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MAY/JUN
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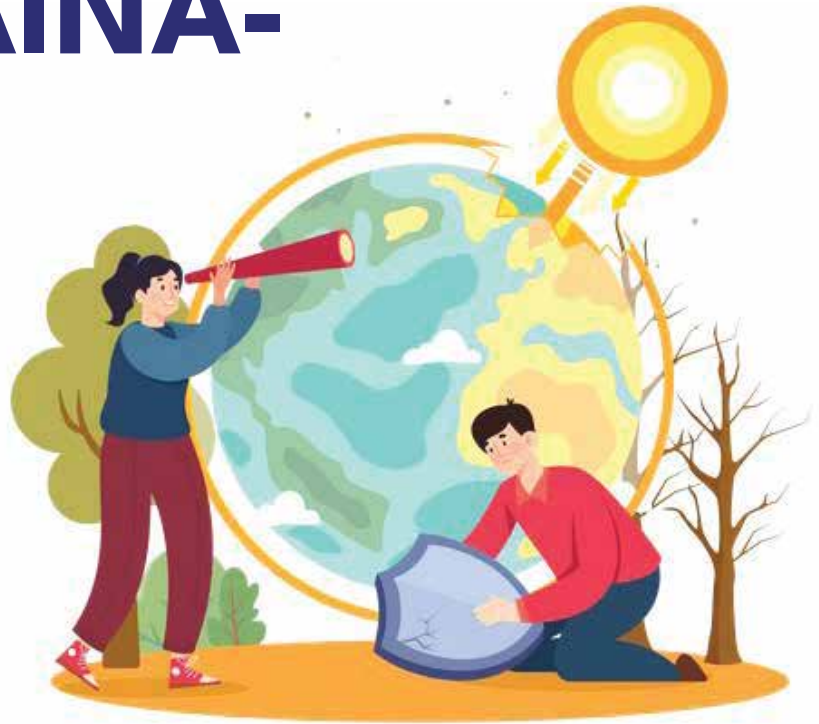


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Moving towards sustainable living is not just an ecological obligation; it's a compassionate choice that benefits both us and our planet. Sustainability ensures that we leave a healthier, more harmonious world for future generations. By reducing our environmental footprint through responsible consumption, renewable energy, and mindful resource management, we can mitigate climate change, protect biodiversity, and foster resilient ecosystems.

Sustainable living also brings personal advantages. It promotes a healthier lifestyle, as it encourages fresh, locally sourced foods and active transportation. It fosters community connections and reduces stress, making us happier and more fulfilled. Moreover, it bolsters economic stability, as green industries create jobs and lower our energy bills.

#cleanenergy

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As the summer months settle in, many of us are acutely aware of the rising temperatures and, with them, the soaring electric bills. In Pakistan, where energy consumption spikes during these hotter months, it becomes imperative to rethink our energy strategies and policies. This issue of our magazine focuses on the critical need for a sustainable approach to energy management, especially during this season. One of the most significant shifts we need to see is in how energy-related policies are crafted and implemented in Pakistan. Currently, the reliance on traditional, non-renewable energy sources not only strains our natural resources but also leads to higher costs for consumers. It's time for policymakers to prioritize renewable energy solutions that can provide relief both economically and environmentally.

Solar energy, for instance, presents a promising opportunity in recent months. With advancements in solar technology and decreasing costs, it's becoming more accessible and feasible for widespread adoption. However, this requires supportive policies, such as extending the State Bank's solar loan program and introducing incentives for households and businesses to invest in solar power systems. Moreover, interest-free loans for lower-income households could democratize access to renewable energy, ensuring that everyone benefits from reduced energy costs and sustainable living. Policies allowing the free distribution of surplus solar energy to community organizations would further enhance the social and economic fabric of our communities.

This summer, as we face the dual challenges of crazy heat waves and rising energy bills, let's advocate for policies that help end users and provide relief in these hot months, having to worry about electric bills should be a worry of the past.

Stay cool and stay informed,

Local Scoop.

Here we bring you the latest updates on the green revolution happening in your region. Read about how your community is harnessing the power of renewables to shape a sustainable future and create positive environmental impact, one innovation at a time. We talk about breakthrough technologies, and local initiatives driving the renewable energy movement forward.



GOVERNMENT REAFFIRMS PAKISTAN'S COMMITMENT TO RENEWABLE ENERGY, REJECTS SOLAR PANEL TAX REPORTS!



Minister of State for Power, Ali Pervaiz Malik, reaffirmed the government's dedication to renewable energy projects in a video message on Wednesday, firmly denying any decision to impose duties or taxes on solar panels.

Malik's statement followed reports from local media suggesting that the Islamabad administration had decided to amend net metering regulations to introduce new tariffs on the sale and purchase of solar energy generated by users. The reports also claimed that the government was planning to levy a fixed tax on those who have installed solar panels.

Net metering is a billing system that allows consumers to feed excess electricity generated, usually through solar panels, back into the grid. Pakistan officially adopted this system in 2015, encouraging many citizens to produce their own electricity amid rising power tariffs.

"Prime Minister Shehbaz Sharif is committed to renewable energy projects," Malik said

in his message. "So far, there has been no decision related to imposing any tax or duty on solar panels or generating revenue by taxing electricity production from installed panels," he added. The minister emphasized that any policy revisions would be made through consultations and with the prime minister's Green Pakistan Initiative in mind.

Pakistan has set an ambitious goal to generate 60 percent of its energy from clean and renewable sources by 2030. This goal is part of a broader strategy to transition to sustainable energy, which includes a significant push for solar and wind power development, given the country's substantial potential in these areas. Additionally, Pakistan aims to have 30 percent of its vehicles running on electricity by the same year, aligning with global environmental targets and efforts to reduce reliance on fossil fuels.

The Green Pakistan Initiative, which primarily focuses on agricultural and environmental improvements, also indirectly supports power production through sustainable energy practices and infrastructure development.

US CONGRESSMAN SUPPORTS REVIVAL OF CONGRESSIONAL PAKISTANI CAUCUS

US Congressman Tom Suozzi has voiced his support for reviving the Congressional Pakistani Caucus in the US Congress, advocating for increased US investment in Pakistan's energy sector. He shared these views during a meeting with a delegation of Pakistani-origin Americans who hosted him recently in Long Island, New York. Suozzi, a Democrat representing New York's Third Congressional District, met with prominent Pakistani-American community members and businesspersons Dr. Shahzad and Dr. Imran, along with other members of the Pakistani-American community.

The discussion focused on Pakistan's ongoing energy crisis, particularly the impact of US sanctions that prevent Islamabad from purchasing gas from Iran. Suozzi was informed that the pipeline, which is the most cost-effective and timely solution to Pakistan's power crisis, has been stalled for years due to these sanctions. While the infrastructure on both the Iranian and Pakistani sides is mostly complete, a section of the pipeline on the Pakistani side cannot be finished until the US waives its sanctions. If a waiver is granted for five years, the pipeline could provide an immediate solution to Pakistan's energy crisis, potentially saving Rs500 billion annually. However, Suozzi viewed the situation differently. "Russia, China, and Iran would be helping them (Pakistan); that is a problem," he remarked. "America should be helping to get investment into Pakistan. There is so much land that is not even being used, but it should be used for solar power, wind power, and other types of renewable energy."

PAK CABLES FINALIZES COMMISSIONING OF 2MW ON-GRID SOLAR POWER PLANT

Pakistan Cables, the nation's leading manufacturer of wires and cables, has successfully commissioned a 2MW captive solar power plant at its new facility in Nooriabad, Sindh. Atlas Energy Limited completed the project for Pakistan Cables on schedule, and the plant is now operational. This solar power plant marks the company's investment in renewable energy. "We are committed to pursuing environmentally friendly initiatives at our state-of-the-art manufacturing facility in Nooriabad, Sindh," said Fahd K. Chinoy, Chief Executive Officer of Pakistan Cables Ltd. "We actively promote the use of renewable energy sources to reduce costs and support the circular economy."

Pakistan Cables is the first and only building materials company in Pakistan to have its science-based emission reduction targets validated by SBTi. The company's new 42-acre manufacturing facility is equipped with advanced technology and equipment, set to transform the industry.

PM PRAISES POWERCHINA'S CONTRIBUTIONS TO THE ENERGY SECTOR

Chairman of POWERCHINA, Ding Yanzhang, met with Pakistan's Prime Minister Shehbaz Sharif during his state visit to Beijing, China. According to a POWERCHINA press release on Saturday, both parties engaged in in-depth discussions focused on enhancing cooperation in areas such as energy and power planning, clean energy development, and major ongoing projects in Pakistan.

Prime Minister Shehbaz expressed his appreciation for POWERCHINA's significant contributions to Pakistan's energy and power infrastructure development. He acknowledged POWERCHINA's active role in the China-Pakistan Economic Corridor (CPEC) through leveraging its resources to invest in and construct several key projects, positively impacting Pakistan's energy structure and security. The Pakistani government is currently committed to transitioning to green

energy and fostering industrial cooperation. Prime Minister Shehbaz expressed his hope that POWERCHINA would continue to utilize its expertise, deepen cooperation, and actively engage in planning and constructing major projects to further enhance energy and economic ties between the two countries.

Chairman Ding congratulated Prime Minister Shehbaz on his reappointment and thanked the Pakistani government for its continued support of POWERCHINA. He highlighted POWERCHINA's role as a global leader in clean, low-carbon energy, water resources, and environmental construction. By actively participating in the Belt and Road Initiative (BRI) and early stages of CPEC construction, POWERCHINA has significantly contributed to local employment and Pakistan's economic and social development.

SOLAR PANEL PRICES SOAR IN PAKISTAN

In anticipation of Budget 2024-2025, solar panel prices in Pakistan have surged as traders adjust rates ahead of potential new tax measures. The federal government is set to unveil the budget on June 12, in line with conditions set by the International Monetary Fund (IMF) as Pakistan negotiates a new bailout package. Sources indicate that the government is considering imposing additional taxes on solar panels, prompting traders to preemptively increase prices. This hike, amounting to Rs8 per watt, has affected various panel sizes and specifications.

As of June 2024, the new prices for solar panels are significantly higher. 1-watt now costs Rs8, while a 588-watt plate ranges from Rs4,000 to Rs5,000. Similarly, a 180-watt panel is priced at Rs1,440.

Consumers who previously paid between Rs3,000 to Rs4,000 for a 588-watt panel are now facing a substantial price increase. Smaller panels, ranging from 180 to 280 watts, are now priced between Rs1,000 and Rs1,500.

WORLD BANK GRANTS AN ADDITIONAL \$1 BILLION FOR THE DASU HYDROPOWER PROJECT

“The World Bank’s Board of Executive Directors approved \$1 billion in additional financing for the Dasu Hydropower Stage I (DHP I) Project,” the global bank announced in a press release late last night. “This funding will aid in expanding hydropower electricity supply, enhancing socio-economic services for local communities, and strengthening the Water and Power Development Authority’s (WAPDA) capacity for future hydropower projects.”

“Pakistan’s energy sector faces numerous challenges in achieving affordable, reliable, and sustainable energy,” said World Bank Country Director for Pakistan Najy Benhassine. Highlighting the Dasu project site as “one of the best hydropower sites in the world and a game changer for Pakistan’s energy sector,” Benhassine emphasized that “with a minimal footprint, the DHP will contribute to greening the energy sector and reducing electricity costs.”

Rikard Liden, the task team leader for the project, underscored the importance of DHP-I in Pakistan’s shift from fossil fuels towards renewable energy, aiming to achieve

60% renewable energy by 2031. “The second round of additional financing will help expand electricity supply and potentially save Pakistan an estimated \$1.8 billion annually by replacing imported fuels, while offsetting around 5 million tons of carbon dioxide,” Liden stated. “The annual economic return of DHP-I is estimated to be around 28%.”

According to the World Bank, the Dasu project, upon completion, will have an installed capacity of 4,320–5,400 megawatts (MW). “The project is being developed in stages. DHP-I will have a capacity of 2,160MW and will generate 12,225 gigawatt-hours (GWh) per year of low-cost renewable energy. DHP-II will add 9,260–11,400GWh per year from the same dam,” the statement detailed.

The World Bank also noted that since 2012, the project has led to a 30% increase in adult literacy, a 16% increase in boys’ schooling, and a 70% increase in girls’ schooling in the area. “The additional financing will further support ongoing socio-economic initiatives in Upper Kohistan, particularly in education, health, employment, and transport,” it added.



