



Tendering Excellence Framework for Electrical Engineering and Utility Projects: A Governance-Based Approach for Enhancing Procurement Efficiency and Project Success under Saudi Vision 2030

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Abstract: Electrical and utility procurement is an economically consequential governance function because award decisions influence transaction costs, supplier incentives, capital efficiency, schedule reliability, lifecycle expenditure, and the development of domestic productive capability. This paper develops a governance-based Tendering Excellence Framework (TEF) for power, substation, transmission, distribution, and related utility projects. A structured conceptual synthesis integrates transaction cost economics, strategic procurement, value-for-money guidance, project and risk governance, asset management, contractor-selection research, and Saudi procurement requirements. The resulting six-stage model links procurement strategy, tender design, controlled bid management, technical-commercial-risk evaluation, governed award, and post-award learning. Its principal contribution is to connect mandatory compliance gates with a weighted scorecard and an economic-value logic that distinguishes acquisition price from total evaluated cost, risk exposure, lifecycle value, and localization impact. The TEF therefore positions tendering as a mechanism for reducing information asymmetry, limiting opportunism and costly contract adaptation, improving capital allocation, and strengthening supplier accountability. In the Saudi Vision 2030 context, the framework provides a practical route for aligning infrastructure procurement with institutional effectiveness, private-sector development, domestic capability formation, and reliable delivery. The model is conceptual and its weights are illustrative; empirical validation should test whether stronger TEF maturity predicts lower procurement-cycle cost, fewer claims, improved schedule and cost performance, and higher verified local-content outcomes.

Keywords: Tendering Excellence, Electrical Engineering, Utility Projects, Procurement Governance, EPC, Bid Evaluation, Saudi Vision 2030.

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1. INTRODUCTION

Reliable electrical infrastructure underpins industrial activity, public services, cities, transport systems, communications, water systems, and emerging digital loads. Power generation,

transmission, distribution, substations, protection and control systems, and utility interfaces therefore require procurement decisions that protect technical integrity while maintaining commercial discipline. The International Energy Agency identifies

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expanded, modern, and well-managed grids as essential to electricity security and energy transition, with investment, regulation, and planning all requiring sustained attention [1].

Tendering is the point at which project objectives are translated into enforceable requirements, bidder obligations, evaluation criteria, commercial terms, and risk allocation. A weak tender package can create ambiguity that persists throughout engineering, procurement, construction, testing, commissioning, and operations. Conversely, a well-governed process can clarify scope, establish comparable bids, test supplier capacity, expose risk before award, and create a defensible basis for contract administration.

Price remains important, but selecting the lowest initial price without adequate consideration of technical capability, execution methodology, schedule realism, supply-chain resilience, lifecycle cost, warranty support, and contractual risk may transfer hidden cost into later project stages. This is especially relevant in electrical utility work, where late delivery of long-lead equipment, protection-system incompatibility, incomplete interfaces, or inadequate commissioning resources can affect the entire energization sequence.

Saudi Arabia provides a timely context for this research. Vision 2030 links national transformation with a thriving economy and an ambitious nation committed to efficiency, transparency, accountability, and high performance [2]. The Government Tenders and Procurement Law define mechanisms including pre-qualification, post-qualification, framework agreements, and electronic procurement, while the executive regulations emphasize equality, transparency, pre-planning, quality, and economic effectiveness [3, 4]. These principles are directly relevant to electrical and utility procurement.

This paper proposes a practical Tendering Excellence Framework that connects front-end strategy, tender documentation, objective evaluation, risk-based award, and post-award learning. The framework is intended for utility owners, EPC contractors, consultants, public entities, developers, and commercial teams managing complex electrical infrastructure procurements.

1.1 Research Objectives

- Identify the technical, commercial, governance, and risk factors that influence tender quality in electrical engineering and utility projects.
- Develop an integrated tendering framework that can be applied from procurement strategy through post-award monitoring.

