

Productive Use of Energy (PUE) Report

Terms of Reference for Consulting Services

Request for Proposals

Issuing Organization	Global Energy Alliance (in collaboration with World Bank, ESMAP)
Assignment Type	Research, Analysis, Modelling and Advisory Services
Assignment Period	October 2026 – July 2027 (10 months)
Geographic Scope	Sub-Saharan Africa, with comparative reference to Latin America and Asia for best-practice purposes

Table of Contents

Table of Contents.....	2
1 Background and Assignment Overview	3
2 Objectives.....	5
3 Scope of Work.....	6
3.1 Common Terminology and Conceptual Framework	6
3.2 Global Best Practice Stocktake	6
3.3 PUE Use Case Model and Financial Analysis	7
3.4 PUE Impact on Grid and Mini-Grid Energy Economics	9
3.5 Subsidy Design and Market Distortion Analysis	9
3.6 Demand Generation Evidence and Consumer Behaviour	10
3.7 Ecosystem and Local Entrepreneurship Analysis.....	11
3.8 Conclusions and Recommendations.....	12
4 Open-Source AI for PUE Platform (Optional).....	13
5 Duties and Responsibilities.....	14
6 Assignment Timeline	15
7 Qualifications and Evaluation Criteria	16
7.1 Firm and Team Qualifications	16
7.2 Technical Evaluation Criteria	18
7.3 Optional AI Platform Add-On: Evaluation Considerations.....	20
8 Data Management and Confidentiality	21
8.1 Data Management Plan	21
8.2 Ownership of Outputs and Intellectual Property	21
8.3 Data Governance and Access Tiers.....	21
8.4 Data Validation and Provenance.....	22
8.5 Post-Assignment Data Stewardship.....	22
8.6 AI Platform-Specific Governance	22
8.7 Confidentiality	23
9 Proposal Submission.....	24
9.1 Key Dates	24
9.2 Scope of Bid	24
9.3 Submission Requirements	24
10 References	25

1 Background and Assignment Overview

About the Productive Use of Energy Center of Excellence - Joint World Bank and Global Energy Alliance Initiative

The Productive Use of Energy (PUE) Center of Excellence is a joint initiative of the World Bank/ESMAP and the Global Energy Alliance for People and Planet. It exists to address the most under-resourced and least-coordinated pillar of M300: the productive demand side of energy access, through which electricity becomes a driver of jobs, incomes, and economic transformation rather than a stand-alone outcome.

The CoE operates through four interlinked pillars: (i) a **Delivery Engine** providing direct technical support to country task teams and governments on PUE programme design and implementation; (ii) an **Innovation and Strategy Hub** producing the analytical infrastructure, market intelligence, and design frameworks the sector currently lacks; (iii) a **Coordination and Capital Mobilization Platform** convening DFIs, philanthropic funders, governments, and private capital around aligned PUE strategy; and (iv) a **PUE Enterprise Scale and Partnerships** function supporting the business models and ecosystem conditions through which local PUE companies can grow at scale. This Terms of Reference commissions the flagship analytical deliverable of the Innovation and Strategy Hub.

Why this research, and why now

Jobs, livelihoods and economic development are at the centre of the global agenda, and Africa is where the answer matters most. By 2030, Sub-Saharan Africa will account for approximately half of all new entrants to the global labour force, requiring up to 15 million new jobs to be created annually (IMF, 2024) and unlike every other major region, the cohort entering the labour market will keep growing for decades after that (Mastercard Foundation, 2026). Mission 300 commits the World Bank, African Development Bank, and partners to providing electricity access to 300 million Africans by 2030 — not as an end in itself, but as the foundation for the income generation, enterprise growth, and economic transformation those new workers will need.

But electricity access alone does not produce jobs or income. Kenya is illustrative: while connections have expanded dramatically over the past decade, average household electricity consumption has fallen over the same period. A population now connected but largely unable to productively use the energy access to power livelihoods, create jobs and economic development. This pattern is not unique to Kenya, it recurs across the continent and across delivery models, from national grid extension to mini-grid and off-grid systems alike.

Where PUE is deliberately embedded into national electrification planning, agricultural development strategies, and enterprise support programs, rather than left to emerge organically, the returns are substantial. For instance, Uganda's solar irrigation programme produced income gains of over 300% for participating smallholders against modest concessional subsidy, with farmer demand far in excess of what could be supplied (ESMAP, 2024). The Utilities 2.0 pilot also in Uganda, produced step-changes in both household income and the revenue base of the minigrid company that initially served customers, and later for the national utility that interconnected as part of the pilot (Power for All, 2025).

