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Outsourcing and Service Performance in an Urban Electricity Distribution Utility: Evidence from DESCO Customer Survey (2011) and Secondary Indicators (2013–2025)

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Abstract

Electricity distribution utilities in South Asia increasingly rely on outsourcing to improve service quality, reduce operating costs, and accelerate digitization. This study examines outsourcing in Dhaka Electricity Supply PLC (DESCO), using (i) a structured field survey conducted in 2011 among electricity consumers (n=430) across 12 Sales and Distribution (S&D) divisions and DESCO officers (n=32), and (ii) an update of key utility performance and financial indicators from secondary sources covering 2013–2025. The survey assessed perceived effects of outsourcing on meter reading accuracy, bill distribution timeliness, complaint handling, administrative cost reduction, and profitability. Bivariate regression/ANOVA tests indicate statistically significant associations between outsourcing and several service process outcomes, including actual meter reading ($p<0.001$), timely bill distribution ($p<0.001$), reduced consumer complaints ($p<0.001$), and quicker complaint handling ($p<0.001$). Perceived improvements were also significant for capital and overhead cost reduction, office space reduction, and net profit improvement ($p<0.05$). However, perceived effects on accountability and use of e-governance software were not statistically significant in the 2011 sample ($p>0.80$). Secondary indicators show DESCO achieved low system loss (~5.62%) and expanded prepaid metering (≈583,805 meters), while reliability improved compared with early 2010s but remained volatile by 2021–22 (SAIDI 455.25 minutes; SAIFI 22.02). Financial disclosures reported consecutive net losses in FY2022–23 to FY2024–25, with losses narrowing markedly in FY2024–25. Taken together, the findings suggest outsourcing can improve operational processes when paired with strong contract governance, but sustainability requires explicit accountability mechanisms and risk management.

Keywords: Outsourcing; Electricity Distribution; Service Quality; E-Governance; Reliability; Bangladesh

1. Introduction

Urban electricity distribution utilities face dual pressures: expanding demand and rising customer expectations for reliable, responsive service. In Bangladesh, utilities have pursued outsourcing (e.g., meter reading support, call centers, field services, IT systems) to access specialized capabilities, increase flexibility, and reduce fixed costs. Outsourcing can improve performance when contracts specify service-level outcomes and utilities retain strong monitoring capacity, but it can also introduce risks such as weak accountability, quality variability, and vendor lock-in. This manuscript evaluates outsourcing within DESCO using primary survey evidence (2011) and updated secondary indicators (2013–2025), aiming to inform policy and contract governance for utility modernization.

1.1. Bibliographic studies

Outsourcing is commonly framed as a strategic decision to focus on core competencies while contracting non-core or specialized functions to external providers. Prior studies emphasize potential gains in cost efficiency, access to

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technology, and service innovation, alongside transaction and governance costs that arise from monitoring, quality assurance, and contractual incompleteness. Evidence from developing-country contexts highlights that outsourcing outcomes depend heavily on institutional capacity, competitive procurement, and performance-linked contracts. In the Bangladeshi corporate context, research has also discussed challenges and prospects for HR and managerial outsourcing.

2. Materials and Methods

2.1. Study design

A mixed evidence approach was used: (a) a cross-sectional field survey conducted in 2011 among DESCO consumers and officers, and (b) a secondary-data update of utility performance and financial indicators spanning 2013–2025.

2.2. Study setting and population

DESCO is an urban electricity distribution utility in Dhaka. The 2011 survey covered 12 Sales & Distribution (S&D) divisions.

2.3. Sample size and sampling

Consumer sample size was calculated using a standard proportion-based formula (95% confidence, 5% precision), yielding 384; adding 5% attrition produced 403. A minimum of 30 respondents per division was applied, resulting in an implemented consumer sample of n=430. For officers, judgment sampling was used (n=32) to capture expert views.