CM BUGTI AND FEDERAL MINISTER DISCUSS SOLAR ENERGY CONVERSION FOR TUBE WELLS

Balochistan Chief Minister Mir Sarfraz Bugti chaired a video link meeting focused on converting the province's agricultural tube wells to solar energy. The meeting reviewed issues related to this conversion and made significant decisions. Federal Minister for Energy Awaiz Leghari, Provincial Ministers, Chief Secretary Balochistan Shakeel Qadir Khan, and other federal and provincial officials participated in the meeting.

In his address, Chief Minister Mir Sarfraz Bugti expressed his intention to alleviate electricity issues for Balochistan's landlords. He stated that converting agricultural tube wells to solar energy would mitigate power outages and voltage problems for the landlords. He emphasized the need for the federal government to release the necessary funds promptly to address the landlords' issues

effectively.

The Chief Minister assured that, following the conversion to solar energy, the Quetta Electric Supply Company (QESCO) connections on the feeders would be disconnected. He added that switching to solar energy would reduce subsidy costs and prevent electricity theft. He committed to ensuring that feeders switched to solar energy would not draw power from QESCO.

Federal Minister of State for Energy Ali Pervez Malik, participating in the meeting, stated that the prime minister would be informed of the provincial government's proposals. He suggested that this critical agenda would be presented at the federal cabinet meeting for a final decision soon.

CCP APPROVES ACQUISITION IN PAKISTAN'S SOLAR MARKET

The Competition Commission of Pakistan (CCP) has sanctioned the full acquisition of Actis Holdings S.a.r.l (Actis Holdings), a Luxembourg-based company active in Pakistan's solar power sector, by General Atlantic Partners, L.P. (GA), an American firm. Actis Holdings is an investor in sustainable infrastructure with a diverse portfolio encompassing energy infrastructure, long-term infrastructure, digital infrastructure, real estate, and private equity. Funds managed by Actis hold a majority stake in Solis, which is the principal shareholder in Yellow Door. Yellow Door is significantly engaged in Pakistan's solar energy business. General Atlantic Partners, L.P. (GA), established in 1980 and based in New York,

is a growth equity firm that provides capital and strategic support to global growth companies. GA's portfolio includes 225 companies across six global sectors: climate, consumer, financial services, healthcare, life sciences, and technology.

The CCP's Phase-I competition evaluation identified 'Power Generation – Solar' as the pertinent product market. The evaluation showed that Actis Holdings has an indirect presence in Pakistan through Yellow Door, which has a market share of less than 1 percent, a figure that will remain unchanged after the acquisition. Therefore, the proposed acquisition will not result in GA achieving dominance in the relevant market.

PM TO TAKE ACTION AGAINST OFFICIALS FOR ELECTRICITY OVERBILLING

Prime Minister Shehbaz Sharif has instructed the Federal Investigation Agency (FIA) to investigate officials and officers of power distribution companies accused of overcharging consumers by adding excess units to their electricity bills.

During a meeting focused on Power Sector reforms and Solarisation, PM Shehbaz ordered the immediate suspension of such officials. He emphasized that those involved in this “anti-public” practice should face consequences. The prime minister specifically highlighted the need to expose individuals who overcharge protected consumers using less than 200 units per month. Additionally, PM Shehbaz called for accelerated efforts to generate electricity from renewable sources, stating that the country can no longer afford to rely on imported fuel. He noted that low-cost renewable energy would help reduce electricity bills for consumers.

Furthermore, the prime minister directed the Power Division to shut down inefficient state-owned power plants that produce expensive electricity using imported fuel.

SIFC REPORTS PROGRESS IN PAKISTAN'S ENERGY SECTOR

The Special Investment Facilitation Council (SIFC) has reported significant advancements in Pakistan's energy sector over the past year. Notable achievements include the establishment of an Anti-Theft Task Force, which has recovered approximately 95 billion rupees, and the implementation of strategies to tackle circular debt. Solar projects have been launched in Gilgit-Baltistan (1 MW) and Sukkur (150 MW). Additionally, the Saudi Fund for Development has pledged support for two hydropower projects in Azad Jammu and Kashmir, adding 70 MW to the national grid.

Foreign investments have been pivotal in the sector's development. Chinese company Sinotec Solar plans to establish a 3 GW solar panel manufacturing plant in Karachi. Another key project involves converting a thermal power plant into a 300 MW solar facility, attracting \$200 million in foreign direct investment. Furthermore, Shanghai Electric Group has invested in Thar Coal Block-1. Progress on the Brownfield Oil Refinery Policy could potentially attract \$5-6 billion in investments, with Pakistani oil refineries upgrading to Euro-V standards. In the exploration sector, Mari Petroleum Company Limited successfully completed an appraisal well in the Ghazi formation. SIFC's Vision 2031 aims to reduce reliance on traditional energy sources by focusing on renewable energy, including hydropower, solar energy, wind energy, and re-gasified liquefied natural gas (RLNG).

اندھیروں سے روشنی کا سفر



Global Scoop.

Here we dive into the latest developments in the industry as we explore the remarkable strides countries are making towards sustainable power sources, highlighting groundbreaking innovations and initiatives that promise a greener future for our planet.

From cutting-edge solar technologies to revolutionary wind farms, this is your gateway to staying informed on the global transition to clean energy.



GOOGLE SIGNS ITS FIRST RENEWABLE ENERGY PURCHASE DEALS IN JAPAN



Google has signed solar PPAs totaling 60MW with Clean Energy Connect and Shizen Energy. The company's deal with Clean Energy Connect (CEC), a partner of Itochu Corporation, involves constructing a network of around 800 small-scale solar plants totaling 40MW across multiple grid regions in Japan.

"This novel, distributed approach is a creative solution to the challenge of limited land availability for large-scale solar projects in the country," Google said.

CEC has developed and owns 1,200 non-FIT low-voltage solar power plants with a capacity of over 100MW across Japan. The solar plans for Google will be gradually launched from 2024 through to 2026, and mainly go towards off-setting the company's data center in Inzai City, Chiba prefecture. The PPA with Shizen Energy, a renewable energy company, focuses on the development of a 20MW utility-scale solar project on the same power grid as the company's data center in Inzai, which opened last year.

Shizen and its partner Bison Energy Inc. are developing the project on a former golf course. Construction of the new solar

power plant is expected to begin in 2026 and be completed in 2027. Oliver Senter, executive officer of Shizen Energy responsible for investment and finance said: "We are delighted to announce this PPA with Google which adds to our growing portfolio of corporate PPAs in Japan. In this project we worked closely with our partner Bison Energy, reflecting our strategy to act as a hub connecting customer decarbonization needs with a deep pool of projects, developed by both Shizen and its partners."

Google said it has committed to investing nearly \$690 million into sustainable infrastructure in Japan. Though it only has one self-built data center in Inzai, Google operates cloud regions in Tokyo and Osaka, opened in 2016 and 2019 respectively.

"Signing these PPAs is just the beginning of our decarbonization journey in Japan," Shinji Okuyama VP, Google Japan, said in a blog. "We aim to continue our efforts in the region by collaborating with local partners and exploring even more innovative solutions to accelerate the country's clean energy transition." CEC has previously signed PPAs with Amazon and NTT, while Shizen has signed a 25MW PPA with Microsoft.

MFC APPOINTS WORLD-CLASS SOLAR DEVELOPER X-NOOR TO REDUCE CARBON FOOTPRINT

Dubai's logistics sector advances in sustainability as X-NOOR, a joint venture between global solar leader X-ELIO and GCC infrastructure giant DUTCO, announces a 20-year agreement with Modern Freight Company (MFC) to supply renewable energy to MFC's Logistics Park and Logistics Center in Dubai. The partnership underscores both companies' dedication to a greener future, featuring a rooftop solar PV installation projected to generate approximately 18 GWh of energy over two decades. This installation will enable the warehouse to operate entirely on renewable energy, significantly reducing CO2 emissions compared to traditional sources.

X-NOOR, an innovative solar developer with offices in Riyadh, Dubai, and Abu

Dhabi, and active projects in Oman and Bahrain, is committed to sustainable solutions utilizing the region's abundant solar power. The company adheres to the highest international and regional standards in its projects. Founded in 1977, MFC is a trusted logistics company in the UAE, excelling in warehousing, international freight forwarding, and customs clearance. Strategically located next to Jebel Ali port berths, MFC's warehouses combine convenience with top-tier sustainability standards. MFC has earned multiple awards for its sustainability efforts, including the Sustainable 3PL Logistics Company of the Year 2022 at the Freightweek Sustainability Awards and the CSR/Sustainability Initiatives Provider of the Year 2022 at the Landmarks in Logistics Awards.

UZBEKISTAN COMMITS TO RAISING RENEWABLE ENERGY CAPACITY TO 40 PERCENT BY 2030

Uzbekistan is dedicated to increasing its renewable energy capacity to 40% by 2030, according to Azernews. The announcement from the Uzbek president's office details plans to connect the initial 2.6 GW from 14 solar and wind power plants to the grid this year, raising the share of renewables in the country's electricity output from 9% to 15%.

Currently, Uzbekistan is constructing 32 green energy facilities with a total capacity of 18.3 GW and an investment of \$19 billion, in partnership with international collaborators. Additionally, Uzbekhydroenergo, the national

energy company, has implemented a hydropower development program through 2030. This program aims to fully harness Uzbekistan's hydroelectric potential and add new generating capacities.

As part of this initiative, over 50 major investment projects have been launched, with a goal to expand the capacity of hydropower plants (HPP) to 6 GW by 2030. This will be accomplished by building new HPPs and modernizing existing ones, marking a significant transformation in Uzbekistan's energy sector.

SWISS VOTERS APPROVE LAW TO INCREASE RENEWABLE ENERGY PRODUCTION

In a bid to enhance energy independence, a federal law passed in autumn 2023 includes measures to improve the transport, storage, and production of electricity. This legislation facilitates the installation of solar panels on buildings and provides funding for these initiatives.

Despite opposition arguing the law would be too costly and ineffective, it was supported by more than two-thirds of voters, according to preliminary results and projections published by public broadcaster SRF. The law is expected to take effect next year. Switzerland, which has faced criticism from a top European court for insufficient action on climate change, now aims to bolster its renewable energy efforts.

Meanwhile, two separate initiatives regarding health insurance were defeated. These proposals sought to link health insurance contributions to income levels or restrict increases in the levy. Critics argued these plans could lead to higher taxes, complicating government efforts to fund additional pension payments set to begin in 2026, as approved by Swiss voters in March. Despite initially enjoying majority support, these health insurance cost-containment proposals ultimately failed, as shown by recent polls.

BEKAERT AND REZOLV ENERGY SIGN AGREEMENT FOR 100 GWH IN ROMANIA

Bekaert, a global leader in steel wire processing and coatings, has signed a virtual power purchase agreement (VPPA) with Rezolv Energy, an Actis-supported independent power producer in Central and South-Eastern Europe. This 10-year contract, executed through their project subsidiary First Looks Solutions S.R.L., is one of the largest VPPAs in the region. Bekaert will acquire an additional 100 GWh of renewable energy annually, enhancing its renewable energy portfolio.

The energy will be sourced from the 461 MW VIFOR wind farm, developed by Rezolv Energy and Low Carbon in Buzău County, Romania. Upon completion, this will be one of Europe's largest onshore wind farms. The project's first phase will add 192 MW of capacity, with a planned expansion to 461 MW in the second phase. Construction is expected to conclude within 18 months, with commissioning slated for late 2025.

EGYPT FACES GRID HURDLE

Egypt aims to expedite the provision of renewable energy to alleviate electricity shortages and supply green power to Europe but faces funding challenges for grid updates and attracting investments for new wind and solar plants. During the Egypt-EU investment conference in Cairo, officials highlighted Egypt's potential in wind, solar power, and green hydrogen, seeking financing and leveraging Europe's diversification and decarbonization efforts.

Prime Minister Mostafa Madbouly emphasized the future potential of renewable energy for both regions, advocating for Egypt to manufacture renewable components. Electricity Minister Mohamed Shaker announced a review of clean energy targets, aiming for a 58 percent renewable share in power generation by 2040. Since 2014, Egypt has invested over 116 billion Egyptian pounds (\$2.42 billion) in upgrading its transmission network to support renewable expansion. The government is offering incentives to investors and considering raising the maximum height for wind turbines to enhance infrastructure readiness.

Despite these efforts, renewable capacity expansion has plateaued since the 2019 inauguration of the Benban solar plant, casting doubt on achieving a 42 percent renewable power generation target by 2030. Currently, less than 12 percent of Egypt's nearly 60GW installed capacity is renewable, with most power generated by gas, leading to recent power cuts and factory outages.

SWEDFUND MAKES INVESTMENT IN INDONESIA

Swedfund has made its first equity investment in Indonesia's renewable energy sector by investing in Xurya, a company that facilitates the adoption of solar power among commercial and industrial firms without upfront costs. This investment aims to reduce CO2 emissions, create jobs, and promote sustainable economic development in a country crucial to global climate efforts.

