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INSTITUTE FOR STRATEGIC STUDIES, RESEARCH & ANALYSIS

Post Seminar Report

PAKISTAN'S PATH TO AFFORDABLE & SECURE ENERGY

Tuesday, 8 September 2026



Institute For Strategic Studies, Research and Analysis (ISSRA)

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CONCEPT NOTE

Pakistan's energy sector faces significant internal and external challenges despite its rich resources, including hydropower, coal, wind, and solar. The conflict in Hormuz restricts RLNG imports, causing supply issues and rising costs. Industrial electricity prices (USD 0.14–0.18 per kWh) are higher than in Bangladesh, Vietnam, and India (USD 0.07–0.09), hurting exports and growth. Problems are worsened by a fossil-fuel-heavy mix, PKR 1.8 trillion circular debt, over 20% transmission losses, and sector inefficiencies. As neighbours adopt affordable renewable energy, Pakistan's energy security and affordability are crucial, underscoring the need for an integrated energy security strategy that includes reserves, diversified routes, public transport, railway freight, electric mobility, and shifting to local energy sources. Energy security now requires a greener grid, improved industrial efficiency, decarb-onised transport, and low-carbon supply chains. This shift is vital to protect exports, attract sustainable investment, and boost economic resilience.

Against this backdrop, the Institute for Strategic Studies, Research and Analysis (ISSRA), National Defence University, Islamabad, is organising a National Seminar on Pakistan's Energy Sector to examine why energy costs are higher in Pakistan compared to its competitors and to deliberate on an integrated solution for Pakistan's energy sector, focusing on affordable, competitive, and sustainable energy. The seminar will bring together senior policymakers, regulators, industry leaders, energy experts, independent power producers, and strategic analysts.



INTRODUCTION

ISSRA held a national seminar titled "Pakistan's Path to Affordable and Secure Energy" on 8 September 2026 at the National Defence University (NDU), Islamabad. The presence of the Chief Guest, Sardar Awais Ahmad Khan Leghari, Federal Minister for Energy, Power Division, graced the seminar. The seminar examined the challenges of making energy affordable, reliable and secure while strengthening economic competitiveness, industrial productivity, national resilience and energy security.

The seminar included structured sessions on Pakistan's petroleum and power sectors, covering import dependence, energy supply security, indigenous exploration, refining and storage, electricity generation, transmission and distribution, sectoral reforms, the energy transition, and international approaches to affordable and sustainable energy.

The event brought together policymakers, government officials, energy-sector representatives, industry professionals, academics, researchers and other stakeholders, with national and internat-ional perspectives contributing to the discussion. The sessions provided a platform to examine both the immediate pressures affecting Pakistan's energy system and the structural reforms required for long-term resilience.

The discussions highlighted that Pakistan's energy challenge extends beyond energy availability. Affordability, security, governance, infrastructure, market design, indigenous resources, technology and integrated planning must be addressed together to develop an energy system capable of supporting households, industry and national development.