Table 1 Population and sample allocation across S&D divisions (consumer survey, 2011)

S&D Division	Consumers (2011)	Share (%)	Designed sample	Applied sample
Nawabganj	28,645	6.32	25	30
Monipur	44,211	9.75	39	30
Shah Ali	25,679	5.67	23	30
Rupnagar	33,476	7.39	30	30
Pallabi	32,936	7.27	29	30
Kafrul	42,360	9.35	38	38
Gulshan	39,130	8.63	35	35
Baridhara	62,282	13.74	55	55
Uttara	58,655	12.94	52	52
Dakshinkhan	45,559	10.05	40	40
Tongi (East)	23,550	5.19	21	30
Tongi (West)	26,675	5.88	24	30
Total	453,158	100.00	403	430

2.4. Measures and analysis

The survey measured perceived effects of outsourcing on service processes (e.g., meter reading accuracy, bill distribution, complaint handling) and organizational outcomes (e.g., cost reduction, profit). A linear regression/ANOVA approach was applied to test associations between outsourcing and each outcome. Secondary indicators (reliability, system loss, prepaid meters, revenue/loss) were compiled from publicly available reports.

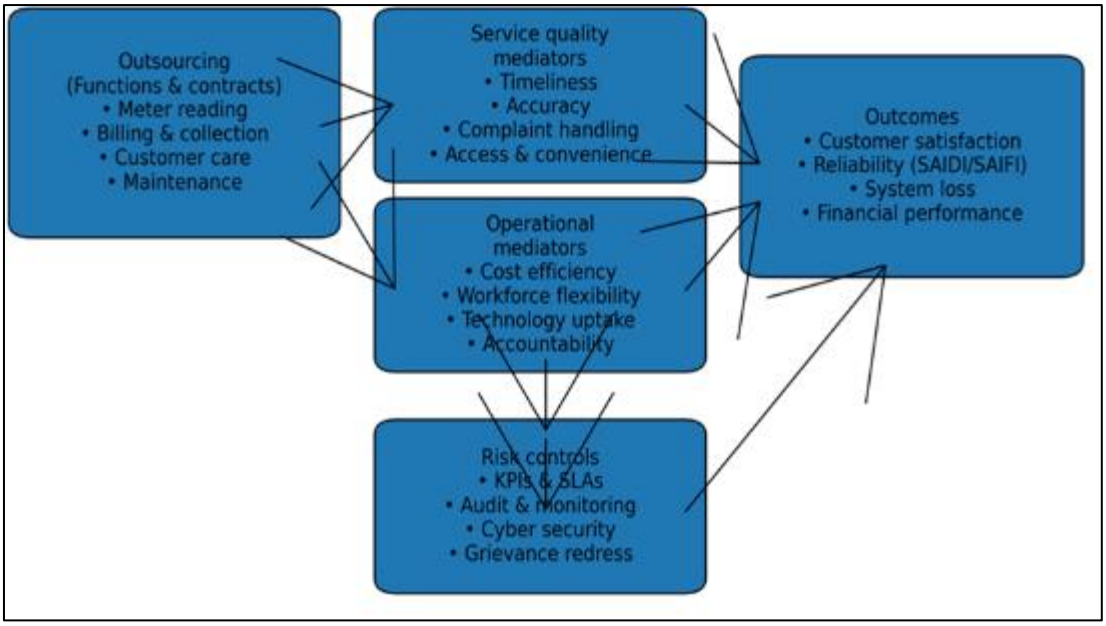


Figure 1 Conceptual framework linking outsourcing mechanisms to service and financial outcomes