- Provide a transparent tender evaluation scorecard suitable for project-specific adaptation.
- Explain how the framework supports Saudi Vision 2030, public-procurement governance, local-content considerations, and reliable utility delivery.
- Define practical implementation controls and future empirical validation requirements.

1.2 Research Questions and Theoretical Contribution

The study addresses three questions: which governance and economic dimensions determine tender quality in complex utility projects; how can these dimensions be integrated into a transparent lifecycle framework that separates non-negotiable compliance from comparative value; and how can the framework support Saudi Vision 2030 priorities while remaining adaptable to project and market conditions? The paper contributes to business and economics literature by linking tender design to transaction cost economics, principal-agent controls, information asymmetry, strategic sourcing, and lifecycle value creation. It argues that procurement performance depends not only on competition at bid stage but also on governance fit: the alignment of decision rights, evidence requirements, safeguards, incentives, and monitoring intensity with transaction complexity and uncertainty [9].

2. Literature and Regulatory Context

2.1 Procurement Governance and Project Value

Project governance requires decisions to be documented, responsibilities to be clear, risks to be actively managed, and performance to be monitored across the lifecycle. ISO 21502 provides guidance for project management, ISO 31000 establishes risk-management principles, ISO 37301 addresses compliance-management systems, and ISO 55000 frames value realization through coordinated asset management [5–8]. Together, these references support an evaluation approach that considers more than initial bid price.

Existing project, risk, compliance, and asset-management standards establish valuable governance principles, while Saudi procurement regulations define requirements for transparency, qualification, equality, economic effectiveness, and local content. However, these sources do not provide a single lifecycle model tailored to the technical interfaces, long-lead equipment, commissioning dependencies, commercial normalization, and supplier-performance feedback required in electrical and utility tenders. This fragmentation creates a gap between general governance guidance and the practical design of auditable evaluation and award decisions. The present study addresses that gap by

integrating these requirements into the Tendering Excellence Framework.

From an economic perspective, complex tenders are incomplete contracting environments. Asset specificity, technical interdependence, uncertainty, and difficult-to-observe supplier effort can increase search, evaluation, negotiation, monitoring, adaptation, and dispute costs. Transaction cost economics predicts that governance should become more structured as these hazards rise; public-procurement research similarly finds that procurement competence and governance alignment are especially important for complex transactions [9]. Principal-agent logic adds that pre-disclosed criteria, independent evaluation, documented clarifications, and post-award monitoring reduce information asymmetry and constrain opportunistic behavior. The business case for TEF is therefore not administrative formality: it is the avoidance of value leakage between bid price and delivered asset performance.

2.2 Saudi Procurement and Local-Content Context

Saudi public procurement law identifies pre-qualification and post-qualification as measures for confirming bidder capability and recognizes structured procurement methods and an electronic portal. Executive regulations require equal access to scope information and clarifications, prohibit discrimination among bidders, and connect procurement planning to actual need, quality, economic effectiveness, development priorities, and strategic plans [3, 4].

Local content is also material consideration in applicable public procurements. Saudi regulations define local content broadly as spending through national goods, services, assets, technology, workforce, and similar national elements. They also establish mechanisms such as national-product preferences, mandatory lists, evaluation criteria, and gradual local-content plans for designated procurements [10]. The TEF therefore treats local content as a governed and verifiable evaluation component rather than an informal preference.

Strategic procurement also creates economy-wide effects. The OECD frames public procurement as a lever for productive economies, efficient public sectors, innovation, employment, SME development, and institutional trust [11]. World Bank guidance defines value for money as a fit-for-purpose balance of cost, quality, risk, sustainability, and delivery objectives rather than automatic selection of the lowest price [12]. Recent bid-evaluation guidance further supports rated criteria when quality and performance differences materially affect contract outcomes [13]. These principles justify

evaluating total economic value, not simply initial expenditure.

