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The voice of engineers

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CDWP Approves Rs24.38bn Development Projects, Clears Sindh Air Quality Initiative

The Central Development Working Party (CDWP) has approved seven development projects worth Rs24.385 billion, including the World Bank-funded Sindh Health Support Programme, during a meeting chaired by Federal Minister for Planning, Development and Special Initiatives Ahsan Iqbal.

The forum reviewed a range of initiatives under the URAAN Pakistan programme aimed at strengthening key sectors of the economy and accelerating reform efforts.

Among the projects, the environment sector scheme titled "Air Quality Monitoring Network for Air Quality Management Improvement in Sindh," costing Rs1,418.4 million, was conditionally approved with directions to coordinate with the Economic Affairs Division for required funding.

Experts note that air quality across Sindh remains a growing concern, particularly in urban centers like Karachi, where particulate pollution levels frequently exceed safe limits. Other cities including Hyderabad and Sukkur also face persistent air pollution due to vehicular emissions, industrial activity, construction dust, and seasonal crop burning. Limited monitoring infrastructure and lack of comprehensive data have further constrained effective policy response, making the newly approved air quality monitoring network a critical step toward evidence-based environmental management in the province.

The CDWP also approved a governance sector project titled "Strengthening of Counter Terrorism

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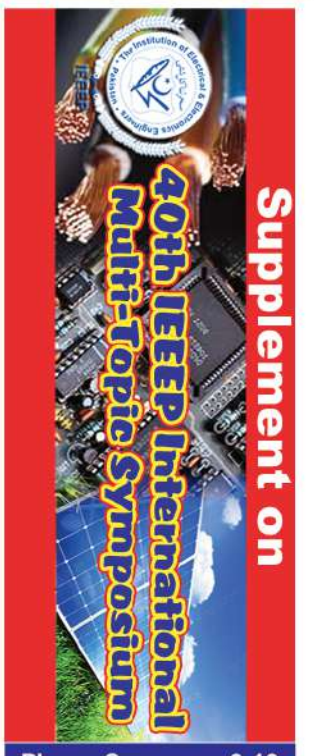

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CDWP Approves Rs24.38bn Development Projects, Clears Sindh Air Quality Initiative

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Department (CTD) in Azad Jammu & Kashmir (AJK)" at a cost of Rs1,981.65 million, subject to rationalization of ammunition costs.

In the education sector, the forum approved the revised project "Establishment of Daanish School in ICT Kuri" worth Rs6,996.586 million, strictly limited to the girls' hostel component as per the Prime Minister's directives. During the review, Ahsan Iqbal emphasized fiscal discipline, directing that no additional cost beyond the approved component would be allowed. He also instructed the Ministry of Education to coordinate with the Ministry of Finance to prepare a comprehensive five-year financial and operational plan.

Referring to the experience of Daanish Schools in Punjab, officials noted that the model has played a significant role in providing quality education to underprivileged students, particularly in remote and underserved areas. The schools have contributed to improved educational outcomes, though concerns over high operational costs and long-term financial sustainability continue to be debated in policy circles.

Another education project, "Establishment of Daanish School at Sindh (Tandoo Muhammad Khan)" worth Rs3,693.836 million, was approved with directions to rationalize costs in line with existing Daanish School frameworks to ensure consistency.

In the health sector, the CDWP approved the revised "Sindh Health Support Programme" costing Rs2,266.997 million. The project will be largely financed by the World Bank with a contribution of Rs2,100.539 million, while the Government of Sindh will provide Rs166.458 million.

Additionally, two projects in the physical planning and housing sector were approved, including the construction of a Federal Tribunals and Courts Complex in Hayatabad, Peshawar, costing Rs628.816 million, and a Model Prison in H-16, Islamabad, estimated at Rs7,399.120 million.

The meeting concluded with an emphasis on fiscal discipline, improved coordination, and timely implementation to ensure that development initiatives effectively contribute to sustainable economic growth. – ER Report

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Supplement on

40th IEEEP Symposium Opens in Karachi with Focus on Industry, Innovation and Reflection

The 40th edition of the annual symposium organized by the Institution of Electrical and Electronics Engineers Pakistan is set to begin in Karachi, bringing together engineers, academics, and industry professionals for two days of discussions, technical presentations, and policy dialogue.

The event features a comprehensive agenda, starting with an inaugural session that includes a keynote address by Prof. Dr. Niaz Ahmad Akhtar, followed by remarks from IEEEP President Engr. Tahir Basharat Cheema and Chief Guest Engr. Hamad Ali Mansoor.

Five technical sessions are scheduled, covering key areas such as energy markets and sustainability, industrial solutions and innovations, digital transformation, and emerging technologies. A dedicated session will also showcase award-winning final year student projects, highlighting innovation among young engineers.

A panel discussion on "Is Engineering Education in Pakistan Aligned with Reality?" is expected to be one of the highlights of the symposium. Moderated by Engr. Khalid Pervez, the panel includes prominent figures from academia and industry such as Engr. Kamran Arshad, Prof. Dr. Vali Uddin, Prof. Dr. Shehnila Zardari, Tahir Mahmood Chaudhry, and Engr. Arshad Sabri.

Over the past four decades, IEEEP symposiums have served as an important platform for knowledge exchange and policy input. Senior members recall that in earlier years, discussions held during these forums often translated into strong policy recommendations that influenced government decision-making.

Veteran engineers including G.R. Bhatti and Dr. Munawar Baseer played key roles in shaping impactful discourse. According to former IEEEP Karachi President Engr. Irfan Ahmed, even during the tenure of Pervez

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Emerging Green Solutions stands as a leading force in Pakistan's renewable energy sector

Pakistan is a fast-emerging market for renewable energy solutions such as solar, says Engr. Ahmed Godil, a mechanical engineer from Nottingham University. He is the Director of Emerging Green Solutions, a Karachi-based company offering green energy solutions to industry and commercial entities. He not only sees a paradigm shift in Pakistan's power generation sector but also explains how these changes can help raise exports. Here is the viewpoint he shared with Engineering Review.

Karachi: Emerging Green Solutions (EGS) stands as a leading force in Pakistan's renewable energy sector, providing internationally acclaimed power generation and industrial solutions.

EGS founders and their senior management have over 30 years of expertise in renewable sustainability. EGS operates with a core philosophy of creating a "Green world for everyone." Through this commitment, we empower individuals and businesses by delivering cutting-edge renewable solutions from global leaders in the power generation and industrial sectors.

Engr. Ahmad Godil of Emerging Green Solutions highlights the solar boom, energy storage innovations, and how renewables can lower costs and boost exports.

Pakistan has long relied on fossil fuels such as coal and natural gas for power generation. However, the scenario is changing as the country gradually transitions toward renewable solutions. A noticeable boom is evident in solar adaptation within the industry, alongside a growing shift toward wind energy.

Overall, Pakistan is increasingly focusing on solar power, which is both free and sustainable, and is emerging as the preferred source of electricity.

Approach Towards Renewables

There is a clear shift in approach toward solar energy. In the industrial sector, electricity generated from fossil fuels accounts for a significant portion of production costs. With the reduction of solar power, these costs are reduced, thereby lowering the overall cost of products and making them more competitive in the market. This gives exporters a distinct advantage in international trade. The payback period of a solar plant is around one and a half years; after that, the plant generates free electricity. We are providing sustainable solutions that directly reduce production costs in industry.

Sustainability and the Environment

Technology has advanced significantly. Today, solar panels come with warranties of around 30 years, while inverters typically carry a 10-year warranty. Once the payback period is over, the system can continue generating power for decades, underscoring its sustainability and long-term value.

Storage Systems

The industry is also moving toward battery-based storage systems. Gas shortages have severely impacted industrial operations, particularly critical loads, leading to significant losses. To address this, battery-based storage systems are now being deployed. The per-unit cost of stored energy is lower, making it a practical and affordable solution for industry.

Era of Advanced Systems

Storage systems are becoming central to industrial energy management. The electricity stored in batteries can be used during non-solar hours or in the event of power breakdowns, ensuring uninterrupted supply.

Batteries and Storage Capacity

The duration of battery supply depends on the type of batteries used. Currently, most widely used battery storage systems discharge at 0.5C or 1C. However, we are developing an advanced solution capable of discharging at 2C. This means that if you install a 1 MWh battery pack, it could potentially discharge up to 2 MW. After completing the testing phase, we will launch this solution across commercial, industrial, and residential segments. (MS)

Energy Audit & Utilities Management

A Smart Approach to Sustainable Operations

In today's competitive industrial landscape, rising energy costs and stricter compliance requirements are pushing organizations to re-think how they use and manage energy. Energy audit and energy management have become essential tools for industries looking to improve efficiency, reduce operational costs, and meet national and international standards.

An energy audit is a systematic inspection, analysis, and evaluation of energy flows within a facility. The goal is to identify areas of energy waste and recommend practical measures to improve efficiency without compromising productivity.

Energy audit and energy management are no longer optional. They are strategic necessities for industries aiming to stay competitive, compliant, and sustainable. By understanding energy usage and managing it effectively, organizations can achieve measurable cost savings and long-term operational excellence.

Enerzone Engineering Services (EES) is an 'Engineering Consultancy Firm', registered with the Pakistan Engineering Council (PEC) and National Energy Efficiency & Conservation Authority (NEECA) providing comprehensive engineering solutions, including Energy Audits, Feasibility Studies, Captive Power Co-generation Plants, Solar Energy PV Systems, Boiler House Engineering, RO Desalination Plants, HVAC, Compressed Air, and Firefighting Systems.

Capt. (R) Mohammad Tahir Choudhry, TI (M), PN
the founder member and Chief Executive at Enerzone Engineering Services, being Chartered Engineer, U.K. has been extensively involved in Marine design and surveys, Third party validation, Pre-shipment inspections, Feasibility Studies, Tendering and , Contract Managementent with an engineering excellence.