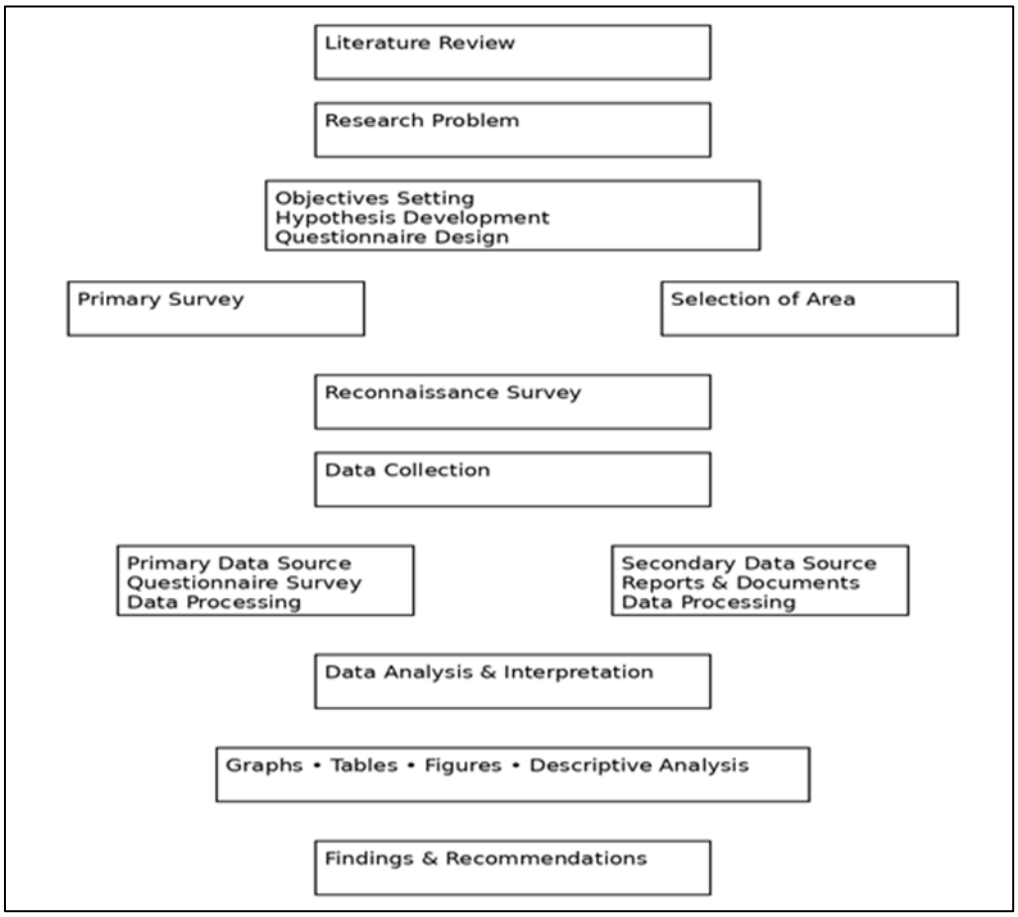


Figure 2 Study workflow presents the methodological workflow adopted in this study.

3. Results

3.1. Survey findings (2011)

Table 2 summarizes regression/ANOVA tests of perceived outsourcing effects across service and cost/profit parameters. Most operational process indicators were statistically significant at conventional levels, while accountability and e-governance adoption were not significant in the 2011 sample.

Table 2 ANOVA results for parameters associated with outsourcing (field survey, 2011)

Outcome parameter	df	Sum of Squares	Mean Square	F	Sig. (p)
Actual meter reading	2	58.149	29.075	41.163	1.66E-16
Timely bill distribution	2	26.502	13.251	17.979	4.26E-08
Reduce consumer complaint	2	43.747	21.873	22.009	1.22E-09
Reduce capital investment	2	8.116	4.058	7.973	0.001740
Reduce overhead & fixed cost	2	8.511	4.256	4.939	0.014260
Reduce office space	2	10.494	5.247	10.582	0.000354
Quick handling of consumer complaints	2	38.282	19.141	18.910	1.86E-08
In-time bill payment certificate distribution	2	41.147	20.574	20.520	4.49E-09
Improve accountability	2	0.233	0.117	0.102	0.903745
Increase net profit amount	2	10.494	5.247	10.582	0.000354
Number of employees in DESCO	2	8.914	4.457	8.097	0.001607
Use of e-governance software	2	0.067	0.034	0.217	0.806299

3.2. Hypothesis summary

Consistent with the ANOVA results, hypotheses related to meter reading, bill distribution, complaint reduction/handling, capital and overhead cost reduction, office space reduction, profit improvement, and staffing were supported. Hypotheses on improved accountability and increased use of e-governance software were not supported in the 2011 survey.

Table 3 Summary of supported hypotheses (field survey, 2011)