2.3 Saudi Vision 2030 and Utility Infrastructure

Vision 2030 includes major industrial, logistics, urban, renewable-energy, and economic-zone programs whose operation depends on reliable electricity and utility infrastructure. Its governance narrative emphasizes institutional effectiveness, transparency, accountability, diversification, and measurable delivery [2-14]. These priorities strengthen the case for procurement systems that are auditable, competitive, risk-aware, and capable of developing qualified local supply chains.

The relevance extends beyond government tenders. Private utilities, developers and EPC contractors operating within the national transformation environment face similar pressures: accelerated schedules, complex interfaces, localization expectations, long-lead equipment, global supply-chain uncertainty, and the need for dependable commissioning and handover. Tendering excellence is therefore both a compliance requirement and a delivery capability.

3. Experimental Section/Material and Methods

This study follows a transparent conceptual framework-development process. First, it defines the tender lifecycle from project need to post-award learning. Second, it maps governance controls from ISO 21502, ISO 31000, ISO 37301, ISO 55000, official Saudi procurement requirements, international grid-planning guidance, and established EPC tendering practice to each lifecycle stage. Third, it identifies evaluation dimensions material to electrical and utility performance, separates mandatory compliance gates from weighted comparative scoring, and incorporates risk, local content, and lifecycle value while avoiding double counting. Finally, it converts these dimensions into an illustrative scorecard and implementation roadmap. The resulting framework is intended for analytical and practical use but requires project-specific calibration and empirical validation.

The source-selection protocol covered five constructs: procurement governance, transaction-cost and agency risk, project and asset lifecycle value, contractor and tender evaluation, and Saudi procurement and localization policy. Priority was given to official legislation, international standards, multilateral guidance, and peer-reviewed studies. Sources were mapped to the tender lifecycle; their prescriptions were coded as governance mechanisms, economic-value drivers, evidence requirements, or outcome measures; overlapping controls were consolidated; and the resulting dimensions were checked to avoid double counting.

Construction-procurement research shows that selection criteria are context dependent and span decision tools, generic criteria, and project-specific criteria [15], while efficiency-based and multi-criteria tender studies demonstrate the importance of robust ranking rather than price-only formulas [16–19]. This protocol creates an auditable conceptual design trail, although it does not replace empirical validation.

3.1 Framework-Development Steps

- Define the tender lifecycle from project need to post-award learning.
- Map governance controls each lifecycle stage.
- Identify evaluation dimensions that are material to electrical and utility performance.
- Separate mandatory compliance gates from weighted comparative scoring.
- Incorporate risk, local content, and lifecycle value without double counting.
- Design a scorecard that preserves transparency while allowing project-specific weighting.
- Specify implementation controls and limitations for future validation.

3.2 Scope and Assumptions

The framework applies primarily to medium- and large-scale electrical engineering, power-system, substation, transmission, distribution, service-station utility, and associated EPC procurements. It assumes that the procuring organization has approved technical requirements, qualified evaluators, conflict-of-interest controls, and authority to define project-specific criteria. The scorecard is illustrative and must be calibrated to applicable law, sector regulation, owner policy, project risk, and procurement route.

4. Tendering Challenges in Electrical and Utility Projects

4.1 Scope and Interface Complexity

Electrical projects contain tightly coupled interfaces among primary equipment, secondary systems, civil works, telecommunications, protection, control, SCADA, metering, auxiliary systems, earthing, testing, and utility connections. Incomplete interface matrices or unclear responsibility boundaries can produce omissions, variation claims, duplicated scope, delayed approvals, and commissioning constraints.

4.2 Technical Comparability

Bids may comply through different equipment make, design philosophies, delivery models, exclusions, deviations, and assumptions. Without a structured compliance matrix, evaluators may compare prices that do not represent equivalent scope. Tender documents should therefore distinguish mandatory requirements, permissible alternatives, priced options, and information required for technical normalization.