Yet despite clear evidence, the PUE sector remains under-evidenced in design, fragmented in delivery, and insufficiently aligned with private capital. Recent portfolio analysis of early-stage PUE company support found that only 22% of supported companies progress to accessing commercial capital (Efficiency for Access, 2026) — a pilot-to-scale gap driven less by company quality than by fragmented, poorly sequenced support. Knowledge produced to date is scattered across institutions, sub-sectors, and geographies; investor-facing intelligence is sparse or out of date; common definitions are absent; and the analytical infrastructure that governments and DFIs need to scale PUE programmes credibly does not yet exist.

The gaps this report should address

The CoE team has undertaken a comprehensive background analysis of the existing PUE knowledge base, identifying the analytical, definitional, and infrastructure gaps that most directly hold back investment and programme decisions. This report and its accompanying digital platform are scoped to address the most consequential of those gaps:

- No common sector terminology, taxonomy, or framework for relating capital deployment to jobs and livelihoods outcomes.
- Fragmented and conflicting guidance on what builds PUE markets versus what distorts them, with little of the existing knowledge updated for the current African programme design environment.
- No rigorous, quantified commercial case for PUE in energy economics that utilities, mini-grid developers, programme designers, and investors can use to evaluate decentralised energy programmes in commercial terms.
- No clear PUE investment thesis articulated for investors as a whole — and the investor-facing intelligence that exists is sparse, fragmented, and not designed for pre-diligence use across DFIs and private capital.
- No openly accessible, continuously refreshed analytical infrastructure that governments, partners, and investors can rely on for current data and tools.

This research and its accompanying digital platform are scoped to close these gaps; the specific deliverables are set out in Section 2 (Objectives) and Section 3 (Scope of Work).

This ToR invites qualified firms or consortia ("the Firm/Consortium") to submit proposals to undertake the research, analysis, modelling, writing, and dissemination required to deliver the Report and its accompanying digital platform. As described in Section 4, Firms or consortia with platform development capability may additionally propose a separately priced proposal as part of their submission.

2 Objectives

The overall objective is to build the analytical infrastructure governments, development partners, and private investors need to scale PUE interventions across Sub-Saharan Africa — with jobs creation, livelihoods improvement and economic development as the key outcomes PUE investment is meant to deliver. The work and accompanying digital platform aim specifically to:

- Build a quantified, evidence-based commercial case for PUE — how PUE adoption changes consumption, revenue per connection, and the financial sustainability of national utilities and mini-grids;
- Deliver investor-grade market intelligence — including a PUE use case model, financial analysis framework, and standardised Country Opportunity Briefs designed for pre-diligence screening by DFIs and private investors;
- Synthesise global best practice in PUE promotion, subsidy design, demand generation, and ecosystem development, with practical guidance for the African programme design environment on which interventions build markets and which distort them;
- Deliver all the above through a living, openly accessible digital platform built on this study but designed to outgrow it: ingesting new data, reasoning across sources, and generating tailored market intelligence on demand.

The findings, models, and country opportunity briefs are designed to inform: (i) **governments** — on how to design and implement programmes that grow PUE markets rather than distort them; (ii) **DFIs and investors** — through the Country Opportunity Briefs, providing investor-grade pre-diligence screening tools across on-grid, mini-grid, and off-grid contexts; (iii) **programme implementers** — through standardised data collection frameworks and reporting tools; and (iv) **partners interested in energy enabled development** — showing the opportunities PUE presents across all three power supply contexts.

3 Scope of Work

The following sections describe the specific analytical workstreams the Firm/Consortium is expected to undertake. The scope is designed to fill identified gaps in the existing knowledge base — including analysis that has been explicitly called for but not yet delivered — while building directly on the prior ESMAP portfolio and related ongoing work such as the COMESA Multi-Market PURE Assessment.

3.1 Common Terminology and Conceptual Framework

This section builds directly on the ongoing work by ESMAP and GOGLA which establishes the sector's baseline common language and taxonomy and reframes PUE from a technology-first lens to an outcomes lens: the central question is not only which equipment or technology is deployed, but what impact it enables, higher incomes, jobs, and economic resilience with grid, mini-grid, and off-grid settings treated as equally valid delivery contexts.