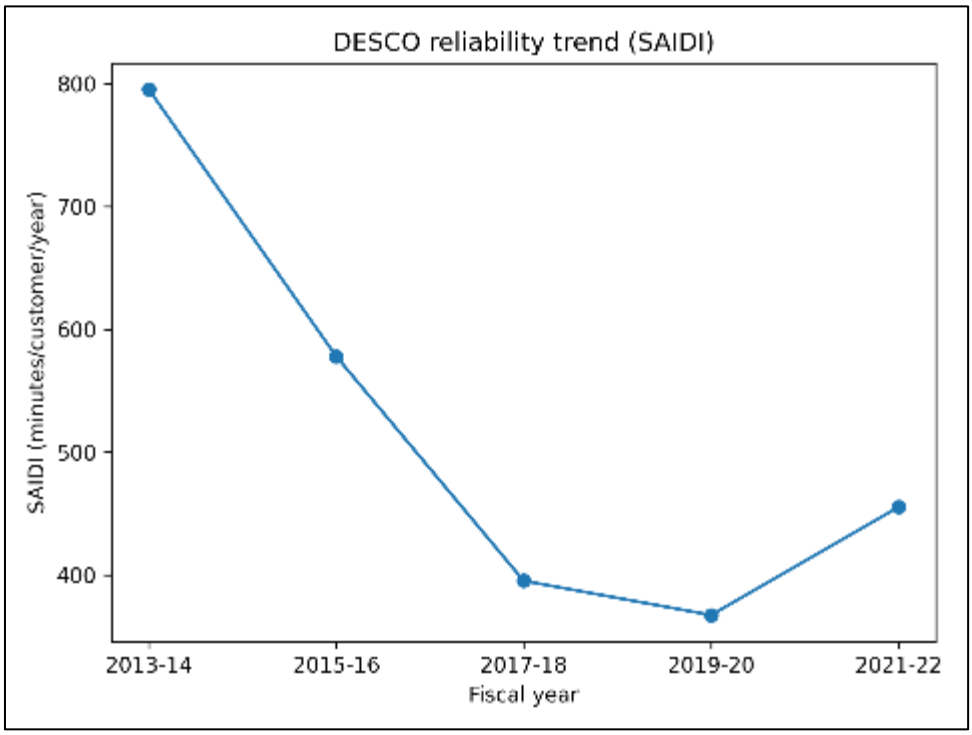
Hypothesis domain	Result	Evidence
Service operations (meter reading, billing, complaints)	Supported	Significant p-values in Table 2
Cost reduction (capital, overhead, office space)	Supported	$p<0.05$
Financial outcome (net profit)	Supported	$p<0.001$
Accountability	Not supported	$p=0.9037$
Use of e-governance software	Not supported	$p=0.8063$

3.3. Secondary indicator update (2013–2025)

To contextualize the 2011 perceptions within subsequent modernization, Table 4 compiles selected DESCO operational indicators, including system loss, prepaid metering, and reliability metrics. Figures 3–6 visualize trends in SAIDI/SAIFI and recent financial performance.

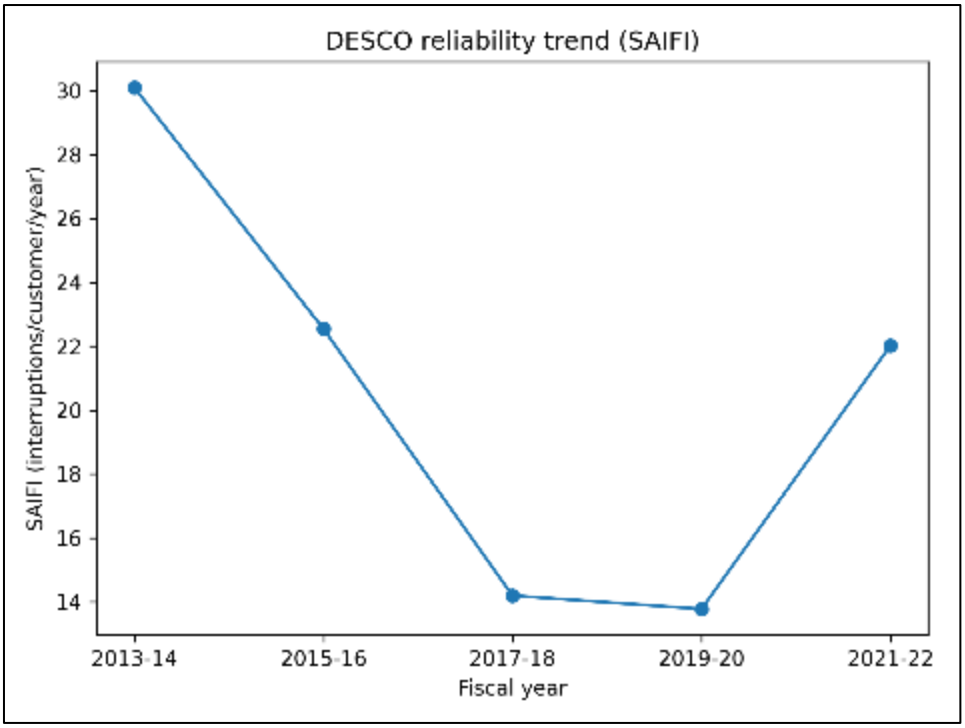
Table 4 Selected DESCO operational indicators (latest reported values)

