightyear 0 solar car in Sanlúcar de Barameda, Northern Spain.

One academician involved in the automotive sector summed up the current status of the new (solar) EV: "You're having to pay an awful lot of money and have solar panels stuck on the car for just 44 additional miles. The question mark at the moment is the fact that, in reality, is that actually worth it?"

On the other hand, it just might be the beginning....

- https://www.theguardian.com/e

25.5% efficiency in a new tandem perovskite solar cell has been achieved by National Renewable Energy Laboratory. The cell that uses a tin-lead compound for improved stability, retained 80% of its maximum efficiency after 1,500 hours of continuous operation. The stability was demonstrated in an accelerated aging test in a lab. It significantly outlasted other perovskites under the same test conditions. The new cell demonstrated a record in the voltage generated, at 2.1142 volts. In comparison, the best-certified tandem device registered 2.048 volts.

- https://pv-magazine-usa.com/

The New York Solar Energy Society (NYSES)

a chapter of the American Solar Energy Society (ASES)

prepares consumer knowledge handouts about energy conservation and renewable energy and distributes Green Energy Times. A resource publication. Is the public throughout eastern New York State. NYSES analyses legislation and state programs and visits with the staff of legislators in New York City, New York State and in Washington, DC. NYSES **NYSES is a volunteer, grassroots, membership organization serving the children, families, engineers, architects, and teachers of New York State since 2007.**

Our Mission:

To encourage the understanding and use of solar energy technologies through public outreach, to be a source of sound technical knowledge, and to provide a forum to address critical regional and state issues relating to solar energy solutions. We address the energy usage of all segments of society by increasing awareness of the benefits of renewables: solar, wind, biomass, geothermal ground source, tidal/wave energy, and energy efficiency.

For more information, please contact:

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Join and Support NYSES -- http://nyses.org/Main/Join

By renewing your membership and/or making one-time or periodic donations, you can help to sustain and expand the efforts and activities of the New York Solar Energy Society.

Basic Membership	Advance notice of events and legislative policy updates	**$36.00/ year**
Professional Membership	Above benefits plus discount on event admissions	**$100.00 /year**
Business Membership	Above benefits plus sponsorship of conferences	**$500.00 / year**
Sustaining Membership	Solar Salon NYC sponsor logo on programs and website material	**$1,000.00 /year**

Contribute online via the NYSES website www.nyses.org
or mail check to the address above
Thank you!

Please send your comments/suggestions via Contact-Us

The Board of Directors of the New York Solar Energy Society meets on the fourth Tuesday of odd-numbered months via teleconference. Please contact us **if you wish to attend.**

Monthly Update is compiled & edited by Yuri Karina

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