Indonesia, with its large population and significant energy consumption, is a key player in the transition to renewable energy. Swedfund's CEO, Maria Håkansson, highlighted the importance of this milestone in supporting the shift to sustainable energy in Southeast Asia. Investment Director Gunilla Nilsson emphasized the shared mission to combat climate change and the focus on measurable impact.

Indonesia, the world's largest archipelagic nation, is highly vulnerable to climate change. The government's roadmap to achieve net zero emissions by 2060 includes increasing renewable energy use, such as solar power. Swedfund's investment supports this transition to a low-carbon economy. Xurya has already developed over 170 solar projects, avoiding 152,000 tonnes of CO2 emissions annually and creating over 1,600 green jobs. With new funding, Xurya is expected to further avoid 370,000 tonnes of CO2 per year. Swedfund aims to enhance Xurya's environmental, social, and corporate governance capacities to ensure sustainable growth. PT Xurya Daya Indonesia offers comprehensive solutions to encourage the switch to solar energy, including funding, technical design, installation, and maintenance. Xurya has implemented rooftop solar systems in over 100 companies across various sectors and regions in Indonesia, significantly contributing to the country's renewable energy landscape.

All-Scenario Application, Lower LCOE, All-Grid Support



GLOBAL LEADING PV & ESS PROVIDER

NO.1 PV Inverter global shipment

Source: S&P Global Commodity Insights



ADB AND ACEN SIGN LANDMARK AGREEMENT TO POWER HEADQUARTERS



The Asian Development Bank (ADB) has entered into a landmark agreement with ACEN Renewable Energy Solutions (ACEN RES), part of the Ayala group, to power its Mandaluyong headquarters entirely with renewable energy. This initiative aligns with ADB's ongoing efforts to enhance sustainability and reduce its carbon footprint by utilizing renewable sources like solar and wind from ACEN's extensive portfolio.

Bruce Gosper, ADB Vice-President for Administration and Corporate Management, highlighted ADB's dedication to lowering its carbon footprint through renewable energy. Despite its large headquarters, ADB has achieved lower energy consumption compared to similar buildings. Lakshmi Menon, ADB Director General for Corporate Services, noted that ADB has been sourcing renewable energy since 2014, while also reducing water and paper usage and minimizing waste.

ACEN President and CEO Eric Francia expressed enthusiasm about the expanded partnership with ADB, acknowledging ADB's role in supporting the growth of ACEN's renewable energy projects in the Philippines and beyond through sustainable financing. Francia praised the extension of their partnership to supply clean energy to ADB's headquarters, further strengthening their collaboration.

To honor ADB's commitment, ACEN RES awarded the bank its 'Powered by Renewable Energy' seal, a distinction for customers opting for 100% renewable energy. A turnover ceremony at ADB headquarters commemorated the agreement, attended by ADB officials, including Bruce Gosper, Lakshmi Menon, and Suzanne Gaboury, as well as ACEN representatives, including Eric Francia, Jonathan Back, Tony Valdez, Irene Maranan, and Sheila Mina.

EU AND PARTNERS TOUR RENEWABLE ENERGY SITES IN NORTHERN JERICHO, VOICE CONCERNS OVER ISRAELI SETTLEMENT EXPANSION

The delegation visited sites where the Palestinian Authority plans to construct three solar farms, emphasizing the economic opportunities and significant potential for expanding sustainable energy generation for Palestinian communities across the West Bank. The visit underscored the critical need for Palestinian access to land in Area C. Representatives from the Palestinian Energy and Natural Resources Authority (PENRA) briefed the diplomats on the numerous challenges faced, including difficulties in obtaining Israeli permits, settler violence, land acquisition issues, and settlement expansion, all of which pose significant barriers to achieving renewable and green energy goals.

During the tour, the delegation also learned about recent developments in Israeli settlement infrastructure, specifically renewable energy sites in the Jordan Valley. They viewed the planned site for the Israeli Na'ama South project, which is set to be built over 3,200 dunums of land in Area C of the occupied Palestinian territory, making it the largest Israeli solar farm in the region. In this context, the EU and its partners reiterated their strong opposition to Israel's settlement policies and activities, opposing all actions that undermine the viability of a two-state solution. The EU considers settlements illegal under international law and a barrier to peace, calling for an end to settlement expansion and legalization, including in the renewable energy sector.

PMLTC PRESIDENT DISCUSSES RENEWABLE ENERGY PLANS WITH FM

Zhang Lei, the President and CEO of Pak Matiari-Lahore Transmission Company (PMLTC), discussed potential opportunities in hybrid renewable energy and hydrogen production in Pakistan during a meeting with Finance Minister Muhammad Aurangzeb yesterday.

Zhang Lei congratulated Senator Muhammad Aurangzeb on assuming office and commended the government's efforts in driving reforms and structural developments across various sectors. She provided an overview of China Electric Power Equipment and Technology Co. Ltd. (CET) and its ongoing projects in several countries. Additionally, she updated the Minister on the progress of the Matiari-Lahore HVDC project. The delegation also raised issues related to currency conversion and sales tax recovery from the National Transmission and Dispatch Company (NTDC).

The Finance Minister acknowledged PMLTC's contributions to infrastructure development and assured the delegation of necessary support through relevant government channels. He emphasized the importance of successfully concluding the IMF program to bolster foreign exchange reserves and highlighted ongoing reforms in Pakistan's power sector.

Happen- ings.

Get ready to immerse yourself in a comprehensive exploration of the dynamic world of renewable energy and beyond. Here we will uncover the latest trends, breakthroughs, and impactful events shaping the global transition to sustainable practices, empowering you with the knowledge and inspiration to be at the forefront of the green revolution.





BETTER ENERGY RESILIENCE IN PAKISTAN CAN SAVE **175,000** LIVES!

A new UNICEF study reveals that equipping more health facilities in Pakistan with resilient energy could prevent over 175,000 deaths by 2030 and add US\$ 296 million to the economy by 2044. This is due to decreased maternal, adult, and infant mortality rates and a reduced disease burden thanks to enhanced energy resilience.

****Resilient energy**** refers to a reliable, flexible, accessible, and high-quality power supply capable of withstanding and quickly recovering from unexpected shocks like power outages and floods. The study, conducted by the Economist Impact Unit for UNICEF, indicates that investing in resilient

energy across health, education, and water services could yield substantial benefits for children and provide returns up to triple the investment.

For instance, providing resilient electricity to schools can reduce dropout rates and improve learning outcomes, enabling children to earn more in the future. This could boost Pakistan's economy by US\$ 2.3 billion by 2040. With Pakistan having recently declared an education emergency, investments in energy resilience could help reintegrate 26 million out-of-school children and power around 20 percent of off-grid schools in two provinces.



Additionally, relentless heatwaves have caused temperatures to soar over 50°C in some areas, straining the electricity supply. Load shedding and massive shortages make cooling difficult, endangering children's health and increasing risks of dehydration, diarrhea, and other serious complications.

"Children rely on schools, health centers, and safe drinking water for survival, yet these facilities often lack a reliable electricity supply," said Abdullah Fadil, UNICEF Representative in Pakistan. "As heatwaves grip the country, electricity shortfalls jeopardize children's health. This research highlights the critical need for resilient energy solutions to protect children, improve well-being, and foster economic growth. This is a win-win for everyone in Pakistan: children, families, teachers, the private sector, and the economy. The urgency for renewable energy has never been greater, especially for our children who face the daily impacts of climate change."

Globally, 3.5 billion people live without reliable power, primarily in developing regions. Power outages can disrupt hospital surgeries and cause water sources to fail. Climate change further hampers energy generation and distribution. For example, during the 2022 floods in Pakistan, nearly half of the water infrastructure was damaged, impacting 25 percent of the country's energy supply.

In response, UNICEF restored water systems to benefit 350,000 people in 375 locations with smarter designs. They elevated well floors above projected flood levels, added frame structures for stability, and built protection walls to minimize damage.

The study suggests that fully utilizing resilient energy can improve water quality and supply in remote areas, reduce power outages, protect children from diseases, and boost agricultural output.

UNICEF calls for:

1. Increased investment in resilient, sustainable, and green energy solutions for healthcare, education, and safe water provision in developing countries. These solutions are crucial for addressing energy shortages amid the climate crisis and achieving net-zero goals.
2. Supportive policies and initiatives promoting renewable energy adoption.
3. Partnerships with development finance institutions for blended finance solutions.

Providing renewable energy is a key part of UNICEF's Sustainability and Climate Agenda. UNICEF has implemented several solar electrification projects, including three 250 kWp hospital solar systems across Pakistan for uninterrupted renewable energy supply to save newborns and mothers. Globally, in 2022, UNICEF provided 12,514 solar-powered vaccine cold chain equipment and constructed 1,855 solar water systems, ensuring safe water for communities, health-care facilities, and schools.

"Pakistan has abundant renewable resources, and investing in them is like tapping into a goldmine to help children," added Fadil. "However, we need the private sector's involvement, as public resources alone won't suffice. This is a collective responsibility."

AZERBAIJAN ACCELERATES CLEAN ENERGY TRANSITION WITH THREE NEW PROJECTS



Azerbaijan's green energy transition saw a major advancement on Tuesday with the groundbreaking of three renewable energy plants, collectively offering a capacity of 1 gigawatt.

During the Baku Energy Week, an international event focused on global energy discussions, President Ilham Aliyev of Azerbaijan and UAE Minister of Industry and Advanced Technology Sultan Al Jaber inaugurated two solar and one wind power plant.

The projects include the 445MW Bilasuvar Solar PV Project, 315MW Neftchala Solar PV Project, and the 240MW Absheron-Garadagh Onshore Wind Project. Investment agreements for these projects were finalized in October 2023, followed by power purchase agreements, transmission connection agreements, and land lease agreements.

Additionally, UAE-based Masdar and Azerbaijan's state oil company SOCAR signed

a shareholder agreement for these projects.

"This partnership illustrates how Azerbaijan and its international allies are transitioning from fossil fuels to renewables, recognizing that fossil fuels will remain significant for us and our partners for years to come," President Aliyev remarked at the Energy Week.

Masdar CEO Mohamed Jameel Al Ramahi highlighted the company's goal of achieving 10GW renewable energy capacity in Azerbaijan through ongoing investments.

"With the groundbreaking of these 1GW wind and solar projects in collaboration with SOCAR, we advance towards our ambitious goal of developing up to 10GW of clean energy in Azerbaijan by 2030. Following the launch of the 230MW Garadagh solar plant last year, the largest operational plant in the region at the time, and other major utility-scale projects, we are accelerating the country's clean energy vision ahead of COP29 and beyond," Al Ramahi stated.

One gigawatt of renewable energy is expected to save approximately half a billion cubic meters of natural gas for domestic use in Azerbaijan and boost exports.

In October 2023, Masdar inaugurated a \$200 million, 230 MW PV station in Garadagh, located 23 kilometers southwest of Baku. The Garadagh Solar Power Plant is projected to generate about half a billion kilowatt-hours annually, enough to power over 110,000 households and reduce greenhouse gas emissions by 200,000 tons annually.

The collaboration between the UAE and Azerbaijan on these multi-million-dollar renewable energy projects underscores Baku's commitment to combating climate change, particularly as it prepares to host the 29th Conference of the Parties to the UN Framework Convention on Climate Change (COP29).

Azerbaijan secured the hosting of COP29 during COP28's plenary session on December

11, 2023, with the support of other Eastern European countries. President Aliyev declared 2024 as the "Green World Solidarity Year" in Azerbaijan on December 25, 2023. The event, set for November, is expected to draw around 80,000 foreign guests for the two-week global climate action gathering.

President Aliyev also announced two additional renewable energy projects in progress — one under construction and another about to start — which will bring Azerbaijan's solar and wind energy capacity to nearly two gigawatts. Including ongoing hydropower projects in the liberated Karabakh and East Zangezur regions, Baku aims to achieve a total of two gigawatts of renewable energy capacity by the end of 2027.

Since November 2020, hydropower stations with a combined capacity of 270 megawatts have been launched in Azerbaijan's liberated areas, with a total capacity expected to reach 500 megawatts by 2030.



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500MW,

Floating Solar Energy Project to be Established at Keenjhar Lake

The Sindh Transmission & Dispatch Company (STDC) and GO Energy Private Limited have signed an agreement to transmit power from a 500-megawatt floating solar project at Keenjhar Lake, Sindh. The signing ceremony in Karachi was attended by Syed Nasir Hussain Shah, Sindh's Minister for Energy, who was the chief guest. Other notable attendees included Musaddiq Ali Khan, Secretary Energy for the Government of Sindh, M. Saleem Shaikh, CEO of STDC, Ammar Ali, CEO of GO Energy, and Haris Jamil, Director CEO Secretariat at K-Electric.