PROGRAMME - SEMINAR

Time Hrs)	Activity	Speakers	Venue
Opening Session			
1000-1030	Reception/Registration	-	ISSRA Hall
1030-1035	Group Photo		
1035-1040	Recitation	-	ISSRA Hall
1040-1045	Welcome Remarks	Dir DSS	‘’
1045-1100 (15 mins)	Keynote Address	Khurram Dastgir Khan, former Federal Minister for Power	‘’
Session 1 (Petroleum Sector) ***Breaking the Chain of Import Dependence: Towards Affordable Fuels***			
1105-1110	Introductory Remarks by Moderator	Dr Rubina Ilyas, Research Economist, PIDE	ISSRA Hall
1110-1120 (10Mins)	Current state, key challenges, and measures to ensure affordable and sustainable hydrocarbon supplies	Zafar Abbas Additional Secretary, Petroleum Division, Ministry of Energy	‘’
1120-1130 (10 Mins)	How do import dependence and global oil prices affect domestic fuel costs	Ali Murtaza Abbass, Group Regional VP ME, Africa & Pakistan, MOL Group	“
1130-1140 (10 Mins)	How can Pakistan leverage local exploration, refining upgrades, regional energy cooperation, and alternative fuels to stabilise energy costs?	Ahmed Hayat Lak, Managing Director & CEO, Oil & Gas Development Company Limited (OGDCL)	“
1140-1150 (10 Mins)	Pakistan’s Petroleum Security in the Energy Transition Scenario	Dr Kashif Imran, Professor at US-Pakistan Centre for Advanced Studies in Energy (USPCAS-E), NUST, Islamabad	“
1150-1220	Q/A Session	-	“
1220-1225	Presentation of Souvenirs/Group Photo		“
1225-1240	Tea/Coffee		ISSRA Lounge
Session 2 (Power Sector) ***From Crisis to Sustainability: Affordable Power for All***			
1245-1250	Introductory Remarks by Moderator	Zainab Naeem, Associate Research Fellow, SDPI	ISSRA Hall
1250-1300	Keynote address	Mary Burce Warlick, Deputy Executive Director of the International Energy Agency (IEA)	On Zoom (France)
1300-1310 (10 Mins)	Current state, key challenges and measures to ensure affordable, reliable, and sustainable power supply	Humayun Khan, Additional Secretary III, Power Division, Ministry of Energy	ISSRA Hall
1310-1320 (10 Mins)	How do high energy costs affect Pakistan’s industrial competitiveness, and what reforms can support export-led growth?	Sheikh Muhammad Tanveer, Dir DIN Group	“
1320-1330 (10 Mins)	How does the world manage to provide affordable, competitive, and sustainable energy to consumers?	Dr Gerwin Dreesmann, Senior Energy Economist, Managing Director, 8.2 Renewable Energy Experts Hamburg (Germany)	On Zoom (Germany)
1330-1340 (10 Min)	From Shortage to Surplus: Why Does Pakistan Still Have an Electricity Crisis?	Kashif Mateen Ansari, CEO, Sachal Energy Development	On Zoom (UK)
1340-1410	Q/A Session	-	ISSRA Hall
1410-1425 (15 mins)	Concluding remarks by the Chief Guest	Sardar Awais Ahmad Khan Leghari, Federal Minister for Power	“
1425-1430	Presentation of Souvenirs/Group Photo		‘
1430-1435	Vote of thanks	President NDU/DG ISSRA	“
1435 onwards	Light Refreshments	-	ISSRA Lounge

Key Takeaways

- The seminar emphasised that Pakistan's energy challenge is closely linked to governance and economic management. Electricity and petroleum costs reflect not only energy costs but also weaknesses in institutional arrangements, recovery, planning, contracting, and management of the wider energy system.
- Pakistan's heavy dependence on imported energy, particularly crude, refined petroleum products, and LNG, has emerged as a major source of external vulnerability. Dependence on international prices and limited supply routes makes finding alternatives, expanding domestic production, and maintaining strategic reserves integral to energy security.
- Diversification of import markets, such as Russia, Iran, Africa, and Latin America, must be high on the agenda to ensure energy security, despite geopolitical constraints.
- While highlighting the importance of domestic production, participants stressed that Pakistan has a strong exploration success ratio, but much of the country remains unexplored. At the same time, mature fields require continued investment, technology, and exploration to maintain production.
- Participants emphasised the importance of maintaining fuel supplies during external disruptions. Pakistan maintained continuity of petroleum supplies without widespread rationing, queues, or stockouts through coordinated government monitoring, diversified sourcing, diplomatic engagement, demand management, and supply-chain coordination. However, the discussion also called for temporary reductions in applicable tariffs or levies during periods of acute external disruption to provide short-term relief, with such measures to be reviewed as conditions stabilise.
- The discussion identified the need for larger strategic petroleum reserves, improved stock visibility, alternative routes, port and pipeline infrastructure, and emergency release and allocation mechanisms as necessary to absorb future supply shocks.
- Modernising domestic refining capacity emerged as an important step for energy security. Refinery upgrades can increase local production of cleaner fuels and reduce dependence on imported refined products. In contrast, improved pipelines, ports, storage facilities and logistics can reduce supply-chain costs and vulnerabilities.
- The decline in domestic gas supplies and the growing circular debt in the gas sector remain major challenges. The discussion emphasised the need for increased exploration, equitable tariff structures, and a more competitive gas market.
- The seminar emphasised the need for greater use of renewable energy, alternative fuels and diversified imports to reduce exposure to disruptions affecting any single fuel, supplier or route.
- The energy transition was presented as an opportunity to reduce dependence on petroleum through electric transport, grid-integrated renewable energy and battery energy storage. Electrification and renewable deployment must advance alongside grid modernisation to avoid creating new bottlenecks in transmission and distribution.