The Firm/Consortium will adopt this use-case and outcomes framing as the organising logic for this research rather than re-deriving PUE definitions and will concentrate its own analytical contribution on extending it into areas not covered including:

- A PUE use case taxonomy organised around use case and outcome pathway extending the use case, business model, and power supply mapping introduced in the ESMAP paper into a structured, comparable taxonomy that the study's financial modelling, grid economics, and country opportunity briefs workstreams can build on directly;
- Business model archetypes across power supply settings, extending ESMAP's mapping of business model typology (direct sales, PAYGO/lease-to-own, energy-as-a-service, offtaker-led) into grid and mini-grid contexts where its evidence base is currently thinner.

3.2 Global Best Practice Stocktake

The Global Best Practice Stocktake will document how governments and other actors across the globe have successfully supported equipment, and machinery deployment and financing to boost electricity consumption, agricultural output, and income generation drawing on experience to extract actionable lessons for the programs and investments the CoE and its partners are designing now.

The stocktake will build on and extend a growing body of ESMAP and sector knowledge, including the *Accelerating the Productive Use of Electricity* report (ESMAP, 2023), *Mini Grids for Half a Billion People* (ESMAP, 2022), *Designing Public Funding Mechanisms in the Off-Grid Solar Sector* (ESMAP/Lighting Global, 2022), the *Off-Grid Solar Market Trends Report 2024* (ESMAP/GOGLA/AMDA), GOGLA sales and impact data, the forthcoming World Bank / ESMAP *PUE Program Design Quick-Start Guide*, the COMESA Multi-Market PURE Assessment (forthcoming, 2026), currently being conducted across eight Eastern and Southern African countries, the GIZ/EnDev RBF evaluation reports, FAO work on solar-powered irrigation, and the PRODUSE methodology framework (ESMAP/GIZ) — updating their evidence base with more recent program experience and extending their lessons to the current PUE program design environment.

The stocktake will also incorporate recent portfolio-level evidence on early-stage company support and the pilot-to-scale pathway, including the EEP Africa/OCA From Pilots to Scale analysis (2026), the Efficiency for Access/Energy Saving Trust Scaling Potential study (2026), the Acumen/Open Capital NextBillion analysis on PUE investment barriers (2026), and CLASP's *The Missing Piece of Energy Access* (2025) on appliance investment needs. The Firm/Consortium will also engage with the foundational ESMAP and partner reference base including, *Designing Public Funding Mechanisms in the Off-Grid Solar Sector* (ESMAP, 2022), the *Off-Grid Solar Policy Toolkit* (ESMAP), and *Carbon Credit Financing for Productive Appliance Markets* (CLASP, 2024).

The scope will specifically include:

- Demand stimulation and demand-side financing models (including PAYGO, rental and service models, leasing, and cooperative structures among others) applied globally at scale.
- Results-based financing (RBF) and subsidy models applied to PUE asset deployment.
- Programs targeting agribusiness (e.g., horticulture, dairy, meat, fish), light commercial (e.g., retail, hospitality, digital services), and light industrial value chains (e.g., carpentry, metalwork, tailoring).
- How interventions that successfully delivered scale were sequenced across grants, technical assistance, blended finance, and commercial debt — and which funder types led at each stage. Recent portfolio analyses (EEP Africa and Open Capital Advisors, 2026; Efficiency for Access and Energy Saving Trust, 2026) suggest that fragmented, poorly sequenced funder support is now the binding constraint on the pilot-to-scale pathway, more so than company-level quality.
- Effective cross-sectoral partnerships and collaboration between energy ministries and agriculture, water, enterprise, digital, or other sectors.
- Programs specifically relevant to sub-Saharan Africa contexts, including any evidence of return on investment in terms of increased employment, economic growth, electricity consumption, and utility revenues.
- The stocktake will also include a review of World Bank-financed projects promoting PUE across Energy, Agriculture, Water, Finance, Competitiveness and Investment (FCI) portfolios, or other global practices, undertaken through literature review and task team interviews.

The stocktake will identify transferrable best practices, key challenges, failure modes, — including lessons learned from interventions that did not scale or produced unintended consequences — for future PUE program design, particularly in sub-Saharan Africa. Potential solutions will include those that are proven and ready to scale, those that have been piloted and show promise, and those that remain untested but merit investment. There is particular interest in highlighting approaches where governments are well-positioned to lead.

Global Best Practice Stocktake deliverables include:

- Survey and interview design for World Bank task team leads (TTLs), program designers and implementers.
- Semi-structured interview guide for other key stakeholder groups.
- Stocktake chapter including regional and value chain case studies, World Bank portfolio review, and lessons synthesis.
- Required licenses to use photos, icons, and any third-party content.