Engr. Muhammad Akbar
the founder member and Director at Enerzone Engineering Services, being lead auditor has been extensively involved in project planning, conceptual design development, design reviews, feasibility studies, tendering, technical evaluations, top supervision, and project management, with a strong focus on the textile sector.

Engineering Excellence from Generation to Co-Generation – Since 2008

16+ Years of Experience
Enerzone Engineering Services is a multidisciplinary consultancy firm with over 25 years of combined experience in project planning, design, and execution of utilities and infrastructure for textile, food, pharmaceutical, and process industries.

Alternate Energy Holds Promise Despite Policy and Infrastructure Hurdles

We also invest heavily in training, international certifications, and the use of Tier-1 equipment. Our approach is not just installation, but delivering long-term performance and reliability for our clients: Engr. Kamran Taufiq

Engr. Kamran Taufiq, Chief Executive Officer, Ecopath Energies (Pvt.) Ltd., is a seasoned engineering professional with over 25 years of extensive experience in both technical and managerial roles across multiple public and private sector organizations.

He holds a Master's degree in Computer Engineering, with specialization in Artificial Intelligence, from the Military College of Signals, National University of Sciences & Technology (NUST), obtained in 1997, and a Bachelor's degree in Electrical Engineering from NED University of Engineering & Technology, completed in 1995.

Throughout his career, he has held several key engineering and leadership positions, contributing significantly to organizational development, technology management, and strategic planning. Leveraging his strong academic foundation and diverse professional experience, he currently serves as the Chief Executive Officer of a reputable organization in the alternative energy sector and is actively promoting sustainable energy solutions and driving organizational growth. Here are his views on alternate energy sector and issues surrounding it.

ER: What are the biggest challenges currently facing Pakistan's alternate energy sector?

KT: The alternate energy sector in Pakistan has immense potential, but it faces several structural challenges. Firstly, policy inconsistency and regulatory uncertainty often slow down investor confidence. Secondly, the grid infrastructure is not yet fully equipped to handle distributed renewable energy at scale, especially with increasing solar penetration. Thirdly, access to affordable financing remains a barrier for both consumers and developers. Lastly, there is still a gap in technical awareness and standardization across the industry, which affects the quality and long-term sustainability of projects.

ER: How supportive are regulatory bodies like AEDB and PPIB in accelerating renewable adoption?

KT: Regulatory bodies have played an important role in laying the foundation for renewable energy in Pakistan. Organizations like the Alternative Energy Development Board and Private Power & Infrastructure Board have introduced key frameworks and policies that enabled fast growth. However, there is still room for improvement in terms of the speed of approvals, policy clarity, and long-term consistency. Greater coordination between regulators, DISCOs, and private stakeholders will be critical to accelerate adoption further.

ER: What role do you see electric vehicle infrastructure playing in Pakistan's future?

KT: Electric vehicle infrastructure will be a game-changer for Pakistan. With rising fuel costs and environmental concerns, EV adoption is inevitable. However, the success of EVs depends heavily on the availability of reliable and widespread charging infrastructure. In the future, we see EV charging stations integrated with renewable energy systems, especially solar, which will not only reduce carbon emissions but also ease pressure on the national grid. It's an area with significant growth potential.

ER: How do you assess the current net-metering policy in Pakistan?

KT: Net-metering has been one of the most successful policies in promoting solar adoption in Pakistan. It has empowered consumers to become energy producers, which is a major shift. However, recent discussions around tariff revisions and caps have created some uncertainty in the market.

Going forward, a balanced approach is needed—one that protects the grid while continuing to incentivize clean energy investments. Stability and consistency in the policy are key to sustainable growth.

ER: Are you satisfied with the quality of the young engineers, and what are your suggestions for improvement in Industry-Academia linkage?

KT: Pakistan has a talented pool of young engineers with strong theoretical knowledge. However, there is often a gap when it comes to practical, industry-relevant skills. To bridge this gap, we need stronger collaboration between academia and industry—through internships, joint research projects, and updated curricula aligned with emerging technologies like energy storage, EV systems, and smart grids. Hands-on exposure is essential to prepare engineers for real-world challenges.

ER: Ecopath offers a wide range of services, from solar to EV charging—how do you ensure quality across such diverse solutions?

KT: At Ecopath, quality is driven by systems and specialization. We have dedicated teams for each solar and wind energy solution, EV infrastructure, and smart homes, all supported by standardized processes and strict quality control protocols. We also invest heavily in training, international certifications, and the use of Tier-1 equipment. Our approach is not just installation, but delivering long-

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PEL

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2026

Pakistan Cables Supported TEAM Envision Wins Spirit of Shell Award

Pakistan Cables proudly sponsored Team Envision from NUST PNEC at the Shell Eco-marathon 2026 by providing wires and cables for the team's winning vehicle.

The Company congratulates Team Envision on their remarkable achievement of winning the Spirit of Shell Award, bringing pride to Pakistan on an international platform.

The achievement reinforces the importance of industry-academia collaboration in creating meaningful opportunities for students to apply their knowledge in globally recognized competitions.

Pakistan Cables remains committed to empowering young minds and supporting initiatives that celebrate excellence, innovation, and the future of engineering in Pakistan.

Founded in 1953, Pakistan Cables is the premier and most reputable manufacturer of wires and cables in Pakistan. As the first and oldest wires and cables manufacturer listed on the PSX since 1955, it has the largest geographical footprint in Pakistan, with a presence in over 200 cities and towns. It is also a member company of the Amir S. Chinoy group.

It is ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 certified, and various types of cables, tested by KEMA, Netherlands. The Company's science-based emission reduction targets are validated and approved by SBTi. It is also a signatory to the UN Global Compact and net-zero commitment. - PR

Jubilee Corporation: A Trusted Leader in Pakistan's Electrical Industry for Over 6 Decades

For over six decades, Jubilee Corporation (JC), private engineering organization, has been a leading player in the electrical industry of Pakistan. Established in 1962, JC has consistently upheld its mission of delivering high-quality, reliable, and cost-effective electrical products and solutions to its valued customers.

With a commitment to excellence and dedication to customer satisfaction, JC has established itself as a trusted supplier of electrical, electronics, and automation technology products throughout the country.

Jubilee Corporation offers products and services in the areas of Low Voltage Switchgear, Power Distribution, Automation, and Instrumentation and Control. The company also provides comprehensive solutions for Energy Management, Power Quality, Motion Division, External Lightning Protection, Surge Protection and Earthing, and Pneumatics.

Quality Products from World-Renowned Brands

One of Jubilee Corporation's core strengths lies in its partnerships with more than 35 world-renowned engineering brands. As an authorized distributor of these manufacturers, JC ensures access to top-tier technology and engineering innovation. These

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Haier

More Creation, More Possibilities

ECO Solution Intelligent Choice

Feel Free With Smartlink

MRV5 DC INVERTER

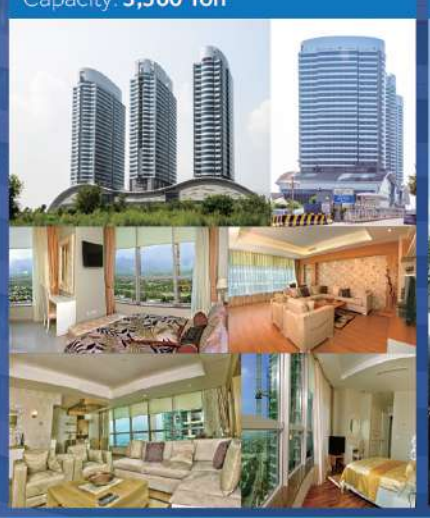
Labour Saving Without Complex Wire Connection

Smart Auto-network Establishment

Easy Troubleshoot & Maintenance

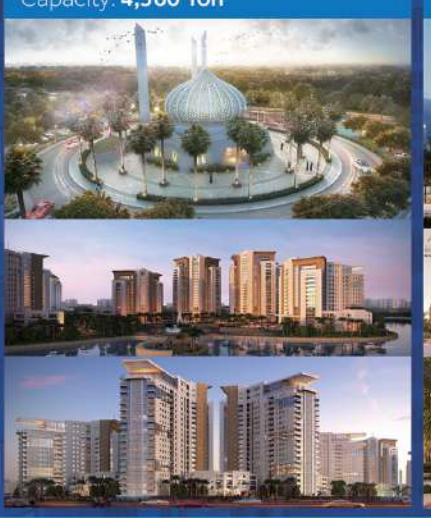
Project: **Emaar Giga**
Building Type: **Appartments Tower**
Location: **Karachi**
Capacity: **2,834 Ton**

Project: **Centaurus, Islamabad**
Building Type: **Appartments Tower**
Location: **Islamabad**
Capacity: **3,500 Ton**

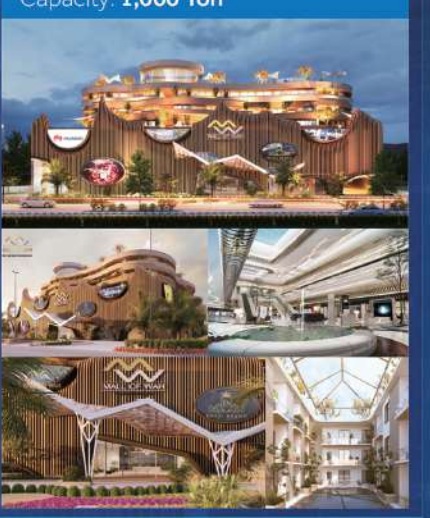


Project: **Bakht Tower**
Building Type: **Appartment Tower**
Location: **Karachi**
Capacity: **494 Ton**

Project: **Karakoram Greens**
Building Type: **Appartment**
Location: **Islamabad**
Capacity: **4,500 Ton**



Project: **Mall of Wah**
Building Type: **Mall**
Location: **Wah Cantt**
Capacity: **1,000 Ton**



Hashim Distributors Appointed as Channel Partner for Schneider Electric Low Voltage Solutions in Pakistan

Hashim Distributors Pvt. Ltd., a well-established name in Pakistan's electrical distribution sector and a leading partner of Pakistan Cables, has been officially appointed as a channel partner for Schneider Electric low-voltage (LV) switchgear.