This 500MW floating solar project aims to be one of the largest in the world, equipped with advanced solar panels and floating structures designed for Keenjhar Lake's unique environment. The project is expected to create thousands of jobs, boost regional economic growth, and enhance Pakistan's



renewable energy sector by providing clean energy, reducing fossil fuel dependence, improving air quality, and promoting a greener Pakistan.

At the ceremony, Syed Nasir Hussain Shah stressed the importance of sustainable, eco-friendly energy. "The Sindh government is proud to support the 500MW floating solar project at Keenjhar Lake by fostering an investment-friendly environment for renewable energy, reducing reliance on imported fuels, and lowering electricity costs for Sindh residents. This project is a major milestone for our government, and we are committed to its swift implementation."

Keenjhar Lake, in central Sindh, provides an ideal site for solar energy without taking up agricultural land. The project is also expected to reduce water evaporation by more than 50% over the covered area, which is a key



water source for Karachi and nearby regions.

Musaddiq Ali Khan, Secretary Energy, Government of Sindh, remarked, “We welcome GO Energy’s 500MW floating solar project at Keenjhar Lake. This project aligns with our goals to expand renewable energy capacity and reduce our carbon footprint. The government is committed to supporting projects that enhance energy security, create jobs, and promote sustainable development. We look forward to collaborating with GO Energy on this transformative initiative.”

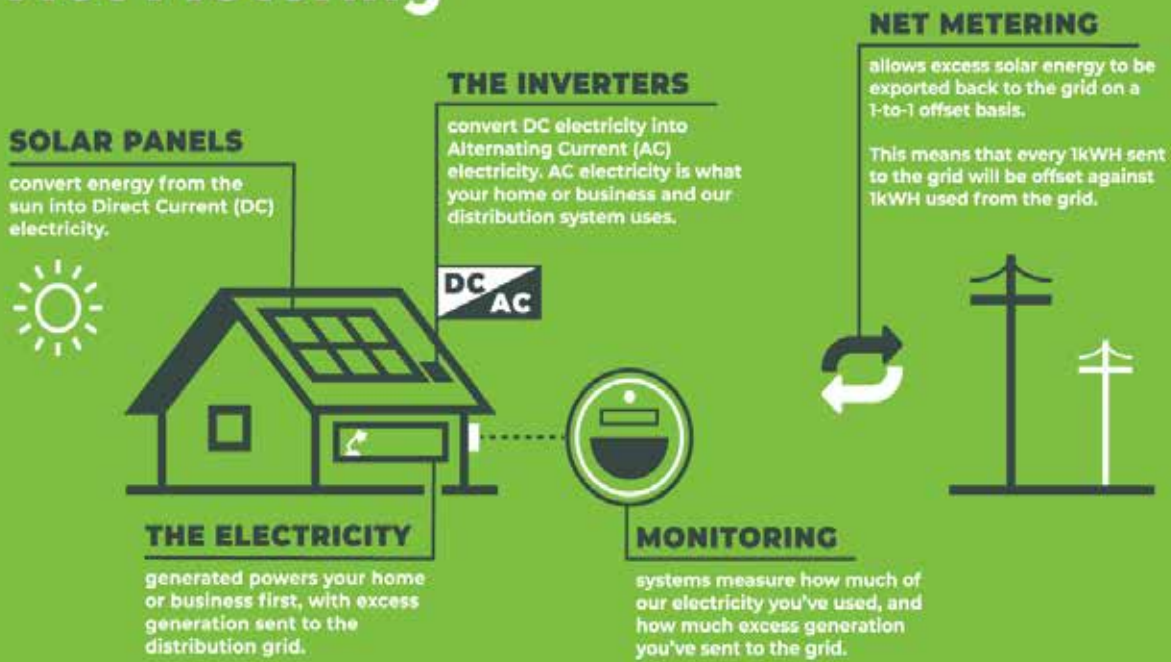
This innovative project is expected to produce more electricity than land-based solar projects due to the natural cooling effects of Keenjhar Lake’s water, resulting in cost-effective electricity that will lower the overall grid rate, protect marine life, and reduce reliance on imported fuels.

M. Saleem Shaikh, CEO of STDC, stated, “We are excited to be part of the 500MW floating solar project at Keenjhar Lake. It represents an innovative way to integrate renewable energy into KE’s grid. Our team is dedicated to providing the necessary infrastructure and expertise to connect this significant solar power generation capacity to the grid, ensuring reliable and sustainable energy for Karachi and surrounding areas.”

Ammar Ali, CEO of GO Energy, added, “We are thrilled to partner with the Sindh government on this unique renewable energy project at Keenjhar Lake. The Project Bankable Feasibility Study has been completed by the Solar Energy Research Institute of Singapore (SERIS), and environmental approvals are nearing completion with SEPA. The EPC bidding process is underway, with tariff approvals targeted by the end of this year and financial closure by early next year.

NET METERING FOR PAKISTAN, WHATS NEW!

HOW IT WORKS Net Metering



Controversies surrounding net-metering and the imposition of a new tax have cast a shadow over Pakistan’s transition to solar energy, despite the government’s ambitious plans, stakeholders reported on Monday, adding that the situation has left them in a state of uncertainty. Pakistan approved the net-metering policy in 2017, allowing consumers to sell excess electricity produced by their solar systems to power distribution companies, resulting in significant savings on their monthly bills.

However, the energy ministry stirred controversy last month by stating that

net-metering was promoting “unhealthy investments” in solar power installations by affluent domestic and industrial consumers, hinting at cutting the buyback rates. “Before this controversy, people were shifting to solar energy so rapidly that we thought 100 percent of Pakistan would embrace solar energy,” Zulfiqar Ali, an importer, supplier, and installer of solar panels, told Arab News on Monday. “Now, we’re witnessing a stark contrast: a slowdown in inquiries, stagnation in projects, all amidst discussions of governmental reconsideration of solar energy policies.”

Ali noted that the net-metering issue

had significantly affected the market, as purchasing groups suddenly went silent, and ongoing deals became stagnant. “The planned projects have stalled; people are neither committing nor declining,” he added. Recent reports in local media about new taxes and a potential end to the net-metering policy have further complicated the situation, prompting Energy Minister Awaiz Leghari to clarify the government’s stance.

“We completely reject these stories. The agreements our companies have made with net-metering users, whether for five, six, or seven years, will not be altered, and the government will not harm its reputation or inconvenience those investors,” Leghari said at a press conference in Lahore on Sunday. He stated that the government was fully committed to renewable energy and solarization and supported the continuation of the net-metering policy.

“If, after studying it over the next few months, there is a need to revise it, it will be done very responsibly and in consultation with stakeholders,” Leghari said. “With the approval of the entire government, if necessary, we will rationalize this. At this moment, we are committed to fulfilling all the contracts we have signed with various parties. We will uphold the integrity of the entire government and move forward together.”

Despite the government’s assurances, an atmosphere of uncertainty prevails in the

country regarding solarization. “I wanted to install solar panels on my rooftop to mitigate high electricity bills, but now I am unable to decide due to the government’s potential moves to tax panels or curtail net-metering benefits,” said Khalid Abbas, a resident of Karachi, adding that he would wait for clarity on the subject. Solar panel suppliers reported that people who were buying solar panels by selling their cars or jewelry had stopped purchasing the equipment. “Residential consumers who wanted to install 5-20KW panels have halted their plans and are waiting for clarity,” Zulfiqar said.

Pakistan’s energy issues stem from substantially high electricity bills, mainly due to capacity charges that are as high as 65 percent, which the nation is bound to pay to power producers even when their plants are idle. The power purchase price (PPP), or the average per unit price based on the generation cost, is Rs20.60, including Rs14.09 in capacity charges and Rs6.21 in fuel and variable charges, according to Pakistan’s reference tariff for fiscal year 2023-2024.

Pakistani energy experts believe the current volume of solar energy is still “insignificant” and does not even make up 1 percent of the total power generation in the country. “But at the current rate, perhaps a significant portion of our net-metering will come from solar energy,” Dr. Khalid Waleed, an expert on energy economics, told Arab News. “Around 2,000MW will come from net-metering. So, it should not be discouraged at all.”





ECONOMIC AND ENVIRONMENTAL GAINS OF SOLAR ENERGY IN HIGHER EDUCATION

In an environment where going green is no longer an option, but a requirement, it is imperative that higher education institutions come at the forefront of embracing sustainable solutions. As the leading institution of higher education in Pakistan, National University of Sciences and Technology (NUST), known for its academic rigor and innovation, we also embrace the ideals of sustainability and renewable energy. In my capacity as an Assistant manager at NUST's Office of Sustainability, I would like to highlight the economic and environmental value of solar energy in higher education, a role of students in this process, and the progress made at NUST.

Economic and Environmental gains of Solar Energy in Higher Education

The use of solar energy has several economic benefits that universities can take advantage of. The main and probably the most obvious advantage is the considerable saving on electricity bills. For example, Penn State University relied on three solar farms in Franklin County to supply it with 100% of renewable energy, it has surpassed expectations with \$2.5 M in energy costs savings. This decision is expected to accrue huge saving in the long run as the money that used to be expended would be channelled back to education needs.

Likewise, at NUST, we have been experiencing

financial benefits from our solar energy activities. At the moment, we generate 1 MW of electricity via solar products, and by the end of the year, we expect the capacity to be 3 MW. The expansion is expected to reduce our electricity costs by almost half yearly, thus enabling more funding to other important projects. As we transition to 100% renewable energy by 2030, the financial benefits will increase, improving the capacity to invest in our students and structures.

Environmental Benefits of Solar Energy

The environmental impact of solar energy is equally compelling. By reducing reliance on fossil fuels, universities can significantly lower their carbon footprint. For example, the solar power that is currently generated by NUST averts about 500 tons of CO₂ emissions each year. As we continue to increase the share of solar electricity generation, this reduction will triple by the end of this year and in turn significantly support efforts to fight climate change across the globe.

In addition, the focus on environmental sustainability is not limited to energy generation only. A further advancement in this direction is the use of electric vehicles powered by solar energy for the transportation of students within the campus. These EVs lower emissions and encourage environmental responsibility within students and staff. This transition also serves healthy communities both in the university and beyond by minimizing the impacts of climate change.



Youth as Catalysts for Renewable Energy Advancement

Youth in higher education play a central role in promoting renewable energy sources. At NUST, our students are not just beneficiaries of our green shift, they are active contributors to it. Through sustainability projects, research initiatives, and advocacy work they drive innovation in renewable energy.



Students provide a different view that can help in introducing new ideas to the process. Their passion for commitment to sustainability can drive extensive research, the development of new solutions. We have some established sustainability based clubs and societies at NUST such as NUST Environment Club, and NUST SDG Student Hub. These societies encourage the university students to promote sustainability projects and to fight for green energy both on and off campus.

The Role of NUST's Office of Sustainability

At NUST, the Office of Sustainability is aiming to execute advance renewable energy projects. Our strategy is founded on a number of key themes that reflect what is important to us: decarbonisation; environmental sustainability; circularity; inclusivity; and community. These pillars support a 360 perspective

on sustainability as they relate to different dimensions of environmental and social responsibility.

The work we do to reduce our carbon footprint includes continuing to increase our solar fleet and transitioning the remainder of campus operations to renewables. Environmental Sustainability efforts target waste reduction, resource conservation, and a culture of green living. The concept of circularity is the creation of systems where resources go round and round being repurposed and recycled again and again reducing waste and maximizing efficiency. Inclusivity seeks to ensure that students, faculty, staff, and other members of our NUST community all have a part in our sustainability work. We are convinced that everyone has a part to play in building a brighter future. Finally, our efforts extend beyond the campus as we work with local, national, and international partners to advocate for renewable energy and sustainability.

Our office also leads initiatives to expand solar power, reduce energy use, and encourage sustainable practices in the campus. We work with faculty, students, and external partners to design solutions in-line with our

sustainability goals. We also offer teaching

materials and training to inform people of the significance of renewable energy and the advantages of it. Sustaining our university with Solar serves as a model for other universities shift towards renewable energy and influence their part of the world in resiliency variables.

A Bright Future

While NUST has been the first among many, and it led the way, it just reminds us more and more, how much impact renewable energy generation technology can cause in our life as well as the environment. Our commitment to using solar is not just about saving money or reducing emissions, It is about leaving a better world behind for the generations to come. We are achieving this by enabling our students and by using innovative technologies that we have access to.