4.3 Cost and Supply-Chain Volatility

Transformers, switchgear, protection systems, cables, steel structures, communication equipment, and specialized testing resources may have long lead times or constrained supplier markets. Tender evaluation should examine quotation validity, escalation assumptions, logistics, currency exposure, origin, manufacturing slots, inspection plans, and contingency arrangements.

4.4 Contractual and Delivery Risk

Ambiguous acceptance criteria, unrealistic milestones, unbalanced liability, weak change mechanisms, incomplete employer inputs, and unclear commissioning responsibilities create award-stage risks. These issues should be identified through structured contract review, deviation registers, schedule analysis, and quantified risk assessment before selection.

4.5 Governance and Evaluation Integrity

Evaluation quality can be reduced by inconsistent scoring, undocumented clarifications, criteria introduced after bid opening, unrecorded conflicts, or excessive discretion. A robust process uses approved criteria, evaluator calibration, controlled communications, traceable records, independent review, and clear approval thresholds.

5. Proposed Tendering Excellence Framework

The proposed TEF contains six connected stages, with governance, risk, compliance, and continuous improvement operating across the full lifecycle, as summarized in Figure 1. Its architecture synthesizes project-management, risk-management, compliance, asset-management, and procurement-governance principles [5-13].

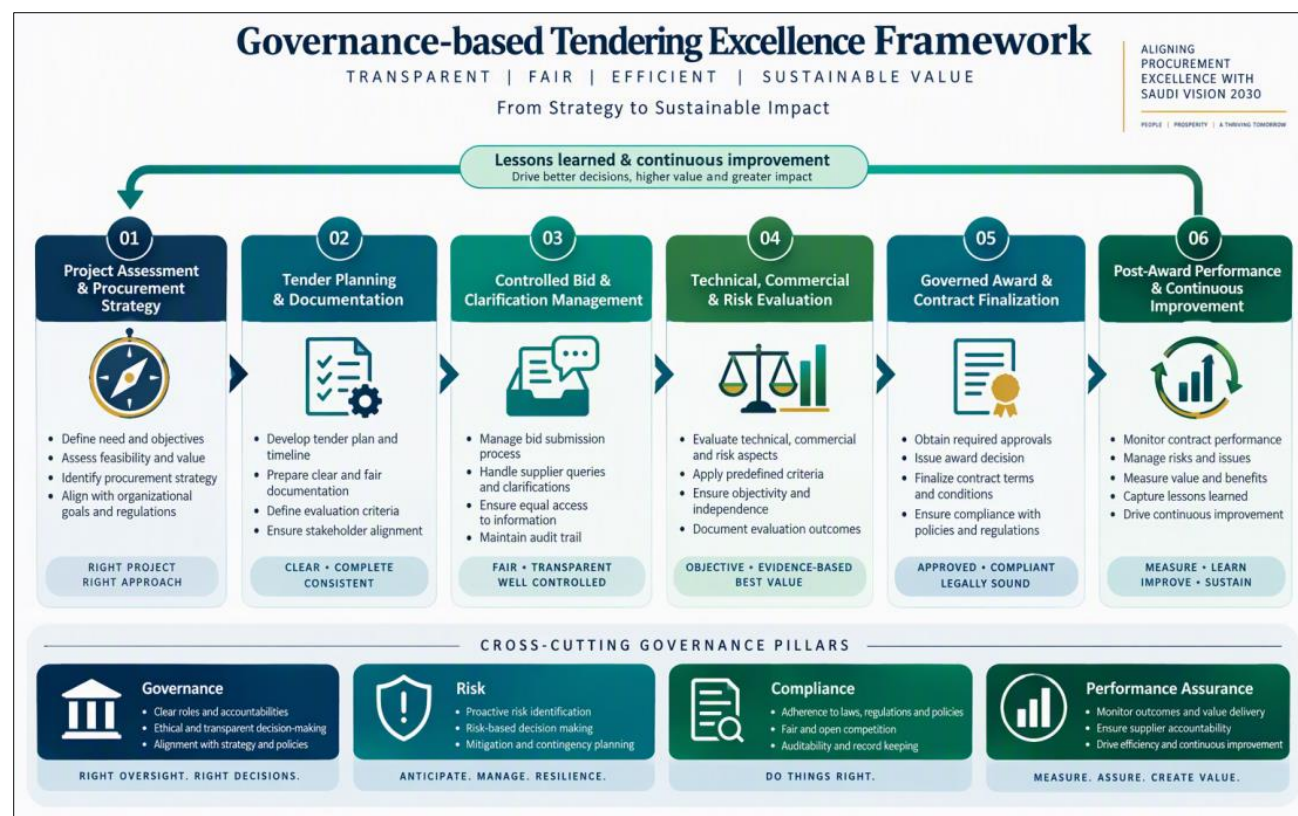


Figure 1: Governance-based Tendering Excellence Framework for electrical engineering and utility projects. Source: Author's conceptual development.

5.1 Stage 1: Project Assessment and Procurement Strategy

The first stage confirms the business need, scope maturity, stakeholders, funding, approvals, delivery model, market capacity, packaging strategy, schedule drivers, and principal risks. The procurement route should fit the project's complexity and allocation of design, construction, commissioning, financing, operation, and maintenance responsibilities. Key outputs include an approved procurement strategy, responsibility matrix, preliminary risk register, market-engagement plan, and tender schedule.

5.2 Stage 2: Tender Planning and Documentation

Tender documentation should translate project requirements into a complete and internally consistent package. Core components include instructions to bidders, scope of work, employer's requirements, technical specifications, drawings, bills of quantities or pricing schedules, milestones, quality and HSE requirements, testing and commissioning criteria, data and document requirements, contract conditions, forms, deviation schedules, and evaluation methodology. A cross-functional readiness review should confirm that documents are aligned before issue.