This strategic development marks a significant step in strengthening the availability of high-quality, reliable, and energy-efficient electrical solutions across Pakistan's industrial and commercial sectors.

With a proven track record in delivering premium electrical products and solutions, Hashim Distributors Pvt. Ltd. has built strong relationships across key market segments, including textiles, manufacturing, infrastructure, and commercial developments.

The addition of Schneider Electric's comprehensive LV portfolio enables the company to offer integrated solutions spanning power distribution, protection, and control—aligned with international standards and evolving customer expectations.

A key highlight of this partnership is the strengthening of Hashim's technical and leadership capabilities with the onboarding of Syed Mehmood Ali as Head of Schneider Business.

Bringing extensive experience in electrical systems, technical marketing, and project development, he is expected to play a pivotal role in establishing Schneider Electric's LV business through structured market development, partner engagement, and solution-driven sales strategies. His leadership will focus on building strong connections with consultants, panel builders, OEMs, and end users, while ensuring alignment with global best practices.

Further reinforcing the team, the appointment of dedicated Sales Account Managers (SAMs) will enable focused coverage of key industrial clusters and projects. This structured approach is designed to enhance customer engagement, improve response times, and provide technical support at every stage—from design to execution—thereby creating a strong value proposition for clients.

Schneider Electric, a global leader in energy management and automation, offers an extensive range of LV switchgear solutions, including Air Circuit Breakers (ACBs), Molded Case Circuit Breakers (MCCBs), Miniature Circuit Breakers (MCBs), contactors, motor control solutions, and intelligent power distribution systems. These solutions are engineered to deliver superior performance, safety, and efficiency, supporting critical applications across diverse industries.

Through this partnership, customers in Pakistan will benefit from enhanced product availability, localized technical expertise, and improved after-sales support. Hashim Distributors Pvt. Ltd. strong distribution network and close engagement with panel builders and system integrators will facilitate the wider adoption of Schneider Electric solutions, contributing to improved quality standards in electrical panel manufacturing and project execution.

In addition to distribution, Hashim Distributors Pvt. Ltd.is committed to driving technical awareness and capability development within the industry. Planned initiatives include technical seminars, product trainings, and collaborative engagements with consultants and industry stakeholders. These efforts aim to promote safe design practices, compliance with international standards, and the adoption of energy-efficient technologies.

The collaboration also aligns with Pakistan's growing focus on sustainability and digital transformation in energy management. Schneider Electric's advanced digital solutions, including smart monitoring and IoT-enabled systems, will support industries in optimizing energy usage, enhancing operational efficiency, and reducing downtime.

In conclusion, the appointment of Hashim Distributors Pvt. Ltd. as a channel partner for Schneider Electric represents a forward-looking initiative to strengthen Pakistan's electrical infrastructure ecosystem. Backed by an experienced leadership team, dedicated sales structure, and a commitment to excellence, Hashim Distributors Pvt. Ltd. is well-positioned to deliver world-class LV solutions and contribute to a safer, smarter, and more efficient energy future for the country.■

Alternate Energy Holds Promise Despite Policy and Infrastructure Hurdles

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term performance and reliability for our clients.

ER: What innovative technologies or solutions is Ecopath currently working on?

KT: We are actively working on integrating solar with energy storage, CCTV, and smart home solutions to provide uninterrupted and optimized power. Additionally, we are developing smart energy management systems that allow clients to monitor and control their energy usage in real time. In the EV space, we are focusing on fast-charging solutions and solar-powered charging stations, which align with sustainable mobility goals.

ER: Can you share some landmark projects completed by Ecopath Energies?

KT: We have successfully delivered a range of projects across residential, commercial, and industrial sectors. Our landmark projects include large-scale commercial solar installations, energy optimization solutions for industries, and pilot EV charging setups. What sets these projects apart is not just their scale, but the efficiency gains and cost savings achieved for our clients.

ER: What has been your most challenging project so far, and how did your team overcome it?

KT: One of our most challenging projects involved a complex industrial installation where load patterns were highly variable, and space constraints were significant. The key challenge was designing a system that could maximize efficiency within those limitations. Our team overcame this through detailed engineering analysis, customized system design, and close coordination with the client. It was a great example of how technical expertise and teamwork can turn challenges into successful outcomes.

ER: How does Ecopath differentiate itself from competitors in the market?

KT: Ecopath differentiates itself through a combination of technical excellence, quality of products and workmanship, transparency, and long-term commitment to clients. We don't just sell systems—we provide complete energy solutions backed by strong after-sales support. Our focus is on delivering performance, not just installation. Additionally, our ability to integrate multiple technologies—solar, storage, and EV infrastructure—positions us as a comprehensive energy partner rather than just a service provider.■

PEC & Energy China Forge Strategic Alliance to Place Pakistani Engineers in Global Mega-Projects

A landmark agreement between the Pakistan Engineering Council (PEC) and China Energy International Group Company Limited – Pakistan Branch (CEEC) is set to open unprecedented global opportunities for Pakistani engineers. Signed at the Energy China Office in Islamabad, the Memorandum of Understanding (MoU) represents a major step in international engineering collaboration and workforce integration.

Under this MoU, PEC-registered engineers will be formally inducted into CEEC's mega infrastructure, power, renewable energy, hydropower, transmission, transport, and investment projects spanning Southeast Asia, the Middle East, Africa, and Europe. The initiative is expected to provide direct global employment pathways while fostering skill development and technology transfer for Pakistan's engineering workforce.

CEEC Managing Director Mr. Wang Hui Hua highlighted the company's extensive global presence, with 140,000 professionals operating in 147 countries. He reaffirmed CEEC's commitment to sourcing Pakistani engineers, collaborating with local contractors, and promoting corporate social responsibility through its investments in Pakistan.

Chairman PEC Engr. Waseem Nazir described the MoU as a transformative milestone for Pakistan's engineering sector. He announced the establishment of a dedicated China Desk at PEC to ensure structured engagement, strategic placements, and sustained collaboration with Chinese state-owned enterprises. Emphasizing the significance of this initiative, he noted that 2026 will be remembered as the year Pakistani engineers moved from domestic markets to leadership roles on the global stage.

This partnership positions Pakistan as a strategic hub for engineering talent and signals a new era of high-value, globally integrated, and technology-driven engineering careers for the country's professionals.

Collaboration with KnK Japan–Pakistan, NDRMF, and GIZ Pakistan

Under the leadership of Chairman PEC Engr. Waseem Nazir, the Pakistan Engineering Council is advancing efforts to strengthen the country's infrastructure through a new digital platform focused on resilience and risk reduction.

The platform is designed to assist engineers in evaluating the condition of critical facilities such as schools, hospitals, and other public infrastructure, particularly those exposed to climate-related and disaster risks. By enabling precise identification of structural weaknesses, it supports timely interventions and more effective planning.

At a time when environmental stresses are placing increasing pressure on public infrastructure, the initiative represents a shift toward systematic, data-informed decision-making. Its ultimate goal is to transform vulnerable structures into resilient assets that can safeguard lives and ensure the continuity of essential services.

To support nationwide implementation, PEC has partnered with the National Disaster Risk Management Fund (NDRMF) and KnK Japan–Pakistan, ensuring technical guidance and long-term sustainability.

Chairman Engr. Waseem Nazir emphasized that resilience is not a one-time objective but a continuous national commitment. He highlighted that equipping engineers with modern tools and knowledge is vital for protecting communities and building infrastructure that can withstand future challenges.

With this initiative, PEC is setting a benchmark for proactive, forward-looking engineering in Pakistan—demonstrating how technology and expertise can converge to create safer, more resilient communities across the country. - PR

Jubilee Corporation: A Trusted Leader in Pakistan's Electrical Industry for Over 6 Decades

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collaborations not only allow JC to provide a diverse range of reliable products but also enable it to bring global industry standards to the local market. This strategic alignment keeps JC and its customers at the forefront of innovation in the electrical and automation fields.

Commitment to Customer Satisfaction

Jubilee Corporation believes in providing exceptional customer service. Hence, JC prioritizes its customers at every stage of their interaction, from initial consultation to after-sales support.

The team of experts is dedicated to providing customized solutions and building lasting relationships with its customers. Whether it's advising them on the best products for their particular application or assisting them with safety measures and concerns, customers can rely on JC's support to be there every step of the way.

One of the key factors that set JC apart is its commitment to providing technical aftersale support. The company's team of highly skilled and experienced engineers is always on hand to help customers with any technical issues they may encounter. This level of support ensures that customers can trust JC's products and services for years to come.

A Nationwide Presence

With its head office located in Karachi and a regional office in Lahore, JC's network extends through liaison offices in Islamabad, Faisalabad, Multan, and Peshawar. This widespread presence is complemented by a robust distribution network that enables JC to deliver its products and services swiftly and efficiently across Pakistan. This geographical reach allows JC to serve industries, consultants, and contractors nationwide with prompt support and technical assistance.

The Way Forward

In an industry that constantly evolves, JC remains at the forefront by staying up-to-date with the latest industry trends. Their commitment to delivering technologically advanced and specialized products is unwavering. With over 60 years of experience, JC continues to be the company of choice for businesses seeking reliable and cost-effective solutions for their electrical needs.

With a wide range of top-quality products, an unmatched commitment to customer satisfaction, and a nationwide presence, JC has solidified its position as an industry leader. Looking to the future, Jubilee Corporation remains dedicated to upholding its legacy of excellence and serving both its customers and the community with the same passion and dedication.