Indicator	Value
Service area	245 sq. km
Operating divisions	24
Consumers (approx.)	1,157,490
Maximum demand	1,143 MW
Prepaid meters installed	583,805
System loss	5.62%
SAIDI (2021–22)	455.25 minutes/year/customer
SAIFI (2021–22)	22.02 interruptions/year/customer



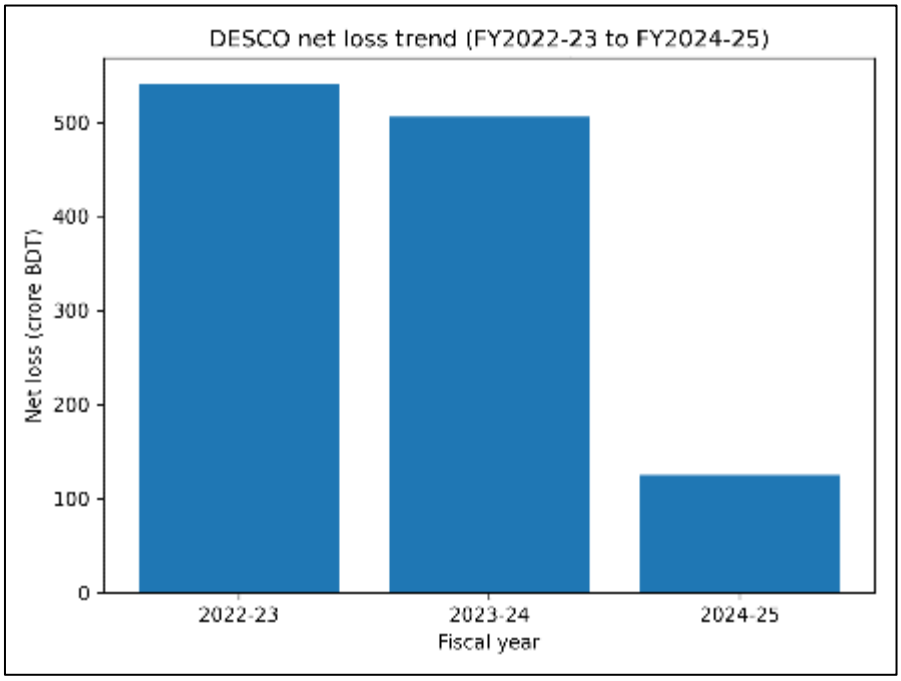
Source: Secondary indicator reported in DESCO presentation at World Utility Summit (2023) [1].

Figure 3 SAIDI trend in DESCO (2013–14 to 2021–22)



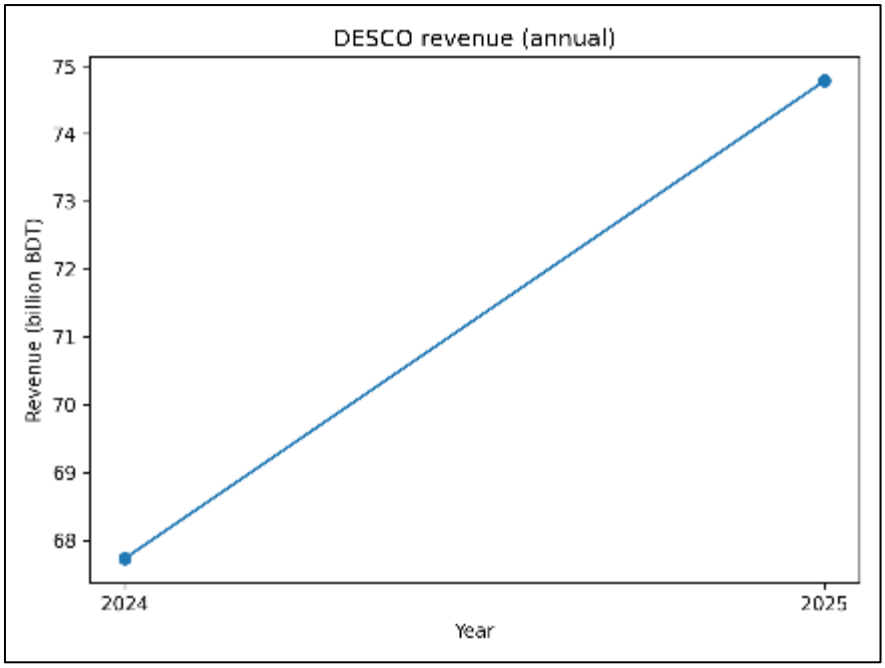
Source: Secondary indicator reported in DESCO presentation at World Utility Summit (2023) [1].