5.3 Stage 3: Controlled Bid and Clarification Management

All bidders should receive equivalent information through controlled channels. Clarifications, addenda, site visits, submission deadlines, bid securities, and document revisions should be recorded. The organization should protect confidentiality and maintain separation between technical clarification and unauthorized commercial negotiation. Late or incomplete submissions should be handled in accordance with the approved procedure and applicable rules.

5.4 Stage 4: Technical, Commercial and Risk Evaluation

Evaluation should begin with mandatory compliance gates, followed by weighted assessment of qualified bids. Technical evaluators should score against approved evidence requirements and record reasons for each score. Commercial evaluation should normalize scope, taxes, currency, payment profile, escalation, options, exclusions, and lifecycle obligations. A risk review should consider both the bidder's proposal and the procuring entity's retained risk.

5.5 Stage 5: Governed Award and Contract Finalization

The award recommendation should present the comparative scores, normalized commercial

position, material deviations, risk treatment, local-content commitments where applicable, clarification history, and approval audit trail. Contract finalization should close agreed deviations, confirm securities and insurance, establish deliverables and milestones, and prevent undocumented changes between evaluated offer and executed contract.

5.6 Stage 6: Post-Award Performance and Continuous Improvement

Tendering excellence continues afterwards. The contract should be handed over through a structured briefing covering scope, assumptions, risks, obligations, correspondence protocols, change control, and key dates. Supplier performance, claims, schedule, quality, testing, commissioning, safety, local-content commitments, and closeout should be monitored. Lessons learned should update templates, weightings, qualification criteria, market intelligence, and future procurement strategy.

6. Tender Evaluation Scorecard

A two-step model is recommended. Step 1 applies mandatory compliance gates. Step 2 applies

weighted scoring only to bids that pass the gates. This structure protects the evaluation from allowing strength in one area to offset fundamental non-compliance and is consistent with guidance to distinguish responsiveness requirements from rated project-specific criteria [13]. The illustrative criteria, evidence expectations, and weights are presented in Table 1.