For further details and queries, reach out to Jubilee Corporation at jubilee.corp@jubileecorporation.com or UAN: +92 21 111 000 520 or visit our website at www.jubileecorporation.com. ■

Agriculture Review

Govt Aligns Commerce, Climate Policies for Sustainable Food Systems

Federal Minister for Commerce Jam Kamal Khan held a meeting with Romina Khurshid Alam, Coordinator to the Prime Minister on Climate Change, along with a delegation representing Pakistan's food chain sector, to discuss aligning trade and climate policies.

The meeting focused on building a resilient, efficient, and sustainable food supply system in the face of evolving global and domestic challenges. Participants noted that while food availability and accessibility remain largely stable, affordability and supply chain efficiency require urgent attention.

The delegation stressed the need to minimize disruptions in key industries, particularly dairy and food sectors, which are highly vulnerable to energy fluctuations and logistical constraints.

Jam Kamal Khan reaffirmed the government's commitment to ensuring uninterrupted economic activity, especially in critical sectors, while promoting efficient energy use and improved logistics. He emphasized that sustainable trade growth depends on strengthening domestic supply chains and enhancing coordination between federal and provincial stakeholders.

Romina Khurshid Alam highlighted the importance of integrating climate resilience into food systems, stressing that climate-smart agriculture, efficient resource utilization, and reduced wastage are essential for long-term food security. She also underscored the need for behavioral change, energy conservation, and environmentally responsible industrial practices.

The delegation shared insights on fuel consumption patterns, transport inefficiencies, and the need for optimized freight systems, including better utilization of trucking capacity and increased reliance on rail networks. Both sides agreed that policy measures should prioritize efficiency improvements rather than restrictions to sustain economic momentum.

The meeting also discussed promoting alternative mobility solutions, digital supply chain systems, and public-private collaboration to enhance productivity while reducing environmental impact.

The session concluded with consensus on developing a coord inated framework between commerce and climate institutions to strengthen Pakistan's food systems, ensure industrial continuity, and support sustainable economic growth. Minister, Climate Coordinator Discuss Sustainable Food Supply Chain Reforms

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– ER News Desk

Federal Committee on Agriculture Reviews Food Security, Sets Kharif Crop Targets

The Federal Committee on Agriculture (FCA) reviewed the country's food security situation and finalized production targets for the upcoming Kharif season during a meeting chaired by Federal Minister for National Food Security and Research Rana Tanveer Hussain.

The meeting was attended by senior officials from key federal and provincial departments, along with representatives of major institutions including the State Bank of Pakistan, Zarai Taraqiati Bank Limited, Pakistan Meteorological Department, Indus River System Authority, and Pakistan Agricultural Research Council.

Addressing the participants, the minister stressed that ensuring food security requires improving agricultural productivity, particularly per-acre yields. While noting that food availability in Pakistan remains largely adequate, he pointed out that affordability continues to be a major challenge, especially for low-income groups. He said the Interim National Wheat Policy 2025–26 is being implemented to support farmers and promote private sector investment in the wheat value chain.

Rana Tanveer Hussain highlighted Pakistan's strong potential in crops, livestock, and fisheries, adding that sustainable growth depends on efficient resource utilization, adoption of modern technologies, climate-smart practices, and improved market linkages. He also emphasized the importance of trade facilitation to connect farmers with both domestic and international markets.

The minister informed that under the Prime Minister's Economic Transformation Agenda, an Agriculture Sector Roadmap has been developed in collaboration with provincial governments and the Green Pakistan Initiative, focusing on mechanization, seed reforms, cotton revival, value addition, improved access to finance, and export growth. He added that the proposed National Agri-Trade and Food Safety Authority will help harmonize standards and enhance the competitiveness of Pakistan's agricultural exports.

Reviewing the Rabi crops (2025–26), the committee was informed that wheat production is estimated at 29.31 million tons, while potato output rose significantly by 23.2 percent to 12.17 million tons. Gram production also increased by 52.4 percent, whereas onion and tomato crops recorded declines due to reduced cultivation areas.

The committee set Kharif (2026–27) production targets, including 9.17 million tons for rice, 9.77 million tons for maize, 80.3 million tons for sugarcane, and 9.64 million bales for cotton. Targets for other crops such as mung, mash, and chilies were also finalized.

On input availability, the meeting was informed that water availability for Kharif will be 67.451 million acre-feet, while recent rains have partially improved conditions. However, soil moisture remains under stress in key agricultural regions. The Pakistan Meteorological Department warned that weather variability, including possible storms and hail, may affect Rabi harvesting.

The committee was further told that seed availability for rice and maize is sufficient, while urea supply is expected to remain comfortable due to adequate local production. The State Bank of Pakistan has also increased the agricultural credit target to Rs. 3,062 billion for FY-26, reflecting a 19 percent rise over last year.

Concluding the meeting, the committee expressed satisfaction over the overall food security situation and called for enhanced research, better coordination, and continued policy support to sustain growth in the agriculture sector. – ER News Desk

Scalable Business Models for Clean Technology Startups

Engr. Dr. Muhammad Nawaz Iqbal

Clean technology startup scalable business models require a redefinition of value creation, in which environmental impact is not a limitation but a driver of competitive advantage.

These startups need to incorporate ecological costs into their operational reasoning, unlike conventional ones, which are also required to structure revenue streams that compensate for sustainability outcomes. This two-value framework enables companies to turn regulatory pressures and environmental issues into opportunities for differentiated growth.

There is a new aspect of the scalability of clean technology, which is resource-intensity decoupling. Startups will have to design business models that generate more revenue without necessarily increasing the volume of material or energy use. This is possible by means of digitalization, service-based products, and dematerialization strategies that transform physical goods into platform-based services and, in the process, allow exponential scaling with a small ecological footprint.

Platform-based ecosystems offer an effective channel for scaling clean technologies by linking various stakeholders in value chains. Instead of being isolated producers, startups are able to become coordinators of sustainability platforms that enable cooperation among suppliers, consumers, and regulators. This ecosystem-based business allows scaling at the speed of network effects and incorporates sustainability into each transaction.

The inclusion of the principles of the circular economy in business models provides a radical approach to scaling. Startups in clean technology can develop systems in which waste is transformed into input and form closed-loop processes in which value is regenerated continuously. These models not only minimize environmental effects but also develop new sources of revenue in terms of resource recovery, recycling, and remanufacturing.

Scalability is also based on the capability to modularize technology and operations. Startups can tailor their products to other markets and situations by creating modular solutions without having to redesign them and incur high costs. This enables a company to expand quickly geographically and be customized to allow a startup to scale in a wide range of regulatory and environmental environments.

Financing mechanisms are very important in facilitating scalable clean technology ventures. New forms of funding, including blended finance and impact-related investment, match financial performance with sustainability results. These mechanisms bring in more investors and capital needed to scale technologies that may have longer payback periods and whose environmental benefits are significant.

The scalability of clean technology business models is enhanced through data-driven decision-making, as it allows real-time optimization of operations and impact. Advanced analytics can enable startups to track energy consumption, emissions, and resource flows to ensure that they are constantly increasing efficiency and are able to demonstrate measurable sustainability results to stakeholders.

Strategic alliances are key to helping clean technology startups overcome scaling hurdles. Partnerships with established companies, governments, and research organizations provide access to resources, infrastructure, and markets that might otherwise be difficult to access. These alliances speed up the commercialization process and help startups expand more effectively.

Customer relationships should shift to participatory models within clean technology ecosystems, as opposed to transactional relationships. Startups can provide greater engagement by involving customers in sustainability efforts such as energy sharing, recycling programs, or co-creating solutions, which will increase adoption and enable scalable growth.

Regulatory alignment can be turned into a means of scaling rather than an impediment. Startups that proactively engage with policymakers and align their business models with emerging environmental regulations can gain first-mover advantages. This strategic orientation enables them to grow rapidly as regulations evolve to favor sustainable practices.

The idea of impact scalability introduces a new parameter for measuring business model success. Clean technology startups should scale not only in terms of revenue but also in environmental and social impact. This multi-dimensional strategy ensures that scaling initiatives contribute meaningfully to sustainability objectives.

Localization measures play a central role in the expansion of clean technologies across different regions. Startups need to adjust their business models to local environmental conditions, cultural contexts, and regulatory frameworks. This localized approach enhances relevance and integration, enabling better scalability across markets.

Technology convergence provides new opportunities for scalable clean technology business models. A combination of renewable energy, IoT, artificial intelligence, and blockchain can create synergistic solutions that improve efficiency, transparency, and scalability. These converged technologies enable startups to deliver more complex and scalable sustainability solutions.

Scalable business models should incorporate resilience to ensure long-term viability. Clean technology startups operate in a dynamic environment characterized by policy changes and technological uncertainty. By designing resilient systems that can adapt to change, startups can scale effectively while remaining competitive in the long term.

Scalable clean technology business models require a shift in entrepreneurial thinking from short-term profitability to long-term value creation. Entrepreneurs need to adopt sustainability as a strategic necessity and design business models that generate long-term environmental and social value. This paradigm shift is critical for developing businesses that are not only scalable but also transformative in addressing global sustainability challenges.■

40th IEEEP Symposium

Contd from page 3

Musharraf, symposium discussions contributed to the formulation of energy sovereignty plans in the country.

He recalled a notable moment in 2004 when Dr. Munawar Baseer publicly pointed out the absence of a coherent national energy plan during an international symposium. The statement drew significant attention and reportedly led to high-level consultations involving then Prime Minister Zafarullah Khan Jamali and policy-makers, eventually resulting in the development of an energy framework within months.

However, stakeholders believe the landscape has changed. Current leadership, including Engr. Navaid Ansari, notes that earlier generations worked with limited resources but greater drive, whereas today's environment is shaped by increased materialism and shifting priorities.

Participation trends have also evolved. Organizers observe that attendance and engagement at symposiums have declined compared to earlier decades. According to Engr. Irfan Ahmed, the growing number of seminars, webinars, and industry events has made it difficult for professionals to attend multiple forums regularly. Engr. Ansari also pointed out that venues such as Expo Center Lahore remain fully booked throughout the year, reflecting the increasing volume of events across the country.