- The power-sector challenge has shifted from a generation shortage to a crisis of cost, structure, utilisation and delivery. Installed generation capacity alone is not enough; transmission constraints, distribution inefficiencies, theft, recovery and demand must be addressed as part of one continuous system.
- Improving governance and operational efficiency in the power sector was seen to require professional and independent boards, stronger technical capacity, digitisation, the restructuring of transmission institutions, and improved regulatory and policy coordination.
- Industrial competitiveness was closely linked to electricity prices and the broader cost of doing business. The discussion emphasised that reducing system inefficiencies, improving utilisation of existing infrastructure, and enabling a competitive electricity supply are necessary to support industrial growth and exports. A regional comparison of petroleum prices highlighted the differences in energy costs across South Asian countries and the cost pressures faced by Pakistani consumers and businesses.
- International experience pointed to the importance of independent regulation, a clear separation of policy, transmission and market functions, transparent market rules, and appropriate financing mechanisms. Cooperation and adapting relevant international lessons were considered important for Pakistan's reform process.
- The need for a national integrated energy plan emerged as a necessity. The proposed framework would balance energy security, economic considerations and price, equity and environmental objectives, providing a long-term basis for coordinated decisions.
- Overall, the discussions indicated that affordable and secure energy cannot be achieved through isolated interventions. Pakistan requires a coordinated energy architecture that integrates indigenous supply, varied sources of imports, strategic reserves, efficient infrastructure, sectoral reforms, market development, digitalisation, renewable integration, and long-term integrated planning.



Inaugural Session



- The seminar highlighted that energy is no longer simply a question of producing electricity or securing fuel supplies. It is now closely linked to economic competitiveness, industrial productivity, external vulnerability, and national resilience.
- Pakistan possesses considerable energy potential, including hydropower, coal, nuclear, wind and solar resources. Still, the central challenge remains converting these resources into affordable, reliable and sustainable energy for domestic and industrial consumers.
- The discussions identified petroleum and power as the two principal dimensions of the seminar, reflecting the structure of the energy ministry and allowing the discussion to examine both fuel security and the delivery of electricity to consumers.
- The petroleum discussion focused on hydrocarbon supplies, import dependence, global price exposure, local exploration and refining, regional energy cooperation, alternative fuels and petroleum security, while the power discussion examined affordability, reliability, industrial competitiveness and the persistence of electricity-sector problems despite periods of surplus.
- Electricity bills were presented as a reflection of the wider governance and economic management challenges facing the country. Energy affordability therefore depends not only on generation or fuel prices but also on how institutions, contracts, losses, recovery, and sectoral finances are managed.
- The discussion highlighted that Pakistan's gas supplies are declining and that the era of cheap gas is ending, increasing the importance of a gradual transition towards electricity and other available energy sources while ensuring that the power system is capable of supporting this shift.
- Climate change and extreme weather events were identified as additional factors that must be incorporated into energy planning. Energy infrastructure, particularly transmission and distribution systems, needs to account for resilience and mitigation as climate-related risks increasingly affect infrastructure and supply security.

- The power-sector challenge was described as a mismatch between available generation and economically priced electricity. Expensive and inefficient plants, capacity payments, transmission and distribution losses, circular debt and weak recovery contribute to a system in which installed capacity does not necessarily translate into affordable electricity.
- The session also highlighted the rapid growth of solar adoption and its implications for grid stability, transmission and planning. The need for storage, grid modernisation and better integration of distributed generation was emphasised so that the transition can proceed without creating new system constraints.
- The concluding recommendations emphasised reforming the way generation contracts are designed so that public interests are adequately protected, prioritising DISCO-level loss reduction through smart metering and transformer-level technology, addressing circular debt, and investing in storage and grid modernisation to manage the rapid growth of solar. The discussion also stressed systematically accessing climate finance, strengthening the power ministry's institutional capacity, and embedding technology, transparency, and competition into sector governance.