3.3 PUE Use Case Model and Financial Analysis

The Firm/Consortium will develop an open-source, user-friendly PUE use case model that governments and development partners can use to identify high-potential PUE opportunities in a subset of countries — including the Democratic Republic of Congo, Nigeria, Sierra Leone, Zambia, Ethiopia, Kenya and Madagascar. The final list of countries will be confirmed during the inception phase of the assignment.

The model will underpin standardised Country Opportunity Briefs, mapping high-potential PUE opportunities across key economic sectors, agricultural value chains, and power supply settings. It must be designed for practical, non-specialist use, enabling an analyst to generate an initial viability assessment within a relatively short period. Together, the model and briefs are designed to support pre-diligence screening by DFIs and private investors.

The model will be structured around a formal PUE segmentation framework, disaggregating opportunities by: technology/use case; energy context (grid, mini-grid, off-grid); customer profile (anchor, SME, micro, household); business model (asset sale, leasing, PAYGO, service, aggregator); and geography (rural, peri-urban, fragile markets). This segmentation will underpin the standardised archetypes used throughout the modelling and scorecarding described below.

The Firm/Consortium will develop and validate the standard modelling assumptions and default values, minimum input variables per archetype, standard sensitivity ranges for tariffs, diesel displacement, utilization, working capital, and

financing cost, and thresholds for commercial viability. These parameters are intended to ensure comparability across archetypes and geographies, rather than being left open-ended for each analysis.

The model should cover:

- Owner/operator capital expenditure (CAPEX) and operating expenditure (OPEX);
- Asset utilization rates and revenue profiles;
- Payback period under varying consumer affordability and financing conditions;
- IRR and NPV modelling with sensitivity analysis across electricity tariff levels, diesel price comparators, subsidy regimes, and end-user financing availability;
- Revenue quality and demand-risk indicators, including utilization, seasonality, customer concentration, and price elasticity;
- Profitability and debt-service metrics, including earnings before interest, taxes, depreciation and amortization (EBITDA margin) and debt service coverage ratio (DSCR);
- Capital-intensity and scalability metrics, including CAPEX per asset/connection/kWh, ticket size, and replication potential;
- End user engagement and ongoing support costs and benefits, including MSME training, business development services, after-sales support, and aftermarket linkages. These can substantially improve customer-level profitability, repayment performance, and asset utilisation, but are themselves costly. The model should allow testing of different delivery configurations (provided by the PUE company itself, by government extension services or TVETs, or co-funded across ecosystem actors) and comparing the resulting effects on the investment case.

Drawing on these metrics, the Firm/Consortium will develop a standardized bankability filter applied consistently across PUE archetypes, producing: (i) use-case scorecards summarising commercial and impact performance per archetype; and (ii) a comparative investment heatmap enabling DFIs and investors to screen opportunities across countries and archetypes at a glance.

The scorecards should also surface environmental and resource-risk flags relevant to each PUE archetype, without requiring full-depth environmental modelling. These should include, where material, groundwater depletion risks associated with solar water pumping, e-waste and end-of-life appliance management, refrigerant handling for cooling applications, food safety risks in agro-processing and cold chains, and other relevant externalities. These flags should help investors and programme designers identify issues requiring further diligence, safeguard review, or mitigation planning, while preserving the model's role as a practical pre-diligence screening tool.

The model should be accompanied by practical guidance on data gathering, for example, through semi-structured interviews with existing PUE asset owners/operators, or through validated assumptions from literature review and pre-existing datasets. Critically, the model and its guidance should make assumptions explicit and accessible, lowering the cost and effort required for investors and program designers to conduct initial viability assessments.

The model will be populated with example use cases based on interviews with PUE asset owners/operators. Example use cases should:

- Cover a range of grid and off-grid tied technologies, from individual ownership to group/community level ownership
- Span grid, mini-grid, and off-grid settings;
- Include agribusiness, light commercial, and light industrial value chains;
- Draw examples from Africa, Latin America, and Asia.

Bidders are invited to specify how many example PUE use cases they propose to develop, and at what level of depth, given the assignment's timeframe and budget. This section should clearly describe the key variables affecting commercial viability and impact potential (e.g., site selection, financing availability, subsidies, technical assistance, market access, electricity tariffs).