Industry participation, once a hallmark of IEEEP events, has also reduced. In the past, large industrial groups maintained close engagement with engineering bodies, often filling front rows with senior executives. Today, weaker industry linkages and broader economic challenges have impacted such participation.

Despite a significant increase in the number of engineering universities and graduates in Pakistan, the declining engagement has prompted introspection within professional bodies. Organizers say the issue is now being openly discussed, as institutions like IEEEP look to adapt to changing times while continuing their legacy of contributing to engineering development and national policy discourse. – ER Report

Sales Blog for Young Engineers and Entrepreneurs

Story of Ibrahim ibn Adham

Muhammad Tariq Haq | www.eslpk.com

When Business Gets Hard: The Secret Most Business People Don't Know

Starting a business looks exciting from the outside. Freedom, success, money, recognition.

But the reality?

Long days. Empty pockets. Rejections. Stress. Doubt.

And many people quit right here.

But what if I tell you something powerful:

Your struggle is not a sign of failure… it is actually your biggest asset.

A Story That Changes Perspective

There was once a poor worker who spent the whole day searching for work—but found nothing.

No money. No food at home. Only worry.

On his way back, he met a wise man, Ibrahim ibn Adham.

The worker complained:

"You are lucky. No worries. No stress. But I suffer every day."

The wise man replied:

"If you want, take all the reward of my lifetime of worship…

and give me just the reward of your one day of struggle."

Think about that.

□ One day of hardship… more valuable than years of comfort.

That moment changed the worker's thinking—and it can change yours too.

What This Means for You (As a Business Entrepreneur)

1. Struggle is Not Wasted

Every failed deal, every rejection, every loss…

It is building you.

- You become stronger
- You become smarter
- You become tougher than others

2. You Are Not Alone in This

Even the best entrepreneurs:

- Lose money
- Fail multiple times
- Feel like quitting

The difference?

□ They continue.

3. Your Effort Always Counts

In Islam, even pain has value.

The Prophet Muhammad ﷺ said:

Even a small pain removes sins and brings reward.

So imagine:

- Sleepless nights
- Financial stress
- Business pressure

□ None of it is wasted.

4. Stop Thinking "Why Me?"

Instead ask:

□ "What is this teaching me?"

This one shift will:

- Reduce stress
- Increase clarity
- Make you unstoppable

5. Success Is Not Just Money

Real success is:

- Strength of character
- Patience (Sabr)
- Trust in Allah
- Never giving up

Money comes later.

The Biggest Mindset Shift

Most Business Leaders think:

"If it's hard, maybe it's not for me."

Winners think:

"If it's hard, I'm growing."

Your New Rule From Today

Whenever things go wrong in your business, say:

□ "This is not punishment… this is preparation."

Final Message

You will feel tired.

You will feel lost.

You will feel like quitting.

But remember:

The people who succeed are not the smartest…

They are the ones who didn't give up.

And more importantly:

Every hardship you face is being counted—rewarded—multiplied ■

فرمانِ قائداعظمؒ

ایمان ، اتحاد ، تنظیم

اصول اور تفصیلات

گاندھی جی کہتے ہیں: "ہندوستان کو جیتے جی ٹکڑے ٹکڑے کیا جارہا ہے۔"
راج گوپال اچاریہ کہتے ہیں: "بچے کے ٹکڑے کیے جارہے ہیں۔"
قدرت نے پہلے ہی سے ہندوستان کو تقسیم کر رکھا ہے اور اس کے ٹکڑے ٹکڑے کر رکھے ہیں۔ ہندوستان کے نقشہ پر مسلم ہندوستان اور ہندو ہندوستان پہلے ہی سے موجود ہیں، نہ معلوم اس کے متعلق اتنا واویلا کیوں کیا جاتا ہے۔ وہ ملک ہے کہاں جس کے ٹکڑے ٹکڑے کیے جائیں گے؟ اور وہ قوم کہاں ہے جس کی قومیت فنا کی جانے کو ہے؟

وہ طاقت جس کے قبضہ قدرت میں آج ہندوستان ہے، وہ انگریزوں کی طاقت ہے اور یہ جو ایک خیال دماغوں میں بیٹھ گیا ہے کہ ہندوستان ایک متحدہ ملک ہے اور اس کی اپنی حکومت ہے، وہ صرف اس وجہ سے ہے کہ انگریز اس سارے ملک پر حکمران ہیں۔

(مسلم لیگ کانفرس، بمبئی۔26 مئی 1940ء)

آوازِ اقبال

اقبال کا ترانہ بانگِ درا ہے گویا
ہوتا ہے جادہ پیما پھر کارواں ہمارا

اے ہمالہ کوئی بازی گاہ ہے تو بھی، جسے
دست قدرت نے بنایا ہے عناصر کے لئے
ہائے کیا فرط طرب میں جھومتا جاتا ہے ابر
فیل بے زنجیر کی صورت اڑا جاتا ہے ابر
تیری عمر رفتہ کی اک آن ہے عہد کہن
وادیوں میں ہیں تیری کالی گھٹائیں خیمہ زن
چوٹیاں تیری ثریا سے ہیں سرگرم سخن
تو زمیں پر اور پہنائے فلک تیرا وطن
چشمہ دامن ترا آئینہ سیال ہے
دامن موج ہوا جس کے لئے رومال ہے
ابر کے ہاتھوں میں رہوار ہوا کے واسطے
تازیانہ دے دیا برق سر کوہسار نے

ترقیاتی منصوبے، مہنگائی اور کنٹریکٹرز کو درپیش چیلنجز

تحریر: میر زمان مندوخیل (صدر، پاکستان کنٹریکٹرز ایسوسی ایشن)

پاکستان اس وقت اپنی تاریخ کے غیر معمولی معاشی بحران سے گزر رہا ہے۔ مارچ 2026 کے بعد سے ایران اور امریکہ کے درمیان جاری تنازعہ اور مشرقِ وسطیٰ کے جیوپولیٹیکل حالات نے توانائی کا ایک عالمی بحران پیدا کر دیا ہے۔ آبنائے ہرمز (Strait of Hormuz) سے سپلائی لائنز متاثر ہونے کی وجہ سے پاکستان میں کنزیومر پرائس انڈیکس (CPI) کی افراطِ زر 7.3 فیصد سالانہ تک جا پہنچی ہے، جس نے تعمیراتی صنعت کو ایک ایسے موڑ پر لا کھڑا کیا ہے جہاں سے ہر راستہ اس کی تباہی کی جانب جاتا ہوا دکھائی دیتا ہے۔

پاکستان کنٹریکٹرز ایسوسی ایشن (PCA) کے حالیہ اجلاس میں تمام عہدیداران نے متفقہ طور پر اس غیر معمولی مہنگائی کو صنعت کے لیے "موت کے پروانے" سے تعبیر کیا ہے۔ اعداد و شمار گواہ ہیں کہ یہ بوجھ اب کنٹریکٹرز کے بس سے باہر ہو چکا ہے۔ جنوری 2026 کے مقابلے میں اپریل 2026 تک ہائی اسپیڈ ڈیزل کی قیمت میں 85 فیصد اضافہ ہوا جبکہ اسٹیل، بٹومین، سیمنٹ اور ٹرانسپورٹیشن کے اخراجات میں 50 سے 100 فیصد تک کا غیر معمولی اضافہ ریکارڈ کیا گیا ہے۔ یہ اضافہ ان تمام مفروضوں اور رسک فیکٹرز سے کہیں زیادہ ہے جو ٹھیکہ دیتے وقت مدِ نظر رکھے گئے تھے۔

موجودہ صورتحال میں حکومت کا پرانے نرخوں (BOQ Rates) پر اصرار کرنا نہ صرف غیر منصفانہ ہے بلکہ قانونی طور پر بھی غلط ہے۔ یہ حالات درج ذیل بین الاقوامی اور قومی قوانین کے تحت آتے ہیں۔

FIDIC* اصول: *غیر معمولی واقعات اور فورس میجر (MajeureForce) کے تحت مالی توازن برقرار رکھنا ضروری

ہے۔ پاکستان کنٹریکٹ ایکٹ 1872 سیکشن 56 اور 73 جو ناممکنات اور غیر متوقع معاشی جھٹکوں کی صورت میں ریلیف فراہم کرنے کی بنیاد فراہم کرتے ہیں۔

ہم وفاقی حکومت، صوبائی حکومتوں، پاکستان انجینئرنگ کونسل اور میئر کراچی سے مطالبہ کرتے ہیں کہ تعمیراتی صنعت کو زمین بوس ہونے سے بچانے کے لیے درج ذیل "پالیسی ڈائریکٹوز" فوری جاری کی جائیں:

1۔ مارچ 2026 سے عبوری قیمتوں کی ایڈجسٹمنٹ (Escalation): *تمام جاری منصوبوں پر مہنگائی کے تناسب سے فوری معاوضہ دیا جائے۔

2۔ جیوپولیٹیکل شاک کا اعتراف: *عالمی حالات کی وجہ سے پیدا ہونے والے سپلائی بحران کو ایک غیر معمولی واقعہ (EventExceptional) تسلیم کیا جائے۔

3۔ جرمانہ (Damages Delay) کی معطلی: *مہنگائی اور سپلائی چین میں تعطل کی وجہ سے کام میں ہونے والی تاخیر پر کنٹریکٹرز کو لگائے جانے والے جرمانے عارضی طور پر ختم کیے جائیں۔

4۔ نئے منصوبوں پر اضافی پریمیم: *موجودہ مارکیٹ ریٹس کے مطابق تمام نئے ٹینڈرز میں ریٹس کو اپ ڈیٹ کیا جائے۔

اگر حکومت نے ان مطالبات پر فوری توجہ نہ دی تو ملک بھر میں انفراسٹرکچر کے منصوبے، سڑکیں، پل اور واٹر سپلائی کی اسکیمیں مکمل طور پر ٹھپ ہو جائیں گی۔ اس سے نہ صرف کنٹریکٹرز دیوالیہ ہو جائیں گے بلکہ ملک بھر میں بے روزگاری کا ایک نیا طوفان آئے گا۔ ہم اپیل کرتے ہیں کہ صورتحال کا فوری نوٹس لیا جائے تاکہ تعمیراتی صنعت کو بچایا جا سکے۔ ■

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STORY OF IBRAHIM BIN ADHAM - RETOLD

Muhammad Tariq Haq | www.eslpk.com

Turning Hardship into Reward and Power

In the high-stakes world of entrepreneurship, we are sold a glossy lie: that success is a straight line of growth, rewarded with instant luxury.