Session-I (Petroleum)



- Discussions in the petroleum session examined Pakistan's vulnerability to imported energy and the way external disruptions can quickly affect domestic fuel availability and prices. Pakistan remains heavily reliant on imported petroleum products, while a significant share of its supplies is exposed to concentrated maritime routes and international market conditions.
- The recent regional shock demonstrated both the resilience achieved through coordinated response and the weaknesses that remain in the petroleum system. Pakistan maintained petroleum supply continuity without widespread rationing, queues or stockouts. Still, the disruption exposed the absence of a sovereign strategic petroleum reserve, limited stock visibility and dependence on commercial arrangements.
- Participants noted that emergency response mechanisms included government-wide monitoring, pricing and supply coordination, diversification of sources, diplomatic engagement and measures to manage demand. These measures helped maintain supply, but the experience reinforced the need to move from reactive crisis management towards a permanent energy-security architecture.
- The petroleum sector was described as operationally important but strategically unprepared. Commercial stocks provide an immediate supply cushion, but they do not provide the same sovereign protection as strategic reserves. Larger reserves would provide decision-making time during a disruption and act as insurance against chokepoint and route shocks.
- The discussion examined possible approaches to strategic petroleum reserves, including underground storage options and the need for site-specific geological assessment before investment. The emphasis was on developing reserves as part of a broader system of commercial and bonded storage, infrastructure connectivity and emergency protocols rather than treating storage as an isolated intervention.
- Supply diversification was identified as another central requirement. Pakistan's exposure spans crude, refined products, LNG, and LPG, and long-term supply contracts do not eliminate physical route risk. Diversification therefore needs to cover suppliers, routes and products so that disruption in one part of the chain does not translate into a nationwide shortage.



- Indigenous exploration was highlighted as a major opportunity for reducing external vulnerability. Pakistan has a high drilling success ratio, while only a portion of the country has been explored. Participants stressed that renewed exploration, appraisal of existing licences and entry into new areas can expand domestic supply and reduce foreign-exchange exposure.
- Reserve replacement was identified as essential for sustaining indigenous production. Mature fields require optimisation through workovers, improved surface facilities and the deployment of appropriate technology, while new exploration is necessary to offset natural depletion. The discussion therefore emphasised continued investment in seismic surveys, drilling, and field development.
- The discussion also highlighted collaboration with academia and technology providers to address technical challenges and improve recovery, reinforcing the importance of strengthening domestic technical capability.
- The petroleum session further highlighted the role of foreign technical participation and investment in expanding exploration, particularly in offshore areas. However, investment was linked to the need for a secure operating environment, stable regulatory conditions and policy continuity so that upstream decisions with long time horizons can be undertaken with confidence.





- Refining was identified as a critical component of energy security because domestic crude production alone cannot ensure affordable fuel supply. Existing refining capacity requires modernisation, cleaner fuel production and improved utilisation, while refinery upgrades can reduce imports of finished products and strengthen domestic value addition.
- Downstream infrastructure was discussed in terms of ports, single-point moorings, pipelines, storage and the movement of petroleum products. Greater pipeline utilisation and improved logistics can reduce costs and concentration risks, while stronger storage standards, regulatory enforcement and consolidation where appropriate can improve market discipline.
- Gas-sector challenges were discussed alongside petroleum security. Declining domestic gas production, expensive imported LNG, delayed recoveries, and accumulated circular debt affect both affordability and the sector's sustainability. Greater exploration, tariff rationalisation, targeted subsidies, cost recovery and a more competitive market were identified as areas requiring continued attention.
- The discussion highlighted the evolving role of LNG in Pakistan's energy system as the rapid expansion of solar power altered electricity demand. It reduced the utilisation of gas-fired power plants. The shift towards using these plants mainly for peak demand contributed to excess LNG in the system and affected the balance between imported LNG and indigenous gas production. The discussion underscored the need for better coordination between gas and power-sector planning.
- The energy transition was presented as a structural shift in which oil is gradually moving from its traditional role as a primary energy carrier towards backup, peaking and petrochemical uses. The discussion emphasised that Pakistan cannot avoid this transition and should manage it in a way that protects energy security and economic interests.
- Participants highlighted transport electrification as one means of reducing petroleum dependence. Electric vehicles can shift part of transport energy demand from imported petroleum towards electricity produced from indigenous sources, but this requires corresponding investment in the grid, charging infrastructure and storage.