6.1 Mandatory Compliance Gates

- Submission completeness and authorization.
- Bid security and validity were required.
- Acceptance of critical scope and contractual requirements.
- Required licenses, registrations, and legal eligibility.
- Minimum HSE, quality, financial, and technical qualification thresholds.
- Compliance with mandatory national-product or local-content requirements where applicable.

Table 1: Illustrative tender evaluation scorecard. Weightings must be approved and adapted to project risk and applicable requirements

Evaluation criterion	Weight (%)	Evidence and assessment focus
Technical compliance and design approach	20	Compliance matrix, methodology, interfaces, standards, constructability
Relevant electrical and utility experience	12	Comparable voltage levels, substations, utilities, EPC scope, references
Resources and execution capability	10	Organization, key personnel, equipment, engineering and site capacity
HSE and quality assurance	10	HSE record, QA/QC systems, inspection and test plans
Schedule and supply-chain plan	8	Critical path, long-lead items, logistics, manufacturing commitments
Testing, commissioning and handover	8	Commissioning method, specialists, energization, documentation, training
Commercial value and price robustness	18	Normalized price, payment profile, assumptions, lifecycle obligations
Contractual and delivery risk	8	Deviations, liabilities, bonds, warranties, risk treatment
Local content and supplier development	6	Verifiable commitments, national products, workforce and capability transfer
Total	100	

6.2 Scoring and Normalization

Each criterion may be scored on a 0–5 scale: 0 = no evidence or unacceptable; 1 = major deficiencies; 2 = partially compliant with material weaknesses; 3 = compliant and adequate; 4 = exceeds requirements with clear added value; and 5 = exceptional, well-evidenced response. The weighted score is calculated as:

Weighted criterion score = (raw score ÷ 5) × criterion weight

Commercial normalization should be completed before scoring. The evaluated price should account for omissions, arithmetic corrections, accepted alternatives, lifecycle obligations, and other adjustments allowed by the tender rules. Risk allowances should not be hidden inside subjective scoring; significant exposures should be separately documented, quantified where practicable, and reflected in the award recommendation.

7. RESULTS AND DISCUSSION

Table 2: Core governance controls for an auditable tender process

Governance area	Minimum control	Suggested evidence
Criteria integrity	Approve criteria and weights before bid opening	Signed evaluation plan and approval record
Evaluator consistency	Calibration briefing and common scoring definitions	Attendance record and scoring guide
Conflict management	Declare and manage actual or potential conflicts	Conflict declarations and mitigation record
Clarifications	Use controlled, equal and traceable communications	Clarification log and issued addenda
Auditability	Record scores, rationale, approvals and changes	Evaluation report and version-controlled files
Award integrity	Confirm selected offer matches final contract	Bid-to-contract reconciliation checklist
Learning	Capture performance and lessons after award	Supplier scorecard and closeout report

Table 2 translates the framework into minimum controls and documentary evidence for an auditable tender process. Performance indicators should measure process quality and project outcomes without encouraging superficial speed. Suitable indicators include the percentage of tenders issued after readiness approval, clarification volume attributable to document defects, evaluation cycle time, proportion of awards with unresolved material deviations, variance between awarded and final contract value, supplier on-time performance, defect and non-conformance trends, claims frequency, commissioning readiness, and completion of post-award lessons learned. This emphasis on controlled criteria, evidence, and transparency is consistent with international rated-criteria guidance [13].