3.4 PUE Impact on Grid and Mini-Grid Energy Economics

This workstream addresses one of the most significant gaps in the existing knowledge base: the absence of rigorous, quantified analysis of PUE's commercial case for utilities, mini-grid developers, and investors. Utilities invest well over USD 1,000 per grid connection, yet monthly rural revenues often remain below USD 1 (Kenya Power, 2024; Business Daily Africa, 2024) — a near-century repayment timeline under current government and development funded subsidized processes. PUE is identified as the clearest path to reducing the burden on utilities and supporting the commercialization of electricity systems, yet no existing study systematically quantifies this relationship.

The Firm/Consortium will undertake a two-component study:

Empirical synthesis: Drawing on evidence from existing pilots and programs, including Uganda's Utilities 2.0 program, Kenya's grid extension data, and comparable evidence from Asia and Latin America, the study will document what is known about how PUE adoption changes kWh consumption per customer, revenue per connection, operational cost recovery ratios, and overall financial sustainability for mini-grid operators and utilities. Furthermore, the study will analyze technical load dynamics, specifically investigating how PUE appliance interactions - including peak demand timing affect local grid stability, and quantifying both the incremental value and incremental cost of PUE at each penetration level.

During the inception phase, the Firm/Consortium shall complete a data accessibility and availability audit for this workstream, identifying which utility, mini-grid, customer consumption, load profile, tariff, revenue, cost-recovery, and system performance datasets are accessible, under what conditions, and where critical gaps remain. The audit should inform the final empirical synthesis methodology, scenario modelling assumptions, and any targeted primary data collection strategy

Scenario modelling: This research will also run scenario modelling under 10%, 25%, and 50% PUE penetration levels, examining the resulting effects on the financial model of a representative mini-grid and a representative grid extension. Sensitivity analysis will be built around tariff levels, subsidy design, population density, and technology mix. For both representative cases, the model will specify load profile, network upgrade thresholds, distribution losses, service-quality impacts, and the consequences of different productive-load mixes, in order to ground the analysis in realistic system-level constraints.

The Firm/Consortium shall define, during inception and in consultation with the CoE team, the denominator for the penetration scenarios — for example, eligible businesses and households, already-connected enterprises, or total potential PUE demand — as well as the adoption timeframe, technology mix, and utilization assumptions underlying the 10%, 25%, and 50% penetration scenarios. These definitions should be documented clearly so that scenario outputs are comparable, interpretable, and not overstated.

This scenario modelling will examine the causal link between user-level profitability and grid economics, evaluating how specific technology categories (e.g., milling vs. cooling) improve a user's ability to pay, reduce default risk, and drive consumption. Simulations of penetration levels will also account for the capital requirements needed to offset infrastructure upgrades at critical capacity thresholds.

The outputs of this work will include:

- **A Lifetime Customer Value Framework:** A standardized methodology enabling utilities and mini-grid developers to calculate the incremental value of a PUE-enabled customer compared to a household-only connection; and
- **A PUE Data Playbook for grid and mini-grid contexts:** Establishing a standardized set of KPIs and data collection indicators (e.g., PUE Load Factor, User-Level Net Income Increase) to ensure future programs track consistent metrics, enabling robust cross-regional comparisons and a stronger collective knowledge base.

This product provides the quantitative commercial case that investors need to include PUE in their investment thesis, and the evidence base governments need to justify proactive PUE program investment as a commercially rational strategy.

3.5 Subsidy Design and Market Distortion Analysis

The evidence base on what makes incentives and subsidy programs market-building rather than market-distorting is thin. This chapter will undertake a structured comparative analysis of PUE subsidy models deployed globally, drawing on experience from sub-Saharan Africa, South Asia, and Latin America, as well as the broader off-grid solar and clean cooking sectors where richer evidence bases exist. The scope of the research may also include analysis of European and North American subsidy reform support in case of valuable learnings from a historic perspective. It will build on the existing knowledge base and subsidy design reports, extending their findings to the specific context of PUE asset deployment and enterprise development. The analysis will examine:

- Types of subsidies deployed (demand-side subsidies, supply-side grants and soft loans, results-based financing instruments) and their observed effects on market development and private sector investment mobilization.
- Emerging evidence on operational subsidies — support tied to utilization and consumption over time rather than to the initial asset purchase — and the conditions under which they can address customer service, income generation, and overall impact, while preserving commercial incentives.
- How flat, time-limited subsidies can create market distortions for example, by leading equity investors to model returns as if the subsidy will not exist
- Analysis of evidence on graduated phasedown models that test consumer price sensitivity while pushing companies toward efficiency.
- Conditions under which RBF works across firms with differing balance-sheet strength, access to working capital, distribution footprint, track record, after-sales capacity, and ability to pre-finance delivery, and what adaptations make RBF accessible to firms that are weaker on these dimensions
- Coordination challenges across subsidy and technical assistance providers, including fragmentation, misalignment, and lack of continuity and
- Examples of programs that have successfully sequenced TA and grant support to unlock commercial capital.