- Renewable energy was similarly viewed as part of a diversified energy portfolio. Solar, wind and hydropower can reduce reliance on imported fuels, but their integration must be planned carefully. The rapid growth of distributed solar showed that adoption can outpace network planning, pressuring local grids if storage and infrastructure do not develop in parallel.
- Battery energy storage was identified as an important mechanism for integrating variable renewable generation. Storage can support peak management, frequency regulation, emergency backup, and balancing electricity supply and demand, while also supporting transport electrification and reducing pressure on the grid.
- Technology and digitalisation were highlighted as additional tools for strengthening petroleum security. Artificial intelligence applications were discussed across drilling, production, reservoir management and economic analysis, demonstrating potential improvements in drilling performance, fluid-loss management, production optimisation and leak detection.
- The petroleum session concluded with a roadmap centred on larger strategic reserves, diversified supply, electrified transport developed in step with the grid, greater deployment of storage and renewable energy, and AI-enabled foresight. The overall objective was to build a petroleum system that remains available, affordable and sustainable during future shocks.
- ·During the interactive discussion, participants raised the need to examine additional routes and locations for strategic storage, including possibilities connected with regional supply. It was noted that strategic reserve design must consider transport costs, logistics, financing, maintenance, governance, and the appropriate mix and quantity of products to store.
- ·Questions also highlighted concerns regarding unlicensed or illegal storage and the need for stronger regulatory enforcement. The response emphasised that regulatory and law-enforcement institutions had taken action against reported violations and illegal storage, while reinforcing the importance of compliance and oversight.
- ·The discussion further examined the future of LNG procurement and the need to balance contracted and spot supplies in response to changing market and route conditions. Participants stressed that integrated planning is necessary because petroleum, gas and power decisions affect one another and should not be developed in isolation.


ISSRA COLLABORATION

Session-II (Power)

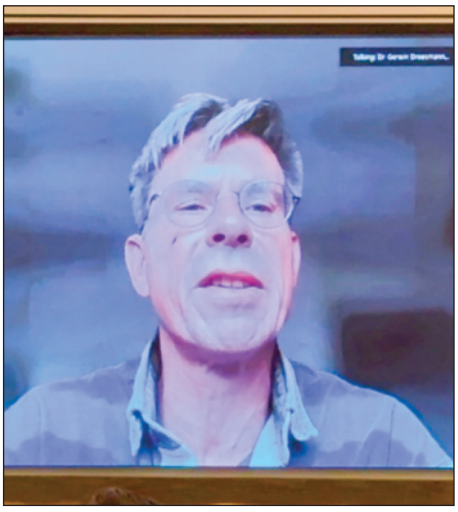


- The second session shifted the discussion from petroleum supply security to the affordability, reliability and sustainability of electricity for households, industry and businesses. The session examined Pakistan's power-sector structure, the causes of high electricity costs, ongoing reforms, international approaches and future strategies.
- The three "golden rules" were underscored for ensuring energy security: diversification, predictability and cooperation. Diversification was presented as important to avoid excessive exposure to a single energy source, supplier, route, or technology, with Pakistan's hydropower, nuclear power, and rapidly expanding solar capacity highlighted in this context.
- Predictability was emphasised in relation to long-term investment in renewables, batteries and grid infrastructure, requiring clear objectives, transparent processes, implementation timelines and forward-looking grid planning.
- Cooperation was discussed in the context of the common challenges countries face in integrating renewable energy, with Pakistan able to draw on the experience of countries with higher shares of wind and solar while adapting those lessons to its own circumstances.