But the reality is much bitter. It's the crushing weight of a "no" from an investor. It's the 2:00 AM panic over payroll. It's the quiet, terrifying thought: "Am I just failing?"

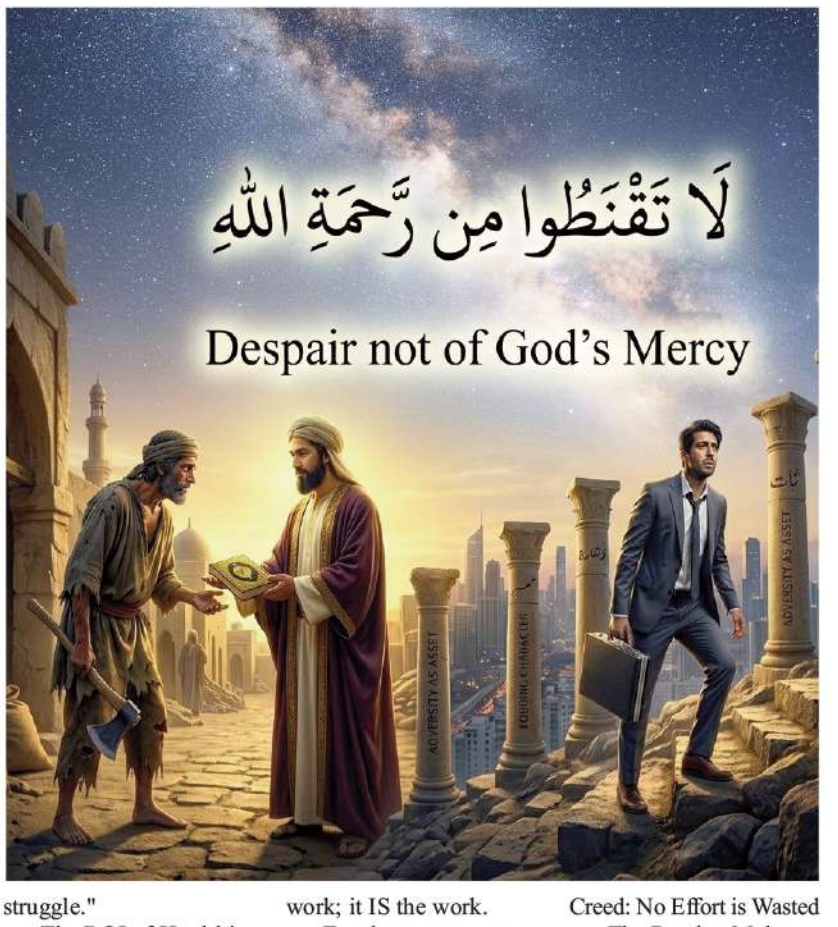
If you are at that breaking point, listen to the story again (continued from previous blog).

A laborer was walking home, broken by a day of fruitless toil. He had no wages, and no way to provide for his family. He encountered the sage Ibrahim ibn Adham, a man who lived in apparent peace.

The laborer, bitter and exhausted, complained: "You are lucky. You have the peace of the spirit, while I suffer the pain of the struggle."

Ibrahim ibn Adham looked at him with profound empathy and offered a trade that sounds nonsensical to the modern ear:

"If you wish, take the spiritual credit for every prayer and charity I have performed in my entire life—and in exchange, give me the reward of just this one day of your struggle."



The ROI of Hardship:

Why would a master of the spirit want the "reward" of a bad business day? Because he understood the ROI of adversity.

In the Harvard-level analysis of character, we call this Invincibility. In the spiritual tradition, we call it Sabr. Both agree on one thing: The struggle is not an obstacle to the work; it IS the work.

For the entrepreneur, this mans:

* The Rejection isn't a dead end; it's the cost of entry for a better strategy.

* The Financial Loss isn't a deficit; it's fee paid to the harshest, most effective school on earth.

* The Stress isn't a sign of weakness; it is the friction required to polish your leadership.

The Entrepreneur's Creed: No Effort is Wasted

The Prophet Muhammad ﷺ taught that even the prick of a thorn is a means of purification and elevation. For a business leader, this translates to a revolutionary mindset: Nothing is ever lost.

If the venture succeeds, you gain capital. If the venture "fails" or becomes difficult, you gain Internal Equity—resilience, wisdom, and a spiritual elevation that no bank account can hold.

Why You Shouldn't Quit

Most people quit because they believe their suffering is "pointless."

They are wrong. Every hour you spend toiling against heavy odds is being recorded in a ledger far more accurate than your accounting software. You are being built into a person who can handle the weight of the success that is coming.

The Bottom Line

The next time you feel the urge to quit, remember the trade offered by Ibrahim ibn Adham.

Your current struggle is so valuable that even the most "successful" people would trade their comfort for your growth.

Stop asking: "Why is this happening to me?" Start asking: "What better version of me is this struggle creating?"

Don't give up. The reward is being compounded even as you read this. ■

پندرہ روزہ

انجینئرنگ ریویو

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بانی: منجم الحسن بانی ایڈیٹر: ریاض الحسن

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ملک میں تیز رفتار انٹرنیٹ کے لیے 13 ارب روپے کے منصوبے منظور

11 اضلاع کے 178 ٹاؤنز، یوسیز اور 753 گاؤں کے مکین ڈیجیٹل دنیا سے منسلک ہوسکیں گے

ملک میں تیز رفتار انٹرنیٹ کے لیے 13 ارب روپے کے منصوبے منظور کر لیے گئے۔ وزارت آئی ٹی و ٹیلی کمیونیکیشن کے ادارے یونیورسل سروس فنڈ کے بورڈ آف ڈائریکٹرز کے اہم اجلاس میں ملک کے 11 اضلاع کے لیے ہائی اسپیڈ انٹرنیٹ، وائس کمیونیکیشن اور فائبر آپٹیکل کیبل کے 9 میگا پراجیکٹس کی منظوری دی گئی ہے۔

سیکرٹری آئی ٹی اور چیئرمین بورڈ کے مطابق وفاقی وزیر آئی ٹی شزا فاطمہ کی ہدایت پر شہری اور دیہی ڈیجیٹل تفریق کے خاتمے کے اقدامات میں تیزی لائی جا رہی ہے۔ منصوبوں کی مجموعی مالیت 13 ارب روپے سے زائد ہے اور یہ 55 لاکھ سے زائد افراد کو سہولیات فراہم کریں گے جب کہ 11 اضلاع کے 178 ٹاؤنز و یونین کونسلز اور 753 گاؤں کے مکین ڈیجیٹل دنیا سے منسلک ہوسکیں گے۔

چیئرمین یو ایس ایف بورڈ نے کہا کہ دیہی اور پسماندہ علاقوں میں انٹرنیٹ اور موبائل کنکٹیویٹی سے ڈیجیٹل اکانومی کو فروغ ملے گا۔ یو ایس ایف کے پہلے سے جاری منصوبوں سے اب تک دیہی علاقوں کے 3 کروڑ 94 لاکھ افراد کو کنکٹیویٹی سروسز تک رسائی حاصل ہو چکی ہے۔

سیالکوٹ، نارووال، زیارت اور کوئٹہ کے اضلاع کے لیے 3 منصوبوں میں 1428 کلومیٹر آپٹیکل فائبر کیبل بچھائی جائے گی جب کہ عمر کوٹ، گجرانوالہ، کوہاٹ، خضدار، مظفر گڑھ، مانسہرہ اور منڈی بہاء الدین اضلاع کے لیے براڈ بینڈ سروسز کے چھ منصوبے شامل ہیں۔

اجلاس میں چیئرمین پی ٹی اے میجر جنرل حفیظ الرحمان، ممبر ٹیلی کام جہانزیب رحیم محمد یوسف اور عائلہ ماجد بھی شریک ہوئے۔■

ML1 کو خطرہ، 465 ارب کا متنازع موٹروے منصوبہ منظور

پنجاب حکومت کے حصے کے بغیر منصوبہ کلیئر، 2 برس میں 76 فیصد لاگت بڑھ گئی

وزیراعظم آفس کی ہدایات کیخلاف، مالی وسائل کے باوجود منظوری دی گئی، ذرائع

وفاقی حکومت نے لاہور، ساہیوال، بہاولنگر موٹروے کے 465 ارب روپے مالیت کے صوبائی نوعیت کے منصوبے کو اصولی طور پر منظوری کے لیے سفارش کر دی، جو قومی مالیاتی معاہدے، وزیراعظم آفس کی ہدایات اور مالی وسائل کے فقدان کے باوجود دی گئی ہے۔ سرکاری دستاویزات کے مطابق اس منصوبے کی لاگت دو سال پرانے تخمینے کے مقابلے میں 201 ارب روپے یا 76 فیصد زیادہ ہو چکی ہے، جبکہ یہ چین پاکستان اقتصادی راہداری کے اہم ایم ایل ون ریلوے منصوبے کی افادیت اور اپ گریڈیشن کو بھی خطرے میں ڈال سکتا ہے۔