The journey to 100% renewable power by 2030 is ambitious, but it is one that our students, staff and the broader community can achieve if we all commit to it. Let's use the source of all energy, to create a brighter tomorrow for everyone!



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TRANSFORMER SHORTAGE HALTS RENEWABLE ENERGY PROJECTS

The Renewables MMI (Monthly Metals Index) witnessed more notable declines month-over-month than last month's MMI, declining by 7.09%. Renewable energy news sources indicate there exists a number of renewable energy projects within the U.S. currently ready to begin work, but are on hold due to an array of factors. Furthermore, solar and wind fields still lack a sufficient number of hookup areas into grid systems to send power to homes and businesses, along with an ongoing shortage of transformers.

WHEN SOLAR ENERGY MAKES SENSE AND WHEN IT DOESN'T

Although solar panels are typically made to last 25 to 30 years, there are a number of issues that need to be addressed when their usefulness ends. While degradation rates have decreased due to technological developments, panel efficiency (like anything) eventually declines. For instance, after using solar power for a few years, some customers experience a 11.4% decrease in production. Due to this performance drop, either a substantial investment to replacement panels is required, or less energy is produced.

RENEWABLE ENERGY NEWS REPORTS HAZARDOUS WASTE CONCERNS

The fact that solar panels that have expired are categorized as hazardous waste is one of the more concerning issues. Heavy metals and other hazardous substances may be released into the environment when solar panels shatter, endangering the environment and human health.

Although proper recycling and disposal procedures are essential and exist, there is presently not enough infrastructure or legislation in place to adequately handle all of the expected increase in waste from solar panels.

ECONOMIC AND CONTRACTUAL ISSUES

Businesses and homeowners alike need to think about the price of upgrading outdated panels. When solar leases expire, those who have them may encounter legal issues. Purchasing the panels, having them removed or extending the lease are just a few of the options that require careful planning in terms

of logistics and finances. Over-Dependence on China The solar industry's substantial reliance on China is another major source of worry.

Due to significant government subsidies and economies of scale, China produces 80% of the world's solar panels, which has significantly lowered prices. However, because of the surplus of supply brought on by this supremacy, prices have fallen to the point of endangering the business models of foreign solar producers.

Global markets are more susceptible to supply chain disruptions and geopolitical tensions when they rely too much on Chinese imports, as is the case in the US, where domestic manufacturers confront unprecedented competition from low-cost Chinese imports.

Grain-Oriented Electrical Steel MMI The Grain-Oriented Electrical Steel MMI (Monthly Metals Index) experienced yet another sharp drop in price month-over-month, experiencing a 23.3% drop. Overall, prices within the GOES market continue to experience volatility. The supply chain in the U.S. currently has a slight supply gut, yet transformers still aren't being manufactured in large enough capacity to meet growing renewable energy needs.

THE GAP BETWEEN GOES AND TRANSFORMER MANUFACTURING

The United States still faces a shortage of transformers, crucial components for the distribution of renewable energy. Despite a slight abundance of electrical steel, several factors contribute to this manufacturing gap. First, renewable energy news sources indicate there is still a shortage of electrical steel and transformer manufacturing capacity in the U.S., especially for non-oriented electrical steel (NOES). The amount of providers has increased, but it is still not enough to satisfy the transformer makers' increasing demand.

Second, it takes specialized, specific skills and a lot of money to manufacture transformers. The cost of renovating or constructing new facilities is high, and the current infrastructure is out of date. As a result, the rate of increase in manufacturing capacity has slowed.

Finally, the problem is compounded by logistical and regulatory obstacles. New manufacturing facilities must go through drawn-out permitting procedures, and transportation-related problems make it more difficult to deliver materials and completed goods on time.



TURNING BUILDINGS INTO BATTERIES



Skidmore, Owings & Merrill LLP (SOM), the architectural firm renowned for designing the world's tallest tower, the Burj Khalifa, is now reportedly developing innovative methods to transform buildings into energy storage units. Currently, SOM is exploring techniques to lift massive blocks using motors, storing energy that can be converted to electricity when the blocks are lowered. This raises the question: could some of the world's most iconic skyscrapers generate their own power by harnessing gravity?

NOT A NEW IDEA

Harnessing gravity for energy storage is not a novel concept. The principle has been utilized for over a century, notably in pumped-storage hydroelectric (PSH) plants. These plants act like giant batteries by pumping water uphill during low-demand periods and allowing it to flow back down to generate power through turbines when electricity is needed. This method, which began in the 1890s, currently accounts for 97 percent of energy

storage and is both clean and renewable as the water is reused. Today, PSH plants contribute about 180 GW to the global energy generating capacity of 8.9 terawatts.

Now, imagine using solid materials instead of water as potential energy. Massive blocks of concrete or heavy iron pistons could be elevated using excess solar or wind power and then released in a controlled sequence to generate energy when needed. This approach means gravity power can be generated almost instantly and at any time.

GRAVITY BATTERIES, A MODERN TWIST

The future of energy storage seems to be taking a new direction with gravity batteries. In May 2024, a company named Energy Vault debuted its “gravity battery” near Shanghai. This colossal structure can store enough power to keep the lights on for hours. Energy Vault is not alone; other innovative companies are also exploring the potential of gravity in abandoned oil wells and mines, proving that green energy can be achieved by going up or down.

Modern gravity batteries offer greater flexibility and long-duration storage, ensuring a reliable energy supply even when the wind doesn't blow or the sun doesn't shine. Unlike PSH plants that require specific geographical features, gravity batteries can utilize existing infrastructure like high-rises or repurpose abandoned mines.

HOW GRAVITY BATTERIES WORK

The core principle of gravity batteries is to convert excess electricity into potential energy by lifting a mass, then converting it back into electricity by lowering the mass. Different methods include: Concrete blocks can be raised and lowered by cranes within a tower, as seen with Energy Vault, to store and generate energy. Water tanks can be filled at high points in buildings

using surplus energy and then released through turbines to produce electricity. Additionally, heavy weights can be lifted within abandoned mineshafts using winches, a method employed by companies like Gravitricity.

BENEFITS OF GRAVITY BATTERIES

Gravity batteries offer numerous advantages, including up to 90 percent efficiency compared to solar power's 25 percent, making them highly efficient. They are also clean and sustainable, with minimal environmental impact. These batteries can store large amounts of energy for extended periods, ensuring long-lasting storage. Additionally, they provide power during peak consumption periods in less than a second, showcasing their fast response capabilities. Their capacity can be adjusted to specific needs, demonstrating scalability. Moreover, they are cost-effective, with lower deployment and operating costs compared to lithium-ion batteries. Unlike PSH plants, gravity batteries are location-agnostic and can be deployed almost anywhere.

HIGH-RISE BUILDINGS AS BATTERIES?

This innovative concept uses the height of buildings for energy storage. One idea involves retrofitting elevators to lift heavy weights or water tanks during off-peak hours. These weights are then lowered during peak hours, converting potential energy back into electricity through pulleys and actuators, using regenerative braking systems.

FROM PROTOTYPES TO REALITY

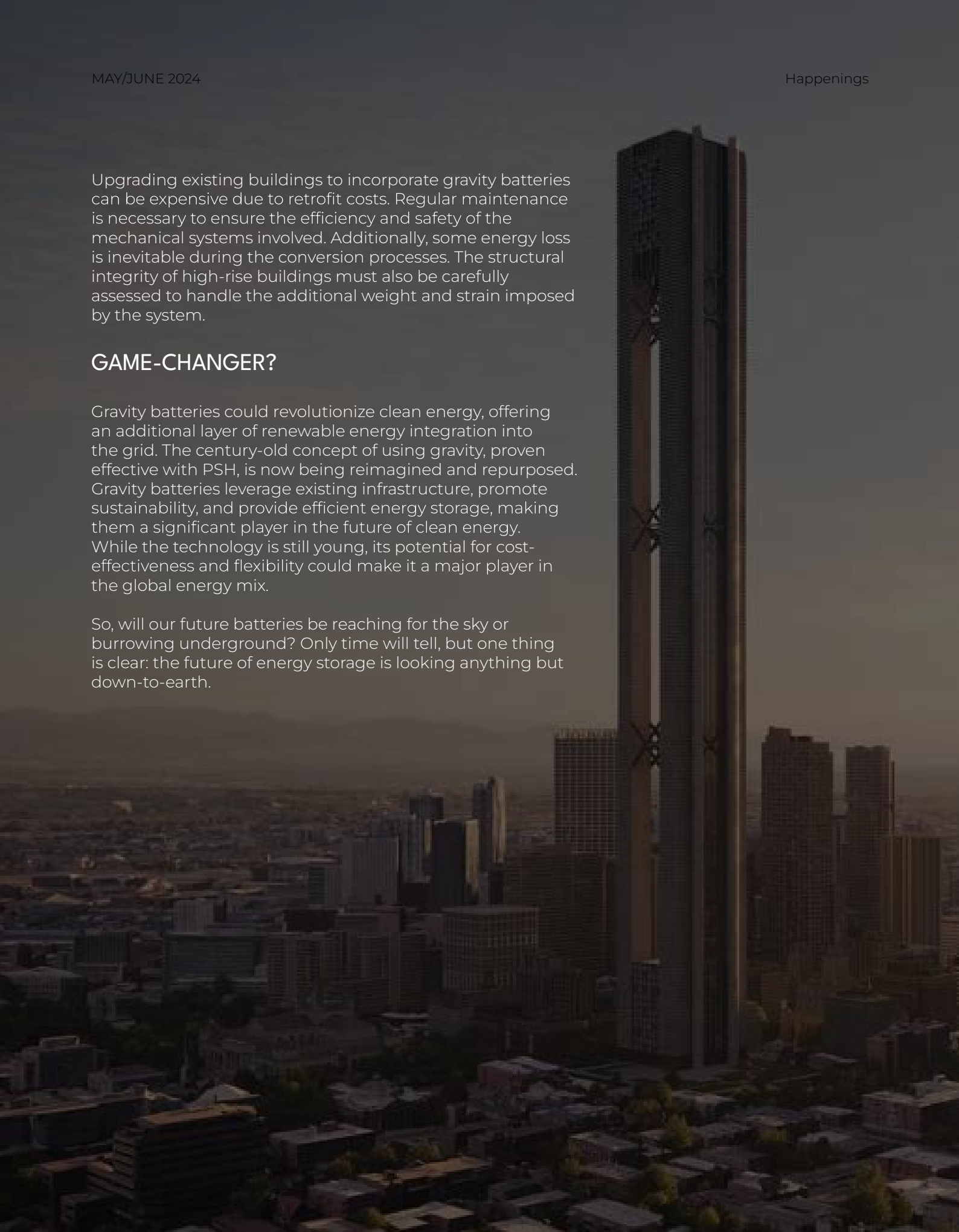
The first commercially operational gravity battery system, built by Energy Vault, recently joined the Chinese power grid. Other companies like the UK's Gravitricity are testing prototypes in disused mines. However, challenges remain:

Upgrading existing buildings to incorporate gravity batteries can be expensive due to retrofit costs. Regular maintenance is necessary to ensure the efficiency and safety of the mechanical systems involved. Additionally, some energy loss is inevitable during the conversion processes. The structural integrity of high-rise buildings must also be carefully assessed to handle the additional weight and strain imposed by the system.

GAME-CHANGER?

Gravity batteries could revolutionize clean energy, offering an additional layer of renewable energy integration into the grid. The century-old concept of using gravity, proven effective with PSH, is now being reimagined and repurposed. Gravity batteries leverage existing infrastructure, promote sustainability, and provide efficient energy storage, making them a significant player in the future of clean energy. While the technology is still young, its potential for cost-effectiveness and flexibility could make it a major player in the global energy mix.

So, will our future batteries be reaching for the sky or burrowing underground? Only time will tell, but one thing is clear: the future of energy storage is looking anything but down-to-earth.





UAE ANNOUNCES BLUE VISA

The UAE has introduced a new long-term residency visa, known as the blue visa, offering a 10-year residency to individuals who have made “exceptional contributions” towards protecting the nation’s environment. This announcement was made following a Cabinet meeting led by Sheikh Mohammed bin Rashid, Prime Minister and Ruler of Dubai, aligning with the country’s goals of enhancing sustainability.

The blue visa is the latest in a series of long-term residency options in the UAE, joining the ranks of the golden visa and other initiatives like the green and remote working visas. These long-term visas have been successful in attracting and retaining talent in the UAE. David Mackenzie, group managing director of recruitment agency Mackenzie Jones, highlighted the benefit of living in the UAE without the need for company sponsorship, providing greater freedom to residents.

Ivano Iannelli, senior adviser for sustainability at Emirates Global Aluminium, noted that the new visa would help retain existing talent and attract new talent by offering security and demonstrating the UAE’s commitment to sustainability.