- The power-sector discussion highlighted that Pakistan has moved from a period dominated by concerns over insufficient generation to a situation in which substantial installed capacity coexists with affordability problems, transmission constraints, distribution inefficiencies and periods of underutilisation.
- Generation, transmission, distribution and regulation were presented as interconnected parts of the power system. Seasonal variations in demand and generation, transmission constraints between regions, high losses, exchange-rate effects, circular debt, theft and management inefficiencies all influence the final cost and reliability of electricity.
- The discussion emphasised that increasing generation alone cannot resolve the power-sector challenge. Generation must be planned alongside transmission and distribution capacity, demand, pricing, and system efficiency so available electricity can reach consumers at an affordable cost.
- Industrial competitiveness was closely linked with electricity prices. High energy costs, together with taxes, financing costs and other business constraints, were described as barriers to exports and industrial activity. Lowering electricity costs therefore requires improving system efficiency and the productive use of existing infrastructure.
- International comparisons highlighted gaps in industrial electricity costs, grid reliability and losses, while also demonstrating the relevance of renewable integration, digitalisation and electric-vehicle adoption. The discussion focused on regulatory autonomy, unbundling of sector roles, long-term planning, and competitive market structures as areas from which Pakistan could draw lessons.
- Governance reforms were discussed as a central part of the ongoing response. Professional boards, stronger technical capacity, improved monitoring and the establishment of a dedicated technical and policy function were presented as measures intended to strengthen decision-making and operational performance.
- Power-sector reforms included reductions in circular debt and distribution inefficiencies, renegotiation of power contracts, retirement or disposal of inefficient generation units, changes to the treatment of distributed solar, improved recovery, digitisation and the development of competitive electricity markets.



- Integrated generation and transmission planning was identified as particularly important for preventing unnecessary additions to capacity. The alignment of generation and transmission plans was described as a way to avoid redundant investment and reduce future pressure on consumer tariffs.
- ·The transition towards competitive bilateral electricity markets was highlighted as a major structural reform. Moving from a single-buyer model towards multiple buyers and suppliers is intended to improve competition, encourage investment and allow electricity to be traded through a more transparent market framework.
- ·Transmission restructuring and modernisation were also emphasised. The restructuring of transmission functions into separate entities for asset management, system and market operation, and infrastructure development was presented as a way to improve planning, project implementation, and electricity market functioning.
- ·Digitisation was identified as an important tool for reducing losses and improving system management. Smart meters, automated metering, transformer-level monitoring and advanced power-management systems can provide better data, identify losses and support more targeted interventions in high-loss areas.
- ·Battery storage and grid modernisation were discussed as necessary responses to the growth of distributed solar. Storage can absorb surplus electricity, support evening demand and improve grid stability, while transmission upgrades are needed to move lower-cost electricity from generation centres to major demand centres.



- The discussion also highlighted the importance of addressing legacy costs and capacity payments. Reforms to contracts, financing structures and the treatment of older plants were presented as necessary to reduce the fixed burden on consumers and create room for more competitive electricity prices.



- Future planning was described as increasingly oriented towards cleaner and more indigenous energy. The projected future energy mix included greater hydropower, nuclear, utility-scale renewable generation, distributed solar and battery storage, and reduced reliance on imported fuels.
- Questions during the session focused on solar adoption, battery storage, wind potential, transmission constraints, regional electricity supply, coal conversion, micro- and mini-grids, industrial electricity costs and the effect of legacy power contracts. Responses repeatedly returned to the need to view generation, transmission, distribution, demand, and finance as one system.
- Participants highlighted the need to address underserved areas through appropriate off-grid or decentralised solutions where extending the central grid is not economically or financially feasible. The discussion also pointed to solarisation of agricultural tube wells as an alternative approach in areas facing persistent recovery and supply challenges.
- The session concluded that the power sector requires both continued reform and adequate investment. Modernising the grid, improving recovery, reducing theft and losses, strengthening market arrangements, integrating storage and renewable energy, and maintaining predictable policy were identified as necessary to translate available capacity into affordable and reliable electricity.