سینٹرل ڈویلپمنٹ ورکنگ پارٹی نے منصوبے کو ایگزیکٹو کمیٹی آف نیشنل اکنامک کونسل کی حتمی منظوری کے لیے سفارش کی۔ پنجاب میں واقع موٹروے منصوبے کو وفاقی پبلک سیکٹر ڈویلپمنٹ پروگرام کے تحت فنانس کرنے کی تجویز دی گئی، جو نیشنل فسکل پیکٹ کی خلاف ورزی ہے۔ دستاویزات کے مطابق منصوبے کو 2024 کے کمپوزٹ شیڈول آف ریٹس کی بنیاد پر منظور کیا گیا، حالانکہ 2025 کے کم لاگت سی ایس آر دستیاب تھے۔ پلاننگ کمیشن کے تکنیکی ونگ نے سفارش کی ہے کہ نئی شرحوں کے مطابق لاگت کو کم اور معقول بنایا جائے۔

منصوبے کے تحت دو حصوں پر مشتمل موٹروے تعمیر کی جائیگی۔

ذرائع کے مطابق وزیراعظم نے واضح ہدایات دی تھیں کہ پنجاب حکومت منصوبے کی کم از کم 50 فیصد لاگت برداشت کرے اور الائنمنٹ میں تبدیلی کے بعد پی سی ون پیش کیا جائے، مگر ان ہدایات پر عمل نہیں کیا گیا، جبکہ منصوبے کیلیے کوئی قابل عمل فنانسنگ پلان یا حتمی ڈیزائن بھی موجود نہیں۔ پلاننگ کمیشن نے خبردار کیا ہے کہ منصوبے کی شمولیت سے نیشنل ہائی وے اتھارٹی پر مالی دباؤ بڑھے گا، منصوبے کی منظوری سے دیگر اہم منصوبے جیسے قراقرم ہائی وے کی توسیع، سکھر، حیدرآباد موٹروے، کھاریاں، راولپنڈی موٹروے، لواری ٹنل اور دیامر بھاشا ڈیم متاثر ہونے کا خدشہ ہے۔

سی ڈی ڈبلیو پی اجلاس میں پلاننگ کے وزیر نے متعدد سوالات اٹھائے، تاہم وزارت مواصلات نے یقین دہانی کرائی کہ اعتراضات بعد میں دور کر لیے جائیں گے۔ اس ضمن میں سیکریٹری مواصلات سے مؤقف لینے کی کوشش کی گئی، تاہم خبر فائل ہونے تک کوئی جواب موصول نہیں ہوا۔■

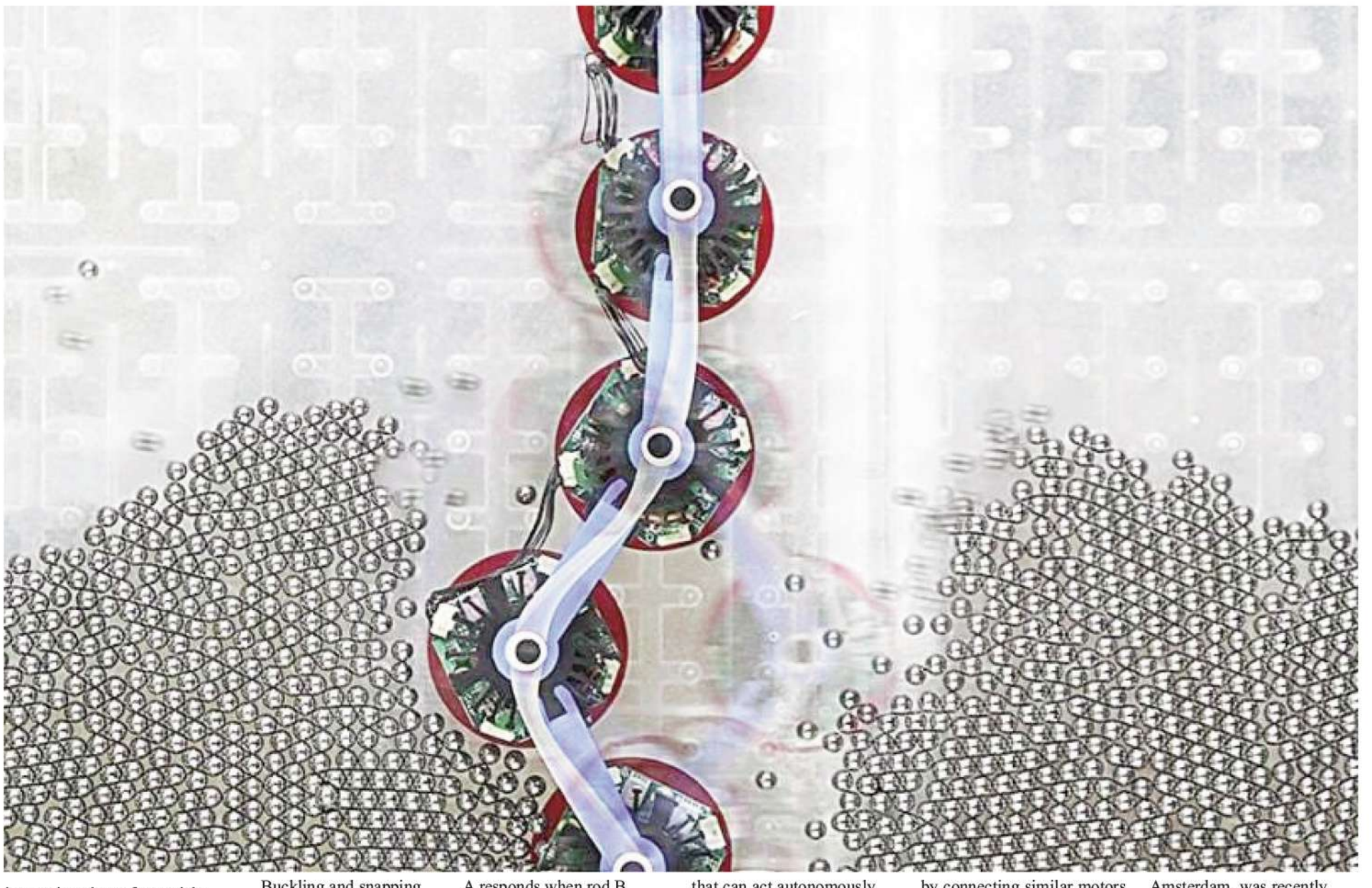
These restless materials don't just bend under pressure—they snap, crawl, walk and dig on their own

When we think of materials, we usually think of substances like metal, concrete, glass or rubber.

What these examples have in common is that they are inactive: when pushed, pulled, shifted or sheared they may move or deform, but only by using the energy that is provided from the outside through the forces applied to them.

There exists another very interesting class of materials: that of active matter. Active matter has energy of its own and can use this energy to respond to external forces—sometimes in rather unexpected ways. Active matter is usually found in the world of biology: Think of a flock of birds behaving as one single entity that responds to external inputs like wind, terrain changes, or the presence of food or a natural resting place.

Examples do not just come from the world of biology, though. Active matter can also be constructed in the lab. Over the past few years, an international team of physicists at the universities of Amsterdam (The Netherlands), Cambridge (U.K.) and New South Wales (Sydney, Australia) have become experts at using simple ingredients like small motors, rods and rubber bands to construct active materials that have many surprising—and importantly useful—properties. Two papers by the team have recently been published.



Buckling and snapping

Take a paper ticket and compress it between two of your fingers. It will spontaneously lose its stability and buckle one way or the other. Now try to push the buckled state inwards with your other hand. It will resist at first, but then suddenly snap to the other side. The paper ticket is an inactive form of matter: When the external pressure forces it, it will only perform the buckling and snapping once.

As the researchers show, buckling and snapping drastically change when materials become active. To construct an active material that can undergo buckling and snapping, the physicists connected a sequence of rods to form a chain, with small motors attached to the end points wherever two of these rods meet. The job of the motors was to make the interactions within the chain non-reciprocal. When rod A moves, rod B responds differently (by rotating over a different angle, for example) than rod A responds when rod B moves.

The surprising result was that the chains constructed in this way still showed buckling and snapping when external forces were applied, but this time not just a single buckle and snap—the process could repeat, and oscillations could occur. In technical terms, what happened was that the so-called critical point where the system snapped now became a critical exceptional point. In layman's terms, this meant that the chains could now start to crawl, walk and even dig.

The paper about the results, with joint first authors Sami Al-Izzi from the University of New South Wales and Yao Du from the University of Amsterdam, was recently published in the Proceedings of the National Academy of Sciences, with an image of one of the buckling chains being used as the cover art for the journal. The work demonstrates a new route to realizing materials that can act autonomously and have several functions—in particular, for use in flexible, "soft" robots. The active materials may form the basis for smarter robot bodies that operate independently of centralized control.

Sometimes, more is less

From building a bridge to assembling nanomechanical devices, when constructing something, engineers rely on many mechanical principles. One of these is known as Le Chatelier's Principle, and it roughly states that what happens on a small scale also happens on a large scale. For example, stiffening the components of a structure will stiffen the structure as a whole.

In recent work, the team of physicists have shown that when it comes to active matter, Le Chatelier's principle does not always hold. In particular, when the building blocks of an active material become more active, the structure as a whole may actually become less active. The authors have shown this by connecting similar motors and rods, this time not in a chain but in a two-dimensional lattice-like structure. In their experiments, they measured how the elasticity of this structure as a whole depended on the properties of the individual building blocks.

The crucial factor that determines the large-scale behavior turned out to be the percolation of the active microscopic components throughout the material. Compare this to the percolation of water through coffee: when we make coffee, the powder should not be too dense, or the water will not get all the way through. Similarly, when there is a high density of less active components in a material, elastic responses will not always get through, even if all other components are extremely active.

A paper about this research, with first author Jack Binysh from the research group of Corentin Coulais at the University of Amsterdam, was recently published in the journal Physical Review X. Binysh and his colleagues anticipate the discovered breaking of Le Chatelier's Principle to be fundamentally important to researchers working with active microstructures such as biophysical gels, epithelial monolayers, and neuromorphic networks. Their work will be of broad interest across physics, soft matter science, mechanical engineering, life sciences, and robotics. - TX

Scientists adapt 3D printing for manufacturing copper alloy components

A research team from Skoltech (part of the VEB.RF group) and other scientific organizations in Russia and India has conducted a systematic study of the laser powder bed fusion (PBF-LB) process for aluminum bronze. This material is significantly important for components operating under intense thermal loads that require efficient heat dissipation—such as heat exchangers, cooling elements of power plants, and power electronics enclosures.