7.1 Business and Economic Value Mechanisms

TEF creates business value through four mechanisms. First, clearer specifications and standardized evidence reduce information asymmetry and the cost of comparing non-equivalent offers. Second, qualification gates and risk-adjusted evaluation reduce adverse selection by screening out bids whose apparent price advantage depends on weak capability, exclusions, or unrealistic assumptions. Third, bid-to-contract reconciliation and monitored obligations reduce moral hazard and post-award opportunism. Fourth, supplier-performance feedback converts contract experience into organizational knowledge, improving future sourcing and negotiation. These mechanisms are consistent with transaction-cost reasoning and fit-for-purpose value-for-money guidance [9-12].

The framework advances three testable propositions. P1: higher TEF governance maturity is associated with lower tender-process transaction costs, measured through clarification effort, evaluation rework, cycle time, and procurement complaints. P2: stronger separation of compliance

gates from comparative scoring is associated with lower post-award value leakage, reflected in scope-related variations, claims, cost growth, and schedule variance. P3: verified localization criteria combined with supplier-development milestones are associated with stronger domestic economic value, measured through national-product expenditure, Saudi workforce participation, SME engagement, capability transfer, and repeatable local supply capacity. The propositions shift the model from a practitioner checklist toward an empirical business and economics research agenda.

7.2 Managerial and Policy Implications

For executives, the scorecard is best used as capital-allocation control rather than a procurement form. Governance should focus on expected total cost and risk exposure across acquisition, delivery, commissioning, operation, maintenance, and failure. A practical business dashboard can track bid-preparation cost, procurement cycle time, competitive intensity, evaluated-price dispersion, risk-adjusted total evaluated cost, cost and schedule variance, claims, defects, working-capital exposure, warranty performance, asset availability, and supplier concentration. For policymakers, aggregation of these measures can reveal whether procurement is creating competition, productivity, resilient supply chains, and domestic capability. World Bank evidence on fit-for-purpose procurement links strategic approaches with better project outcomes, stronger competition, and improved process efficiency [12-20].

TEF advances current guidance by connecting requirements that are commonly managed in separate functions. It links front-end procurement strategy, mandatory compliance gates, weighted technical and commercial evaluation, explicit risk treatment, controlled award governance, and post-award performance feedback within one

lifecycle. Its distinctive feature is not the individual use of qualification, scoring, risk review, or supplier monitoring, but their integration into a traceable decision architecture in which tender evidence can be compared with subsequent delivery outcomes.

The framework also clarifies the relationship between compliance and comparative merit. Mandatory requirements should be treated as gates, while weighted criteria should distinguish the relative strength of otherwise qualified bids. Combining the two without clear separation may allow high commercial or presentation scores to mask unacceptable technical or legal exceptions.

In the Saudi context, the framework aligns with Vision 2030 through three operational mechanisms. First, approved criteria, controlled clarifications, recorded rationales, and bid-to-contract reconciliation strengthen transparency and accountability. Second, technical qualifications, schedule assurance, commissioning readiness, and supplier-performance feedback support reliable delivery of energy and infrastructure programs. Third, verifiable local-content commitments, national-product requirements, workforce development, and capability transfer connect procurement decisions with domestic supplier development [2-14]. Because the framework is conceptual, these contributions should be tested through indicators such as tender-defect rates, unresolved deviations at award, contract-value variance, on-time delivery, commissioning readiness, and fulfillment of local-content commitments.

This connection is economically material for Saudi Arabia. The Vision 2030 Annual Report 2025 describes a transformation agenda centered on diversification, private-sector participation,

institutional performance, transparent measurement, and sustainable impact [14]. The TEF translates that macroeconomic direction into procurement-level decisions by requiring auditable value criteria, credible delivery capacity, and verifiable localization. Its national-value indicators should therefore distinguish nominal local spending from capability-deepening outcomes such as competitive Saudi suppliers, skilled employment, technology transfer, import substitution, and reliable domestic service capacity.