Figure 4 SAIFI trend in DESCO (2013–14 to 2021–22)



Source: Audited financial summary reported via DSE and cited by The Financial Express (2025) [2].

Figure 5 Net loss trend reported for DESCO (FY2022–23 to FY2024–25)



Source: StockAnalysis.com company financial performance summary (accessed Jan 2026) [3].

Figure 6 Revenue trend (2024–2025)

Table 5 Updated finance indicators (public disclosures)

Period	Metric	Value
FY2022–23	Net loss	Tk 541.21 crore
FY2023–24	Net loss	Tk 505.56 crore
FY2024–25	Net loss	Tk 125.23 crore
2024	Revenue	Tk 67.73 billion
2025	Revenue	Tk 74.78 billion

3.4. Risk pathway matrix for outsourcing in electricity distribution

Table 6 Outsourcing risk pathway matrix (mechanisms, outcomes, and controls)

Outsourced function	Process change	Expected outcome	Key risk	Mitigation/controls	Evidence link
Meter reading & billing support	Higher measurement accuracy; faster billing cycle	Reduced complaints; improved cash flow	Misreads/fraud; vendor underperformance	Spot audits; data validation; KPI-linked payments	Survey results + secondary KPI tracking
Customer care/call-center operations	24/7 access; ticketing and escalation	Better responsiveness; trust	Delayed resolution; reputational damage	SLA with response-time targets; grievance analytics	Survey + complaint trend review
Field services (connections, disconnections, O&M)	Quicker service delivery;	Lower SAIDI/SAIFI when well-managed	Safety incidents; quality variance	Certification; HSE compliance; supervision	Secondary reliability indicators

	flexible capacity				
Digital services & e-governance systems	Online applications; payments; data integration	Efficiency; transparency; reduced transaction costs	Cyber/IT risk; vendor lock-in	Security controls; interoperability; exit clauses	Secondary digitalization roadmap
Procurement & contracted works	Access to specialized skills and equipment	CAPEX smoothing; faster rollout	Cost overruns; weak contract governance	Competitive bidding; performance bonds; monitoring	Finance & governance indicators

4. Discussion

The 2011 survey suggests outsourcing was perceived to improve core service processes (meter reading, billing, complaint handling) and several cost-related outcomes. However, the lack of significant perceived improvements in accountability and e-governance adoption points to a common governance gap: outsourcing can deliver operational capacity, but accountability requires explicit performance management, data transparency, and clearly assigned responsibilities. The secondary indicator update shows DESCO expanded prepaid metering and maintained comparatively low system loss, while reliability improved relative to early 2010s but exhibited setbacks by 2021–22. The financial trend of consecutive net losses (FY2022–23 to FY2024–25) underscores that service-process improvements alone may not guarantee financial sustainability, especially under macroeconomic shocks and tariff/cost dynamics. Therefore, outsourcing strategy should be integrated with risk controls (Table 6), including SLA-driven monitoring, auditability, and vendor exit options.

5. Conclusion

Outsourcing in DESCO was associated with significant perceived improvements in multiple service delivery processes and cost/profit-related outcomes in the 2011 survey, but not with accountability or e-governance adoption. Updated secondary data indicate substantial modernization (prepaid meters, low system loss) alongside continued reliability and financial challenges. Policy implications include strengthening contract governance, linking vendor payments to measurable KPIs, and implementing data-driven accountability systems to sustain performance gains.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

The author declares no conflict of interest.

Statement of informed consent

Informed consent was obtained from survey respondents at the time of data collection (2011).

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