The blue visa will be granted to individuals who have made significant contributions to environmental protection and sustainability. This includes efforts in marine and land conservation, improving air quality, and advancing sustainable technology. The visa is part of the UAE’s Year of Sustainability and aims to reward those making exceptional environmental contributions.

WHY IS IT IMPORTANT?

Dr. Sultan Al Jaber, Cop28 President and Minister of Industry and Advanced Technology, emphasized that the blue visa aims to attract global environmental leaders to contribute to the UAE’s sustainable development. It underscores the nation’s commitment to leveraging advanced technologies and artificial intelligence to address climate challenges and transform them into opportunities for a brighter future.

The blue visa aligns with the legacy of the Cop28 conference, the UN climate change summit held in Dubai, and highlights the UAE’s forward-thinking approach to sustainability.



ISLAMABAD, PAKISTAN SUSTAINABILITY WEEK 2024 CONCLUDES!

The three-day Pakistan Sustainability Week (PSW), country's biggest and only dedicated alternative energy exhibition, alongside Solar Pakistan – 15th International Renewable Energy Exhibition and Conference – organized by Fakt Exhibitions (Pvt.) Ltd., Pakistan's leading exhibitions organizing company, on Saturday successfully concluded at the Pak-China Friendship Centre in Islamabad. The flagship alternative energy exhibition continued from May 9 till May 11, transforming the alternative energy landscape in Pakistan.

Federal Secretary for Housing & Works, Dr. Shahzad Khan Bangash, Joint Secretary, PM Office, Ijlal Ahmad Khattak, along with high officials and industry leaders graced the closing ceremony of the exhibition. The three-day Sustainability Week and Solar Pakistan exhibition witnessed the participation of a large number of policymakers, investors, manufacturers, suppliers, traders, and distributors.

Reflecting on the significance of the event, Federal Secretary for Housing & Works, Dr. Shahzad Khan Bangash, remarked, "Pakistan stands at a critical juncture in its journey towards sustainable development. The Pakistan Sustainability Week underscores our nation's collective commitment to charting a greener, more resilient future, powered by alternative energy solutions."

Speaking on the success of the exhibition, Mr. Saleem Khan Tanoli, CEO Fakt Exhibitions (Pvt.) Ltd., expressed his satisfaction, stating, "We are glad to witness the enthusiastic participation and engagement from both local and international stakeholders. The Sustainability Week and Solar Pakistan exhibition serves as a catalyst for driving innovation and collaboration in the alternative energy landscape of Pakistan."

The mega alternative energy exhibition served as a vibrant platform for networking, collaboration, and knowledge exchange, paving the way for the advancement of the alternative energy sector in Pakistan. Over 50 companies from around the world showcased their expertise, introducing a plethora of cutting-edge technologies to the Pakistani market.

During the exhibition, the Sustainability Innovation Summit also took place showcasing technical innovations and alternative energy initiatives. The summit brought together industry stakeholders, government officials, and thought leaders who shared invaluable insights, market overviews, and experiences. Pakistan Sustainability Week has emerged as a crucial platform for professionals to stay abreast of the latest industry trends and technological advancements in the alternative energy domain.



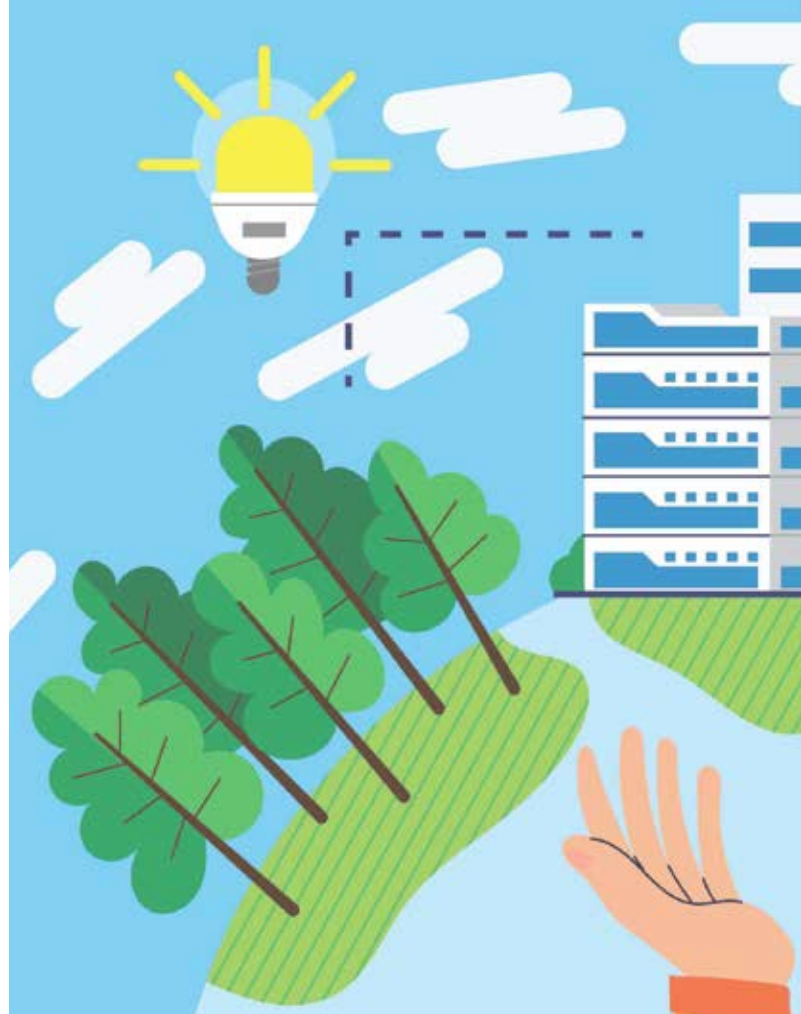


PAKISTAN PV

STORAGE MARKET USHER IN A MUSHROOMING

The Chairman of the Pakistan Alternative Energy Association reported that Pakistan installed around 1,800 megawatts of solar panels last year, with projections to reach 3,000 megawatts this year due to reduced panel costs and increased demand. “This year, Pakistan will spend over 3.5 billion dollars on solar panel imports alone, excluding batteries, inverters, and other auxiliary items. Consistent renewable energy policies are essential for Pakistan to meet its greenhouse gas emission obligations,” he emphasized.

Customs data reveals that from January to April this year, China’s exports of photovoltaic modules, inverters, and lithium batteries to Pakistan were valued at 7.83 billion yuan, 779 million yuan, and 330 million yuan respectively, marking year-on-year increases of 110%, 170%, and 250%. This explosive growth is linked to Pakistan’s fragile local electricity market.



Frequent power outages, large-scale blackouts, and high electricity prices (around 17.5 cents/kWh) compared to India (10.3 cents), Bangladesh (8.6 cents), and Vietnam (7.2 cents) have driven Pakistani households and businesses to seek cheaper alternatives. As photovoltaic storage costs decline, users can lower overall electricity expenses by building their own PV storage systems. Consequently, household storage systems have become a necessity for ensuring power supply and reducing costs, spurring the rapid growth of Pakistan’s distributed storage market.

“Given Pakistan’s power outages, particularly during peak summer periods, there is significant potential to develop household energy storage systems locally. Our small energy storage systems, with capacities like 5 kWh and 10 kWh, are designed for emergencies. Although diesel engines are widely used in Pakistan for power generation, they are much more expensive than



photovoltaics and contribute to pollution. By combining distributed PVs, inverters, and storage systems, many families can move away from diesel engines, benefiting both market expansion and Pakistan’s low-carbon goals,” stated Richard Guo, President of Zenergy Solar Development, Pakistan, in an exclusive interview with the China Economic Net.

“Our source-grid-load-storage integration model can undoubtedly be applied in Pakistan. Currently, the price of PV energy storage products may still be comparable to or slightly below local traditional energy prices, requiring enhanced attractiveness. As we continue to reduce costs and improve efficiency, the appeal of our products in Pakistan, South Asia, and globally will increase,” said Liu Yiyang, Deputy Secretary General of the China Photovoltaic Industry Association (CPIA), to CEN.

According to the International Renewable Energy Agency (IRENA), Pakistan’s solar energy market size is expected to grow from 1.3 GW in 2023 to 9.77 GW by 2028, with a CAGR of 49.68 percent during the forecast period (2023-2028). “In addition to some Chinese companies starting large-scale centralized projects in Pakistan, the rising electricity prices for traditional energy are driving more locals to adopt household photovoltaics. This combination will further stimulate the robust development of local PV energy storage demand,” Liu added.



TEAM PV+ JOURNAL VISITS **INTERSOLAR**

THE HIGHLIGHTS

From 19th to 21st June 2024, Intersolar Europe took place at Messe München. As of its opening day, the show saw 110,000 visitors rush through its doors to meet with 3,008 exhibitors from 55 countries. Alongside sprawling exhibitor space of over 19 halls, the show also featured a comprehensive conference programme. The Intersolar Europe Conference 2024 took place on 18th – 19th June, while both the Intersolar Forum and PV Manufacturing Stage held announcements and educational talks.

Topics discussed included the rise of agricultural PV, the future of European PV production, market developments, the latest trends, and useful business models, floating PV, sustainability and financing. Outside the stages, exhibitors had products to demonstrate both tried-and-true and new, with many making announcements throughout the show – highlights of which Xtra has curated.



SOARING PRICES

At the Intersolar Europe Conference, ahead of the show's opening, CEO of German supplier Memodo Daniel Schmitt warned that “crazy” pricing within the PV industry will likely continue.

According to Schmitt, the European sector had “the biggest subsidy ever in the PV

industry” due to the spike in energy prices following the outbreak of war in Ukraine. Now, warehouses full of unsold merchandise (due to a manufactured rush to meet vastly overestimated demand) are contributing to a steep decline in price that the industry needs to be aware of.

LEGISLATION

As the EU's Net Zero Industry Act (NZIA) comes into effect later in 2024, concerns were raised about maintaining effective legislation without unnecessary bureaucracy. Intersolar Europe hosted a panel discussing the NZIA, Implementing the Net Zero Industry Act, views from Member States and the European Commission, which discussed the EU's drive to encourage solar manufacturing within Europe.

Panellist Dr Beate Baron, German Federal Ministry for Economic Affairs and Climate Action (BWMK) deputy director general, said: "If we determine criteria, it's quite clear that we will develop them further ... and make it a long-term process.

"[The goal is] to make it a roadmap and to make it clear to other markets watching us that this is a long-term perspective we're following."

LONGI'S SUSTAINABILITY REPORT

At the show, solar technology company LONGi launched its 2023 Sustainability Summary Report. Additionally, the company announced their first Human Rights Policy. The Policy is guided by the three values LONGi follows: "Reliability, Value-add, and Fulfilment".

"Our ethos is to ensure that our corporate growth is synergistic with the broader goals of societal advancement, embodying a commitment to progress that is both environmentally conscious and socially beneficial." Zhang Haimeng, VP and Chief Sustainability Officer for LONGi explained.

CERTIFICATIONS

REPT Battero, a Chinese battery manufacturer, revealed new products at Intersolar Europe: its 320Ah, 345Ah, and 587Ah Wending Cells. According to

the manufacturer, the technology uses a hexagonal structure to increase space utilisation by more than 7% while improving the battery's safety and efficiency.

On Intersolar's first exhibition day Mario Comboni, Regional Manager of Power Electronics for West Europe at TÜV Rheinland Group, presented REPT Battero with a TÜV Rheinland product certification. The manufacturer hopes this achievement will reinforce trust in the product's reliability and quality.

HAPPY ACCIDENTS

Tekna Solar laid roots in the exhibitor space to showcase their tandem module PrismaX, which has a tunnel oxide passivated contact (TOPCon) layer alongside an organic PV layer. These layers are laminated onto a glass-front sheet, creating a 29% efficiency rate and a max residential power output of 1,000W. Tekna's invention was unexpected, as the design was conceived by accidentally double-laminating a module. On testing, they found that the new module's power output was improved. Thus, a new product was born.

BATTERIES

At the show, PV inverters and energy storage systems provider Sungrow revealed its new EMS3000 system and iSolarBPS battery pre-diagnostic system.

The products aim to improve the safety and efficiency of projects by adapting to power plant scenarios, providing real-time health diagnostics for battery cells, providing repair suggestions, and more.