The scorecard deliberately assigns the largest weights to technical compliance and commercial value because these dimensions most directly determine whether a bid can deliver the specified asset at defensible total cost. Schedule, commissioning, contractual risk, and local content receive separate weights to prevent these material considerations from being absorbed into broader technical or commercial judgments. The proposed distribution is illustrative rather than empirical: before tender issue, the procuring entity should calibrate every weight and mandatory threshold through a documented risk workshop that considers asset criticality, voltage level, interface complexity, market capacity, procurement route, and applicable regulatory obligations.

The framework can also support supplier development. Clear evidence requirements allow bidders to understand where capability must be demonstrated. Post-award performance data can then inform future qualifications and market engagement. Over time, this creates a feedback loop between procurement decisions and actual delivery outcomes.

8. Practical Implementation Roadmap

Table 3: Suggested roadmap for implementing the Tendering Excellence Framework, adapted from staged project-governance, risk-management, and procurement-improvement principles [5-20]

Phase	Key actions	Primary output
1. Diagnose	Review current procedures, tender defects, claims, audit findings and supplier performance	Baseline maturity assessment
2. Design	Approve lifecycle stages, gates, templates, score definitions and authority levels	TEF procedure and toolkit
3. Pilot	Apply to one representative electrical or utility tender and record deviations	Pilot evaluation report
4. Calibrate	Compare tender scores with early delivery performance and evaluator feedback	Adjusted weights and controls
5. Deploy	Train technical, commercial, legal, finance, HSE and project teams	Organization-wide implementation
6. Improve	Use supplier and project outcomes to update criteria and market strategy	Annual framework review

9. Limitations and Future Research

This paper is conceptual and does not test causal relationships using project-level data. The

proposed weights are design parameters rather than validated coefficients. Future research should follow a staged protocol: expert-panel content validation;

Delphi testing of consensus; inter-rater reliability assessment; multi-criteria sensitivity analysis; matched case studies of tenders with different governance maturity; and econometric testing using cost growth, schedule variance, claims, defects, procurement cycle cost, commissioning readiness, asset availability, and verified localization outcomes. Difference-in-differences or matched-project designs could estimate the effect of TEF adoption, while structural equation modeling could test whether reduced information asymmetry and transaction costs mediate performance. Recent review evidence also highlights limited use of sensitivity analysis and evaluator-judgment aggregation in public-procurement MCDA, reinforcing the need for these validation steps [19]. Sector and ownership effects should be examined across public entities, utilities, developers, and EPC contractors.

Further research could examine sector-specific variants for high-voltage substations, renewable-energy interconnections, service-station electrical systems, operation and maintenance contracts, and framework agreements. Research should also distinguish public and private procurement contexts and assess how local-content commitments, lifecycle cost, and supplier-development outcomes can be measured consistently without duplicative scoring.

10. CONCLUSION

Electrical and utility tendering is not merely an administrative gateway to contract award; it is an economic-governance mechanism that shapes capital productivity, transaction costs, supplier behavior, delivery risk, and long-term asset value. Price-only selection is inadequate where projects involve specialized assets, incomplete information, long-lead supply chains, complex interfaces, and difficult-to-monitor performance.

The proposed Tendering Excellence Framework establishes a structured lifecycle from project assessment to post-award learning. By combining mandatory compliance gates, weighted comparative scoring, risk-based award decisions, controlled clarifications, auditable decision-making, and supplier-performance feedback, it provides a practical foundation for more consistent procurement and stronger project outcomes.

In the Saudi context, the framework converts Vision 2030 priorities into measurable procurement practice by joining transparent decision records, risk-adjusted value, supplier accountability, and verifiable local-content commitments across the tender lifecycle. Its distinctive contribution is an operating model through which utilities, EPC contractors, developers, consultants, and public entities can

protect infrastructure reliability while strengthening competition, domestic supplier capability, workforce development, and technology transfer. Empirical testing is now required to determine the magnitude of these business and economic effects and the conditions under which the framework produces the highest value.

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Data Availability

No confidential project data or personal data were used. The paper is based on publicly available standards, official regulations, published guidance, and conceptual analysis.

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