

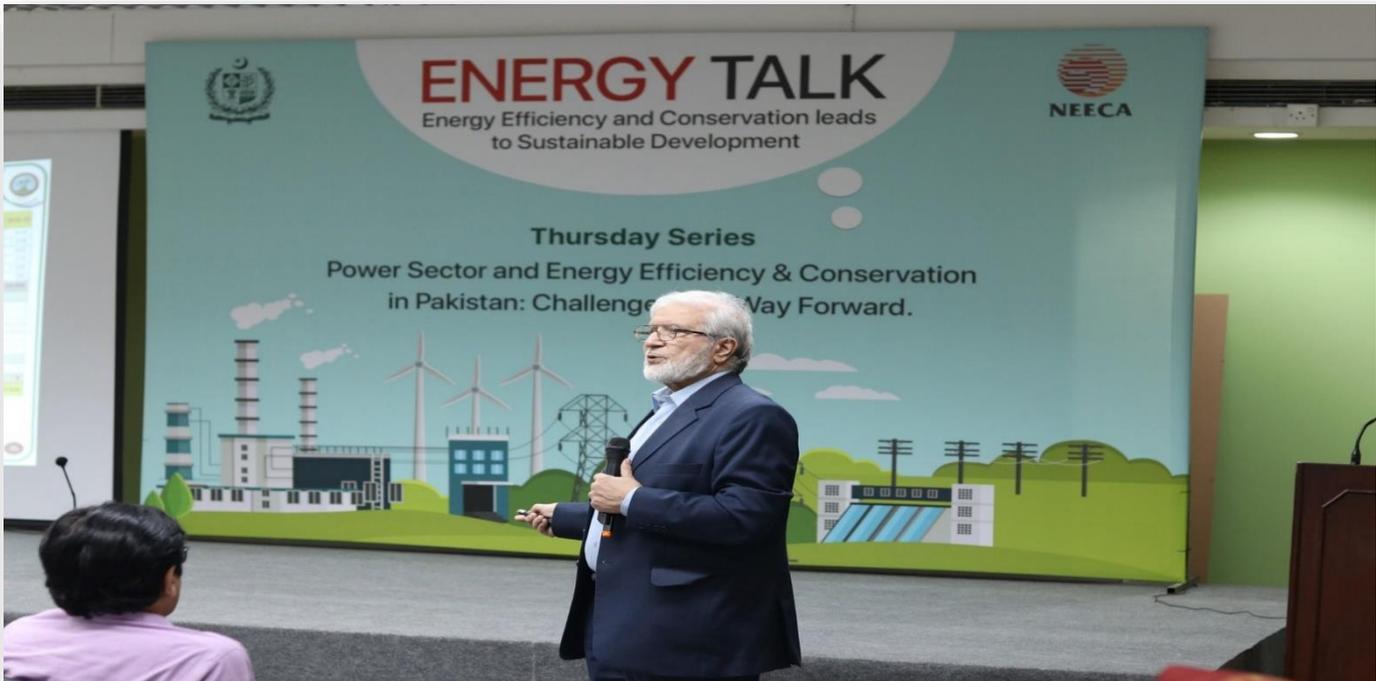


GOVERNMENT OF PAKISTAN
 MINISTRY OF SCIENCE & TECHNOLOGY
 NATIONAL ENERGY EFFICIENCY & CONSERVATION AUTHORITY
 NEECA BUILDING, G-5/2, ISLAMABAD, PAKISTAN
www.neeca.gov.pk



NEECA’s Energy Talks Series – 03

Topic	Energy Efficiency and Conservation in Power Sector
Guest Speaker	Mr Salahuddin Rifai – Chairman IESCO Board
Venue	Multipurpose Hall – NEECA Building
Date	2 nd June 2022





Power Sector Energy Efficiency and Conservation

Power sector accounts for the generation, transmission, and distribution of electricity to domestic, commercial, and industrial consumers. The transmission and distribution losses of Power and Natural Gas utilities in Pakistan are the highest in the region. The average power distribution losses in Pakistan are about 20% and for some DISCOs, these losses reach 38%. The efficiency gains, as well as reduction in transmission and distribution losses both from electricity and gas, can save PKR 140 billion annually.

