**Urban resilience and electricity provision**

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Recently, the Pakistan Institute of Development Economics (PIDE) conducted a study to understand the impact of urban resilience on electricity provision in Karachi, Islamabad and Peshawar.

Urban resilience is the capacity of cities to act efficiently so that their residents and workforce, especially vulnerable people, are able to endure the stresses or shocks they encounter in their everyday lives. Literature suggests that in cities that are less resilient and have weak governance systems, it is difficult for various utilities to perform efficiently.

The federal capital, Islamabad, was found to be relatively more resilient as compared to Karachi and Peshawar. Although quite close, resilience in Karachi is slightly better than in Peshawar due to greater economic vibrancy and less poverty incidence as compared to Peshawar. The greater resilience of Islamabad, relative to Karachi and Peshawar, is also reflected in the performance of the Islamabad Electric Supply Company (IESCO).

However, Karachi is different from the other two cities because of weak governance and fragmented institutional structure. Though all three cities are suffering from the impact of urban sprawl, its impact on Karachi is relatively great in absolute terms and started much earlier as compared to urban sprawl in the other two cities.

From a utility perspective, IESCO is facing fewer challenges as compared to both the Peshawar Electric Supply Company (PESCO) and K-Electric. However, the nature of the challenges is different in both K-Electric and PESCO. Despite being a privatised entity, K-Electric operates in a regulated environment and has to deal with umpteen number of organisations in Karachi for approvals, delays in tariff determination, delays in the disbursements of Tariff Differential Claims, and delays in receivables from the government departments.

A brief overview of impact of urban resilience on electricity infrastructure and required means to improve it is given below:

Administrative support: No doubt it is the job of the utility to ensure reliable and safe electricity to city dwellers. But it needs support from the administrative management of the city. While comparing the three utilities – IESCO, PESCO and K-Electric – we find that IESCO is working in a city with a relatively better governance system. It also gets due support from various administrative units, when required. But this is not the case with PESCO or K-Electric.

Law enforcement support: Rapid urbanisation gives rise to complex urban jungles and slums. Karachi has one of the largest slums in Asia and enforcement of regulations as well as recovery from such areas is extremely difficult. Both PESCO and K-Electric are not getting support from law-enforcement agencies. Among these two, the situation is more challenging for K-Electric.

Natural calamities: In the last two decades, natural calamities are occurring more frequently as a result of global warming. Cities play an increasingly important role in tackling climate change because their exposure to climate and disaster risk increases as they grow. In recent years we have seen increased rains and due to inadequate administrative intervention, it results in water logging – potentially making electricity infrastructure unsafe for people passing through. In less resilient cities, infrastructure, particularly electricity distribution networks/ equipment, is more vulnerable to such calamities.

Illegal encroachments: Rapid urbanisation in the absence of required urban development is resulting in large informal settlements, often creating hurdles for electricity utilities and sometimes encroaching existing electricity infrastructure too. Illegal construction in all cities has led to structures that encompass high tension wires, transformers and other hazardous and extremely dangerous electric installations.

Investment in infrastructure and regulatory investment cap: Theoretically, it should have been relatively easier for K-Electric as a privatised company, to make investment decisions to upgrade or replace distribution infrastructure, but the company still needs regulatory approvals from Nepra. Despite being a privatised company, investments are allowed by Nepra in a Multi-Year Tariff Determination. For investments over and above Nepra-allowed levels, Nepra approval is required.

K-Electric, despite all challenges/ hurdles, is improving its performance via building consumer trust through various initiatives such as ‘Project Sarbulandi’ and upgradation of existing distribution infrastructure across the city. Whereas PESCO’s (state-owned company) main challenges are human resources constraints and lack of capital, and delays in disbursements of public funds for the upgradation of existing infrastructure, which is old and damaged. ‘Sarbulandi’ type projects should also be adopted in high-loss areas, not only in PESCO but also in other distribution companies in the country.

Reliable data: Above all, the compilation of city level data on a regular basis is essential to build the resilience of energy companies. The readily available data can help forecast future trends/ risks/ changes in city dynamics. Thus, helping utilities in making investment decisions in time.

A city’s economy depends on reliable electricity services. Thus, building the resilience of electricity systems is crucial for human welfare and economic growth. In such an environment, a utility company must have the financial capacity for timely periodic maintenance and to remain prepared for absorbing the effects of dangerous events in an efficient manner. Besides, without the support of relevant government departments/ city authorities, it is not possible for the utility company to work efficiently.

Pakistani cities demand planning, innovative solutions for water and sanitation, affordable housing, standard education and health facilities, improved law and order, and a sustainable environment. Urban population growth demands an efficient electricity infrastructure to cope with rising demand and changing circumstances. For densely populated cities like Karachi, a smart city with smart energy systems could be an option for the future.

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