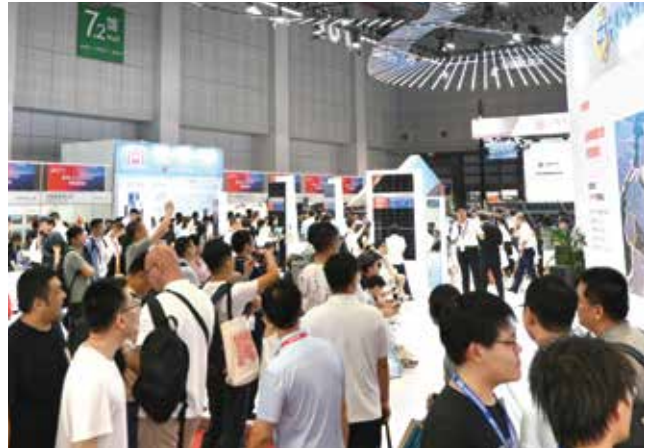
SNEC 2024 WRAP UP



The 17th International Solar Photovoltaic Power Generation and Smart Energy Exhibition, known as SNEC PV+, was held at the National Exhibition and Convention Center in Shanghai from June 13 to 15, highlighting the rapid integration of wind, solar, hydrogen, and energy storage (WSHES) technologies.

Spanning an impressive 380,000 square meters, this global event featured speeches from Guan Weiyong, president of the Shanghai Federation of Industrial Economics, and Pei Qi, executive vice president of the federation. It attracted over 3,600 exhibitors from 95 countries. Guan underscored the importance of collaboration in advancing the renewable energy sector, stating, "This exhibition provides a vital platform for fostering full-chain cooperation, promoting technological exchanges, and driving the high-quality development of the renewable energy industry."

Technological innovation and cost efficiency were key themes at SNEC 2024. TCL Photovoltaic Technology showcased its innovative residential and commercial energy storage solutions, combining traditional aesthetics with modern functionality. Their offerings included overseas smart home



energy solutions, comprehensive lifecycle operation and maintenance services, and AI interactive experiences. TCL's commercial energy storage solutions have gained significant traction recently, with over 130 projects signed by April 2024, involving nearly 1.2GW.

At the event, Jiangsu Linyang Energy highlighted advanced storage solutions as crucial for balancing the intermittency of renewable energy sources. Zeng Fanpeng, chief engineer of Linyang Energy, emphasized the importance of comprehensive integration of wind, solar, hydrogen, and energy storage technologies to create a sustainable energy sector.

The exhibition also spotlighted the global expansion strategies of Chinese renewable energy companies, particularly in regions such as the Middle East, Africa, and Europe. Ouyang Hu, founder of a Hangzhou-based renewable energy company, emphasized the vast market potential in the Middle East and the significance of technological advancements in seizing new opportunities. After conducting market research in Africa and Saudi Arabia in April, Ouyang identified Saudi Arabia as a key market, noting that "the potential is immense."

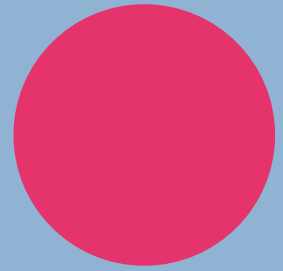
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I FEEL THAT THERE IS A LACK OF
SERIOUSNESS
PERHAPS WORLD LEADERS DO NOT
REALIZE THE URGENCY
OF THE SITUATION.
WE HAVE A LOT OF IDEAS, BUT

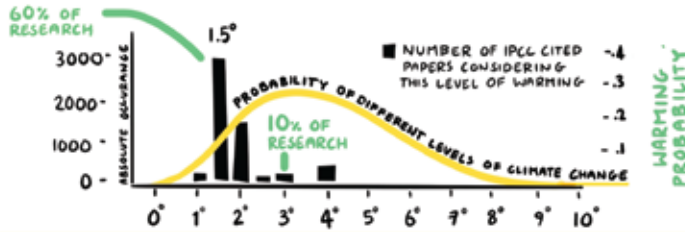
AS SOMEONE SAID,
IDEAS WITHOUT FUNDING IS
MERE HALLUCINATION,

- IMRAN KHAN



CLIMATE CHANGE

ARE WE BETTING ON THE BEST CASE



THERE IS A 60% PROBABILITY CLIMATE CHANGE WILL EXCEED 3°C OF WARMING AND A 10% PROBABILITY IT WILL EXCEED 6°C.

YET 60% OF RESEARCH CITED BY THE IPCC CONSIDERS WARMING OF 1.5°C OR LESS, WHILE ONLY 10% CONSIDERS 3°C - AND NONE OF THIS RESEARCH USES COMPLEX RISK ANALYSIS

WHAT ARE THE WORST CASES?

RISKS FROM CLIMATE CHANGE INCLUDE



THE MORE THE CLIMATE CHANGES THE WORSE THESE BECOME.

EVEN IF HOTTER TEMPERATURES AND RISING SEAS ONLY DIRECTLY KILLED MILLIONS, NOT BILLIONS, THESE INDIRECT AND CASCADING IMPACTS COULD KILL MANY MORE AND CONTRIBUTE TO REINFORCING FEEDBACK LOOPS LIKE THE ONE OPPOSITE.

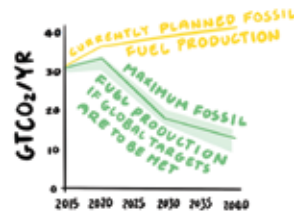


SOME PEOPLE THINK WE COULD USE CLIMATE ENGINEERING TO REDUCE THESE IMPACTS. HOWEVER, THIS IS ALSO RISKY, INVOLVING:



HOW CAN WE LOWER THE RISK FROM CLIMATE CHANGE?

A SYSTEMIC APPROACH TO REDUCING CLIMATE CHANGE REQUIRES COORDINATED ACTION BY POLITICIANS (LAWS AND REGULATIONS), COMPANIES (PRODUCTS, SERVICES, AND INVESTMENTS), INTERNATIONAL BODIES (TO COORDINATE ACTION AND MAKE IT FAIR) AND INDIVIDUALS (AS AGENTS OF ACCOUNTABILITY AND CHANGE). GSR IDENTIFIES KEY LEVERAGE POINTS FOR INFLUENCING ALL THESE GROUPS, FROM LARGE ASSET OWNERS TO PROTEST MOVEMENTS



WE HAVE TO STOP EXTRACTING AND BURNING FOSSIL FUELS, YET A MODEST NUMBER OF COUNTRIES AND COMPANIES ACCOUNT FOR MOST EMISSIONS. WE MUST HALT EXPLORING FOR NEW FOSSIL FUEL RESOURCES AND BUILD NO NEW HIGH-EMISSIONS INFRASTRUCTURE THAT COULD LOCK IN EMISSIONS FOR DECADES.

HOW CAN WE ADAPT TO EXTREME CLIMATE CHANGE TO REDUCE VULNERABILITIES AND EXPOSURES? EMPOWERING NATURE CONSERVATORS AND REGENERATORS (ESPECIALLY INDIGENOUS COMMUNITIES), REDUCING INEQUALITY, PROMOTING RESILIENT AND DIVERSE FOOD SOURCES, RESOLVING CONFLICTS AND GEOPOLITICAL TENSIONS, AND MAKING GLOBAL MIGRATION EASIER AND FAIRER COULD ALL LIMIT CLIMATE CHANGE'S CATASTROPHIC POTENTIAL.

INTERSOLAR 2024: LONGI ANNOUNCES A NEW WORLD RECORD!



LONGi Green Energy Technology Co., Ltd. (LONGi), a global leader in solar technology, officially announced a new world record efficiency of 30.1% for its commercial M6-size wafer-level silicon-perovskite tandem solar cells on June 19, 2024, at the InterSolar Europe in Munich, Germany. This record, independently certified by the Fraunhofer Institute for Solar Energy (Fraunhofer ISE) in Germany, signifies a significant leap in photovoltaic conversion efficiencies.

This achievement follows closely on the heels of LONGi's recent world record of 34.6% tandem solar cell efficiency announced at the 2024 SNEC EXPO in Shanghai, surpassing the previous record of 28.6% for M4 commercial size wafers set in May 2023.

At the launch ceremony, Dr. He Bo, R&D Director of LONGi Central R&D Institute, highlighted that this new efficiency record represents not only a technological advancement but also a milestone in the commercial viability of silicon-perovskite tandem cells. He noted that the R&D team began focusing on mass production technology for tandem solar cells in October 2023, overcoming challenges related to large-area perovskite film preparation and

ultra-low-temperature metallization in just six months.

Achieving over 30% efficiency for the first time on commercial-sized silicon-perovskite tandem solar cell devices showcases a significant improvement over LONGi's previous record of 27.3%, boosting confidence and expectations within the global photovoltaic industry. With a theoretical efficiency limit of 43%, monocrystalline silicon-perovskite tandem solar cells are poised to become the next generation of ultra-high efficiency solar cells.

LONGi's dual-record achievements redefine the efficiency limits of two-terminal tandem cells and mark a critical step towards the industrialization of tandem solar cells.

LONGi's Central R&D Institute, with a robust team of over 5,000 researchers, continues to lead advancements in both monocrystalline silicon single-junction and tandem solar cells. Since its listing in 2012, LONGi has invested over 30 billion yuan in R&D, securing 2,879 authorized patents, underscoring its commitment to technological innovation and leadership in the photovoltaic industry.



MAXIMIZING THE PERFORMANCE OF YOUR SOLAR PV SYSTEM BY ENGR. FAIZ BHUTTA

Sr. Solar PV consultant- Trainer and Speaker

Many solar PV systems are working in Pakistan varying from 500W to 100 MWp and some are off-grid, some are hybrid, and some are On-grid solar PV systems for domestic. Commercial, industrial and IPP applications. Some are net metered On-grid solar PV systems. Every user wants to know how to maximize the performance of the Solar PV systems.

Every solar off-grid system has its components like Solar PV modules, Off-grid Inviter with built-in charger (some off-grid systems have separate solar charger and Inverter), Batteries, mounting structure, Protection, and safety system (Discontents, Surge arrestors, Lighting arrestors, earthing), wiring and cabling and monitoring and

control system. Quantity of each solar off-grid system depends upon the design of the solar off-grid system as per customer's demand.

Every Net metered solar PV system varies from 1 KW to 1 MW as per NEPRA SRO-892/2015 and such systems have components like Solar PV modules, On-grid Inverters, Dataloggers, Weather station, Mounting structure, Protection, and safety System (Discontents, Surge arrestors, Lighting arrestors, earthing), Monitoring, Control system, cables, wiring and for large solar PV plants of more than 1 MW for captive or IPP use need licensing from NEPRA, and such systems have some additional permits like EIA, Load Flow Study in addition to system components.

The first thing is any solar PV system is solar source which is Solar PV modules. The factors affecting its performance are tilt angle, temperature, Irradiance, dust, dirt, and debris. As temperature increases the output power of PV module decreases. Decrease of ambient temperature is not in the hands of user, so sites having less temperature perform better and temperature coefficient of PV modules talks about PV modules degradation with temperature.

The second factor is irradiance and with the increase of irradiance, the output power of the PV modules increases. Increase of irradiance is dependent on the tilt angle and azimuth angle and optimum angle should be equal to latitude of that location and optimum azimuth should be zero for Northern is zero and azimuth for Southern hemisphere is 180. With tilt angle equal to latitude, the irradiance at the PV module plane can be increased because of transposition factor on titled plane.

Third factor is dust, dirt and debris and user has full control on this factor and regular cleaning can maximize the performance of the PV modules. For best performance of Solar PV modules, Solar PV modules tested and certified as per IEC 61215:2021 and IEC 61730:2021 by TUV and PVEL Labs or any accredited lab as per IEC 17205 having Tier-1 status should be used.

The second component is the Inverter which is the heart of any solar PV system. The factors affecting the performance of the solar PV systems are the temperature, efficiency of the PV inverter, Total Harmonic Distortion (THD) percentage, Power factor compensation, AFCI (Arc fault circuit Interrupter) etc. The performance can be maximized by using the high efficiency inverter to the tune of 99%, THD less than 2% and having built-in feature of AFCI.

The third factor maximizing the performance of the Solar PV system is putting the rightly

designed cables having loss of less than 5% of the total power. The cables include DC PV, DC, and AC cables. DC PV (Cables for photovoltaic Applications) cables are the outdoor cable from PV Modules to Inverters and these cables must be certified and tested as per IEC standard 62930:2017.

This standard tells that the Cable must be single core, double insulated and must stand at maximum 120 degree C tested at 1500 V and its insulation must be XLPO/XLPE. By using this kind cable, the performance of the solar PV system can be maximized. DC cable is the indoor cable from Inverter to battery which can be flexible cable withstanding 70 Degree C tested at 750 V and insulation can be PVC. The four core AC cable is standard cable should be designed as per current, Voltage and Temperature values.