Key Players in Power Sector (Transmission & Distribution) include;

- **NTDC** constructs, operates, maintains primary transmission network (i-e 500,220 kV transmission lines & 500/220 kV grid stations), provides wheeling facility to CPPA-G for purchase of power from generators and selling to DISCOs
- **DISCOs** construct, maintain secondary transmission network (i-e 132,66 kV transmission lines & 132/11 kV grid stations) and 11/0.4 kV distribution system
- **NPCC** is responsible for operation, monitoring of generation, both primary and secondary transmission system and coordination with all Power sector stake holders (i-e MOE, NTDC head and field offices, DISCOs, GENCOs, CPPA-G & IPPs)

Avenues for Energy Savings in Power Sector Supply Chain

Generation:	Improvement of Efficiency and Optimization / Economic Dispatch
Transmission:	Re-enforcement & Loss Reduction
Distribution:	Re-enforcement & Loss Reduction
Utilization:	Use of Efficient Gadgets, labelling and New Technological Advancement of various appliances. Carrying out Technical Audits, Indigenous Smart Metering Applications

Pakistan is among the 04 countries in the world that installed 500 KV lines in its transmission network. There is huge potential to reduce energy losses on the generation and distribution side by providing technical alternatives. With the passage of time demand for electricity has increased in Pakistan and in parallel many institutional structures are introduced rather than giving priority to technical challenges. As a result, today circular debt has crossed 2.6 trillion and so on. The reduction in losses of 11K through bifurcation of 11KV lines, by installing capacitors and adding more transformers to distribute the load can offer monthly savings of 1800 MW approximately.

Measures to reduce Discos Losses up to 2000 MW of load and Energy

- ✚ Reduce 11 KV technical Losses
- ✚ Bifurcate 11 KV Lines
- ✚ Make new Grid Stations for that purpose



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- ✚ Put larger Conductors on Dist. Lines
- ✚ Reduce LT Lines of 415 V/220V lines.
- ✚ Add transformers
- ✚ Install Capacitors on lines and grids as needed
- ✚ Install SVC's on Transmission system as needed.
- ✚ Replace LT by 11KV to reduce losses by 800 times

There is need for drastic changes in Pakistan's power sector transmission and distribution network to overcome the challenges. Although, DISCOs have taken certain measures in their respective distribution network. However, strict compliance of efficiency standards and conservation measures at demand side have not been prioritized. Demand side energy management has implications for power consumption. It has been reported that over 67% of the domestic electricity is consumed by the fans and lighting. Most of these appliances are inefficient and do not comply with modern energy efficiency standards due to a lack of standardization and labeling measures in the country. This shows that there is a substantial energy-saving potential that exists in the residential sector which can be achieved by converting low efficient lighting and fans to more efficient ones.

NEECA has the mandate to ensure energy efficiency & conservation in power sector at all three levels to achieve national-level targets. It was discussed in the session that NEECA in collaboration with power sector entities (GENCOs, NTDC, and DISCOs) will jointly design and commission energy loss reduction programs and to improve energy efficiency in power generation, distribution, and transmission. NEEC Policy 2022 focuses to collaborate with power sector entities;

- ✚ To develop mechanisms and programs for DSM in collaboration with MIRAD (Market Implementation Regulatory Affairs Department).
- ✚ Develop the capacity of power sector entities to implement the EE&C mandate under the National Electricity Policy (NEP) 2021
- ✚ Collaborate with the NEPRA to promote incentive-based demand participation mechanism through a transparent regulatory framework.
- ✚ Support power sector entities with requisite techno-economic analysis and inputs for smooth implementation of the demand side energy management programmes.
- ✚ Develop and promote the standards and compliance mechanism for regulating energy efficiency across power sector
- ✚ Support in the development and designing of gas to electricity transition for end consumers.