The findings, published in the journal Materials Characterization, pave the way for manufacturing complex-shaped components using laser powder bed fusion that match the strength and thermal conductivity of traditionally cast parts, and in some cases, even exceed them.

Why aluminum bronze is challenging

Aluminum bronze (Cu-9.5Al-1Fe) offers higher thermal conductivity than steel and titanium while being more suitable for additive manufacturing than pure copper. However, printing copper alloys presents two fundamental challenges: the material's high reflectivity and its rapid heat dissipation.

These factors lead to the formation of defects—specifically, lack-of-fusion pores, which occur when powder particles fail to melt completely, and so-called keyhole porosity, caused by the formation of a deep, unstable vapor depression in the melt pool that produces voids upon solidification.

How the team tuned process parameters

During the experiments, the scientists varied the energy density (from 125 to 938 J/mm³) by adjusting the laser power (90–150 W) and scanning speed (100–600 mm/s). They established that at low energy densities, lack-of-fusion pores dominate, while at high energy densities, keyhole pores—typical of an unstable deep penetration mode—become prevalent. The overall porosity level remained around 5% across all tested regimes.

Despite the presence of residual porosity, the printed samples demonstrated mechanical properties exceeding those of cast aluminum bronze. The ultimate tensile strength reached up to 748 MPa, and elongation reached up to 16.2%, approaching the parameters of nickel-aluminum bronze (Ni-Al-Bronze), which is traditionally used in heavy-duty applications.

Insights into microstructure and phase changes

"We were able to show that even using equipment with limited laser power, it is possible to achieve mechanical properties close to those of industrial nickel-aluminum bronzes. The key factor turned out to be not just increasing the energy input, but understanding the mechanisms governing the transition between different types of defects. This allows us to predict material properties at the stage of selecting printing parameters," shared Associate Professor Stanislav Evlashin from the Materials Center, a co-author of the study.

The authors paid particular attention to changes in the phase composition. The ultra-fast crystallization inherent to laser melting produced phases atypical of the equilibrium structure of aluminum bronze, specifically Al_2Cu interlayers and Cu_3Fe nanoparticles.

The study also showed that increasing energy density reduces the phase fraction primarily responsible for the material's hardness and strength, which conversely has a negative impact on electrical and thermal conductivity. These structures and phases form due to cooling rates reaching up to 10^7 K/s and influence the balance between strength, ductility, and thermal properties.

Linking structure to conductivity and performance

"Using a set of approaches—from microstructural analysis using various microscopy techniques to measurements of physical and mechanical characteristics—we established a direct correlation between dislocation density, thermal conductivity, and electrical conductivity," explained Anastasia Filippova, the first author of the paper and a Ph.D. student in the Mathematics and Mechanics program at Skoltech.

"It turns out that as energy input increases, dislocation density decreases and a redistribution of aluminum occurs within the structure. This leads to higher thermal conductivity without any noticeable degradation in mechanical properties. Porosity, meanwhile, has a minor effect."

Thermal conductivity measurements were carried out over a wide temperature range—from 5 to 575 K—using two independent methods: PPMS and laser flash analysis.

The authors demonstrated that the thermal conductivity of samples produced with a high energy density reaches 47 W/(m·K) at room temperature. This is comparable to values for cast material but was achieved with significantly higher strength. - TX

New hydrogen fuel cell design could unlock key clean energy technology

UNSW researchers have redesigned hydrogen fuel cells to solve a critical flaw, bringing clean energy for aviation, heavy transport and beyond closer to reality. Hydrogen fuel cells, using locally produced green hydrogen as the only fuel, have long been viewed as the ultimate clean energy source, but their commercialization has been difficult.

A multidisciplinary team from UNSW, led by Dr. Quentin Meyer and Professor Chuan Zhao from the School of Chemistry, has managed to make hydrogen fuel cells much more efficient, paving the way for their commercialization.

"Hydrogen fuel cells generate clean electricity with water as the only byproduct," says Dr. Quentin Meyer, a Senior Research Fellow in Prof. Zhao's team, and first author of the research published in the journal Applied Catalysis B: Environment and Energy.

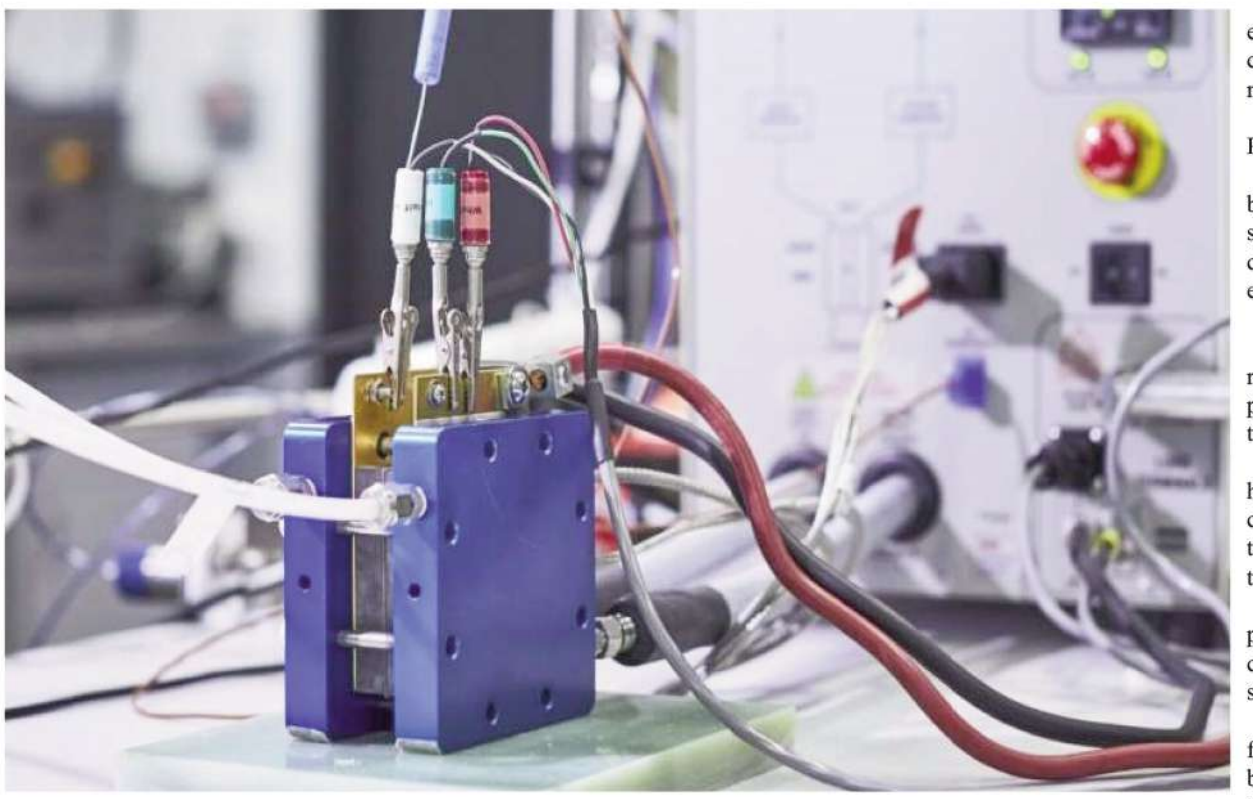
In theory, they could deliver cheap, abundant clean energy—transforming industries like freight and aviation that batteries struggle to power.

But translating that promise into real-world emissions cuts has proven difficult.

Some of the water produced inside the cell gets trapped, blocking the flow of oxygen and choking performance. Fixing that typically requires complex, energy-intensive systems that add cost and weight.

The UNSW team's new design takes a different approach: it allows excess water and gas to escape before they can build up, without adding to the price.

"Our design can make hydrogen fuel cells much more efficient with only minor structural changes," says Dr. Meyer.



A brand-new design

The UNSW team's solution focuses on the structure of the fuel cell itself.

Using high-precision micro-scale engineering, they introduced microscopic channels—100 micrometers wide, separated by 100 micrometer micro-ribs—into the internal architecture of the cell.

"There's usually no way to remove water," says Dr. Meyer.

"But these 'lateral bypasses' act as escape routes, meaning water no longer accumulates and stops the cell working."

It's a simple fix with a substantial impact.

"The redesigned fuel cell achieves 75% more power than traditional designs," according to Dr. Meyer.

"We're rethinking hydrogen fuel cells in Australia by combining advanced imaging, fluid flow simulations, and precision micro-engineering," adds Professor Peyman Mostaghimi from the UNSW School of Civil and Environmental Engineering, and Dr. Ying Da Wang from the UNSW School of Minerals and Energy Resources Engineering.

The result is a far more efficient system, making fuel cells more attractive for mass markets.

"It's very exciting," says Prof. Zhao.

"This breakthrough could be used in a range of different settings and brings cheap, clean, and abundant hydrogen energy to within our reach."

Real-world applications

The new design is also less reliant on costly metals like platinum, and the overall system is lighter and cheaper.

The current fuel crisis has highlighted the need for such clean-energy solutions, the team says, particularly in aviation and freight.

"I believe airplanes will be powered by hydrogen fuel cells in the very near future," says Dr. Meyer.

"By redesigning hydrogen fuel cells, lightweight aviation becomes a lot more realistic," according to Prof. Zhao.

Closer to market, the team is targeting low-altitude aircraft, where hydrogen systems can already deliver significantly longer flight times than battery alternatives.

The lateral bypass technology has been patented by Dr. Meyer and Prof. Zhao, and they are now working to scale it. TX