The fourth factor is the regular maintenance of the Solar PV system which includes regular cleaning of PV modules, Regular cleaning of the Inverter, regular checking of each component's function and behavior.

The last and final factor affecting the performance of solar PV system is the right design and engineering of Solar PV system as per recommended procedures for design of the Solar PV system. 3R strategy (Right Design, Right Installation and Right use) can ensure the maximized performance of the Solar PV system.

Dialogue.

In this edition, we feature Mr. Rana Abbas, a top name in the industry, discussing renewable energy.





INTERVIEW WITH RANA ABBAS

CEO - AE Power

Do you have any new products that you're showcasing at PSW Islamabad?

Absolutely. While we initially offered P-type panels, over the past year, we've transitioned to N-type panels in Pakistan. Now, we're thrilled to introduce HJT (Heterojunction Technology) panels, manufactured by Huasun, the world leader in this technology. Bringing these advanced panels to Pakistan represents a significant milestone for us. In addition, we're showcasing AE Power solar inverters, which complement our solar panel offerings perfectly. These inverters are designed to maximize the efficiency

and performance of solar power systems, ensuring our customers get the most out of their investments.

We are also proud to offer a 10-year warranty on all these products, demonstrating our commitment to quality and customer satisfaction. This warranty ensures that our customers can have peace of mind, knowing that their solar power systems are protected and supported by us for a significant period. These developments highlight our dedication to providing cutting-edge renewable energy solutions and our ongoing efforts to lead the solar industry in Pakistan.

Being in the solar industry, what prospects do you see for the country?

The prospects for the solar industry in our country are incredibly promising and continue to grow each day. Just a few years ago, the demand for solar energy was relatively modest, but today we are witnessing a significant surge in interest from end users across various sectors. This heightened interest is reflected in the increasing number of new projects we are installing daily, underscoring the widespread adoption and acceptance of solar energy as a viable and preferred energy solution.

Now is the best time to invest in solar power. The prices of solar panels and associated technologies have dropped significantly, making it a highly attractive and worthwhile investment. This decrease in cost, combined with the rising electricity rates set by entities like NEPRA, makes solar energy an excellent alternative. By switching to solar, consumers can take control of their energy bills, reducing their dependence on traditional power sources and the financial unpredictability associated with fluctuating energy prices. Solar energy, harnessed directly from the sun, is not only the most cost-effective energy source available but also the most sustainable. It provides a renewable, clean power solution that does not deplete natural resources or harm the environment. By investing in solar energy, individuals and businesses alike can contribute to a greener, more sustainable future, reducing carbon footprints and promoting environmental stewardship.

Moreover, the growth of the solar industry can stimulate economic development by creating jobs in manufacturing, installation, and maintenance of solar systems. This can lead to increased local employment opportunities and foster economic resilience. Solar energy also enhances energy security, reducing the country's reliance on imported fuels and making it more self-reliant.

Is there anything else you'd like to add?

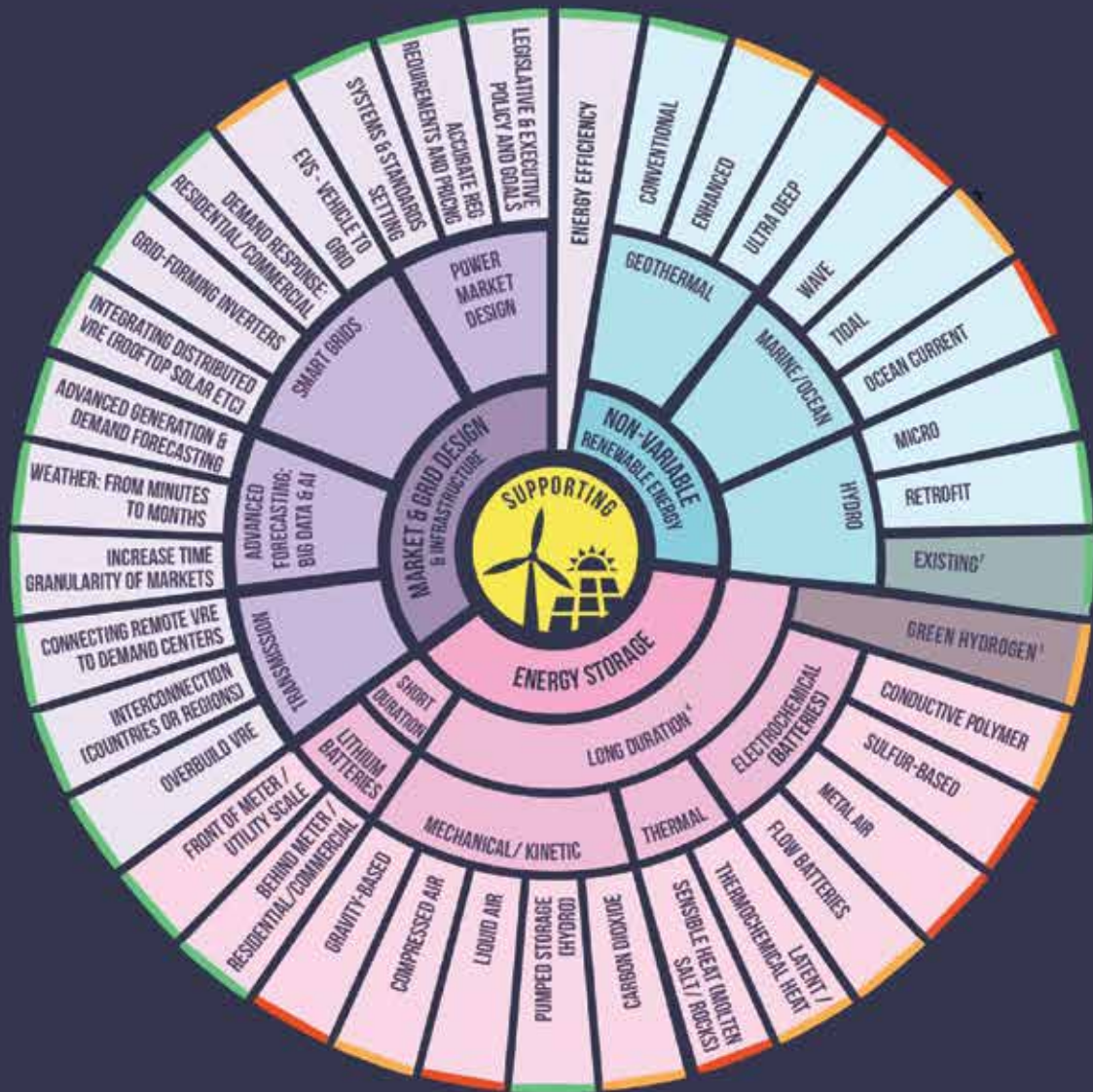
Rather than focusing solely on my own company, I want to emphasize the broader solar energy industry and its immense potential. A crucial policy currently in place from the State Bank offers a 6% loan specifically for solar investments. This policy is set to expire in June, and I strongly urge its renewal. This loan has been instrumental in making solar energy projects more financially accessible, and extending it would continue to encourage both individual and corporate investments in solar power, thereby accelerating our transition to renewable energy.

In addition to renewing this policy, I advocate for providing interest-free loans to individuals on lower pay scales. This approach would be especially beneficial given the rising electricity costs, which disproportionately affect lower-income households. By making solar energy systems more affordable through interest-free loans, we can help mitigate the financial burden on these households while simultaneously promoting the adoption of clean energy.

NEPRA should consider introducing a rule that allows the free distribution of excess units generated from net metering. Currently, individuals who generate surplus solar energy can only sell it back to the grid. Allowing them to donate this surplus energy to community organizations such as schools, mosques, and other non-profits would create a more sustainable and supportive energy ecosystem. This initiative would not only foster a sense of community but also ensure that renewable energy benefits are more widely distributed, particularly to those who might not otherwise have access to them.

Achieving Fossil-Free Electricity¹

Policies, Tools and Technologies for Supporting Wind and Solar



Footnotes:

1. Infographic shows the many choices available for supporting wind & solar to achieve reliable, dispatchable fossil-free energy. There is no one silver bullet. Not all are necessary, although most Market & Grid Design reforms are. List is not exhaustive.
2. No new large hydropower dams should be built. Existing projects should be operated in a way that minimizes impact on vulnerable communities.
3. Converting electricity to hydrogen and back again is inherently inefficient but may make sense in some contexts. Hydrogen should be manufactured, stored, and converted back to electricity, all at the same location, in order to limit inefficiencies and leakage risks.
4. Long Duration storage is mostly not needed until over 50% VRE penetration.

GLOBAL EVENTS



Solar Pakistan
Date: 26 - 28 July, 2024
Venue: The Arena DHA, Multan



Solar PV & Energy Storage
World Expo
Date: 8 - 10 August, 2024
Venue: Guangzhou China



Intersolar South America
Date: 27 - 29 August, 2024
Venue: Expo Center Norte,
Sao Paulo



RE+
Date: 9 - 12 September, 2024
Venue: ANAHEIM, CA



PSW
Date: 26 - 28 September, 2024
Venue: Karachi Expo Centre



WETEX & DSS
Date: 1 - 3 October, 2024
Venue: Dubai World Trade
Centre (DWTC)



WFES
Date: 14 - 16 January 2025
Venue: ADNEC, Abu Dhabi



PSW
Date: 21 - 23 February 2025
Venue: Lahore Expo Centre

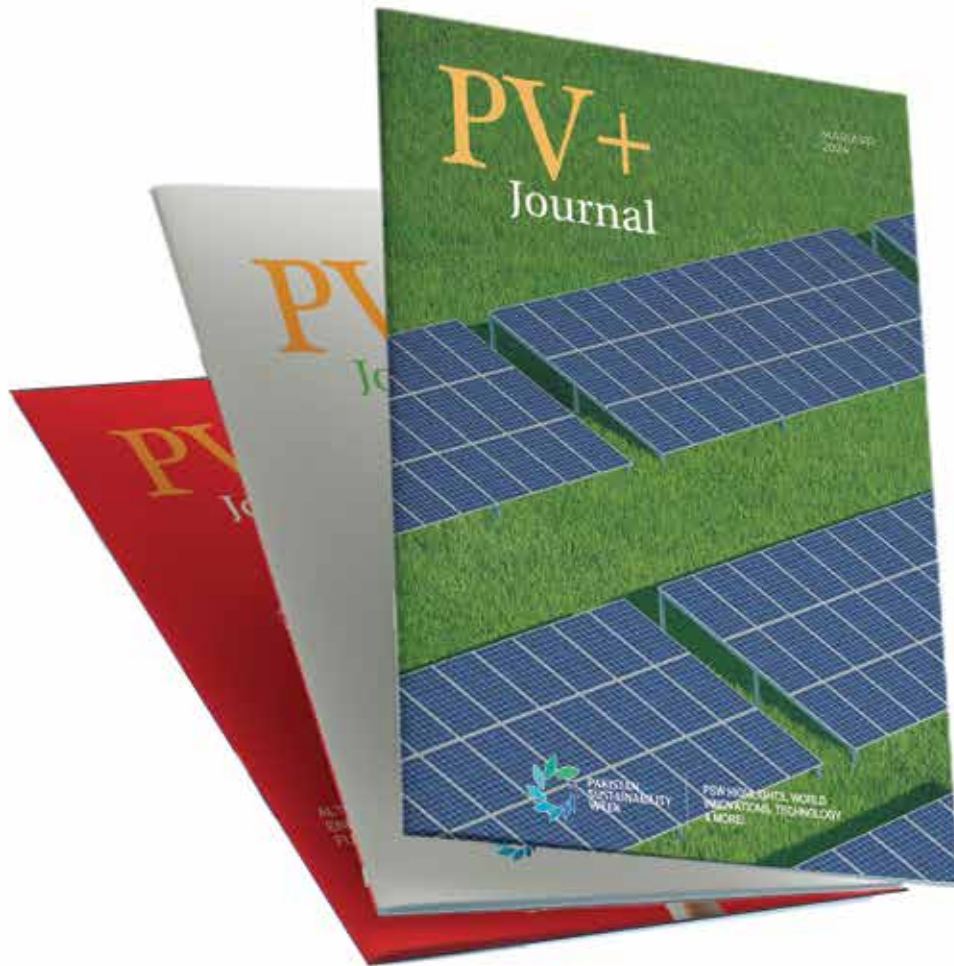


Intersolar Europe Exhibition
Date: 7 - 9 May, 2025
Venue: Messe, München



ASEAN Sustainable Energy
Week
Date: 2 - 4 July, 2025
Venue: Bangkok, Thailand

Global Events



THE COMPLETE JOURNAL ON ALTERNATE ENERGY

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SUSTAINABILITY
WEEK**

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