Closing Session



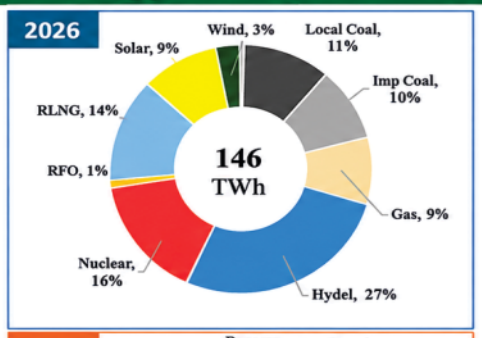
- The concluding remarks highlighted progress made in the power sector over the preceding two years, while stressing that the remaining challenges require continued structural reform. The discussion noted improvements in distribution efficiency and recovery, along with reduced circular debt and sectoral financial pressures.
- Reforms to power-generation contracts were identified as an important component of reducing the burden on consumers. Renegotiating independent power producer agreements was described as generating substantial savings. At the same time, the move from net metering to net billing was intended to make solar adoption more sustainable for the wider electricity system.
- The discussion emphasised that the move towards net billing was not intended to discourage solar adoption. The growing use of batteries was highlighted as a means for consumers to store their own solar generation and use it during higher-cost periods, allowing solarisation to continue within a more balanced system. The disposal of old and inefficient government-owned generation plants and the reduction in the subsidy burden were also presented as part of the wider reform process.
- Institutional strengthening was identified as another important area of reform. A dedicated technical and policy arm was established to provide engineering, financial modelling, regulatory and analytical support to the Ministry. The importance of technical expertise was emphasised to improve decisions in a sector increasingly dependent on complex financial, engineering, and market considerations.
- Integrated generation and transmission planning was highlighted as a major change in the way future electricity requirements are assessed. Generation and transmission expansion plans are now being developed together, allowing unnecessary capacity additions to be identified and avoided. The process was described as removing the need for approximately 8,000 MW of additional capacity and avoiding a projected burden of more than US$17 billion.
- The discussion further highlighted the move towards digitisation of the power network. Smart-meter deployment is being expanded, while transformer-level monitoring is being introduced to address losses and economic load shedding more directly. The transition to a competitive electricity market was also presented as a major structural reform, with competitive suppliers and wheeling arrangements expected to reduce the government's role as the purchaser of additional power.

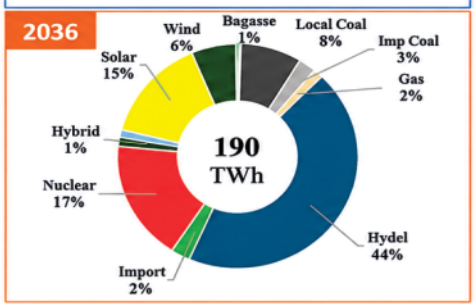
- The future direction of the power sector was presented through the projected 2026–2036 energy mix. Hydropower capacity was expected to increase substantially, while thermal capacity would decline and nuclear and utility-scale renewable capacity would expand. Distributed solar was also projected to grow significantly, accompanied by utility-scale and consumer-level battery storage.
- The projected mix showed clean energy increasing from 54% in 2026 to 87% in 2036, while the fossil share fell from 46% to 13%. The local share was projected to rise from 76% to 94%, with imported energy declining from 25% to 6%. The shift was presented as strengthening energy self-reliance while reducing exposure to imported fuel.

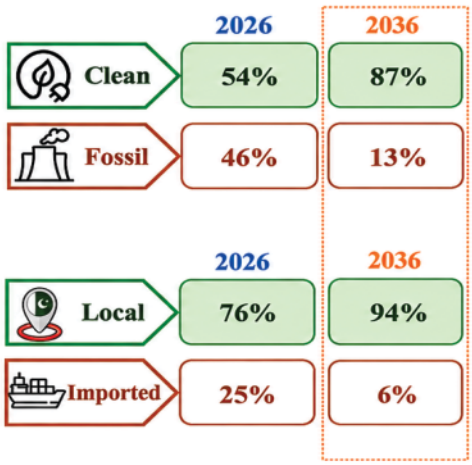
Energy Mix (2026 Vs 2036)

Fuel	2026	2036
Hydel	11,597	21,373
Thermal	18,375	15,545
Nuclear	3,530	4,730
RE	2,895	9,179
NGC	36,398	50,826
KE	2,496	3,343
Distributed Solar	20,358	37,358
Battery (Grid) Battery (Consumer)*		3,050 30 GWh
Public	34%	32%
Private	66%	68%
Total	59,252	94,577

*Battery (Consumer) is not added in total installed Capacity







- The closing remarks also highlighted the potential conversion of imported-coal plants to local coal as a means of reducing electricity costs and strengthening energy self-reliance. The wider direction of the power sector was therefore presented as one in which indigenous resources, renewable energy, storage, improved planning and market reforms increasingly support both affordability and security.
- The closing session concluded that affordable and secure energy requires fixing the larger structure of the power system rather than relying on individual interventions. Continued reform, integrated planning, technical capacity, efficient markets and greater use of indigenous and cleaner energy sources were highlighted as necessary to strengthen Pakistan's energy resilience.


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