The analysis will produce practical guidance for program designers and investors on subsidy type, targeting, sequencing, and coordination. It will explicitly address the interaction between subsidy design and private investment mobilization, with particular attention to the conditions under which subsidies crowd in versus crowd out private capital. There is particular interest in identifying approaches that governments are well-positioned to lead including graduated phasedown designs, RBF procurement frameworks, and coordination mechanisms between energy and non-energy ministries. Subsidy Design and Market Distortion Analysis deliverables include:

- Structured comparative review of PUE subsidy programs by type with observed market effects.
- Analysis of market distortion risks and graduated phasedown models.
- RBF design guidance for different company archetypes.
- Practical guidance notes on subsidy design, targeting, sequencing, and coordination for program designers.
- Outreach materials for key audiences, including presentations.
- Required licenses to use photos, icons, and any third-party content.

3.6 Demand Generation Evidence and Consumer Behaviour

Consumer awareness and behaviour are significant barriers to PUE demand growth, yet the evidence base on effective demand generation strategies is limited and, in many cases, predates the current program design environment. This chapter will review and update the evidence base on communication strategies and channels that have successfully driven PUE adoption, building on and extending the *Accelerating the Productive Use of Electricity* report (ESMAP, 2023) with more recent African experience from programs in Nigeria, Kenya, Ethiopia, Zambia, and other CoE priority countries. The chapter will examine:

- How behaviour change approaches differ across technology types and geographies, developing a framework for matching demand generation strategies to technology type and market context.
- The evidence for national-level awareness campaigns and how consumer information interacts with subsidy design and end-user financing uptake to drive adoption.

- Technical assistance models that have effectively supported B2B market linkages, aggregation, and market access for PUE businesses
- Training and skills support as a demand-creation lever — including the appropriate distribution of responsibility across PUE companies, government extension services, TVETs (Technical and Vocational Education and Training institutions), and donor-supported programmes. The analysis should examine where each delivery model has worked, at what cost, and what the sustainability characteristics are once external support ends.
- Where evidence is thin and pilots or innovations are needed to generate better evidence, with particular interest in approaches where governments are well-positioned to lead.

The chapter will conclude with practical guidance for program designers and governments on demand generation strategy selection and design, structured around what communication channels have most consistently driven adoption, under what conditions national awareness campaigns translate into actual uptake, and how B2B market linkage models can be designed to reach PUE businesses at scale.

Demand Generation Evidence and Consumer Behavior deliverables include:

- Updated evidence review of demand generation strategies and behavior change with a focus on recent African experience.
- Framework for matching demand generation approaches to technology type and market context.
- Review of B2B demand generation and market linkage models for PUE businesses.
- Practical guidance notes on demand generation strategy for program designers and governments.
- Outreach materials for key audiences, including presentations.
- Required licenses to use photos, icons, and any third-party content.

3.7 Ecosystem and Local Entrepreneurship Analysis

Most countries have only a handful of substantial PUE companies, and local entrepreneurs face near-complete absence of equity investors, business development support, and sector coordination. Recent portfolio analysis of early-stage PUE company support found only about one in five companies progress to commercial capital (Efficiency for Access and Energy Saving Trust, 2026) — and the main reason is fragmented, poorly sequenced support across funders, not weak businesses.

The 2023 Accelerating the Productive Use of Electricity report by ESMAP established a set of ecosystem building blocks for what a functioning PUE market requires. In practice, these building blocks are unevenly present across countries, and the framework itself stops short of specifying how to strengthen a block once it's found missing or weak. The Firm/Consortium's task is to close that gap, not to re-derive the building blocks. Specifically, the analysis will:

- Map the ESMAP building blocks against the CoE's priority countries, identifying which blocks are present, which are weak, and which are effectively absent, and why;
- For each gap identified, specify the institutional architecture and financing instruments needed to close it — moving from diagnosis to a concrete intervention design;
- Assess the roles of challenge funds, vocational training, cooperative structures, and aggregation models in filling the specific gaps identified, rather than as a general inventory of mechanisms;
- Set out how to sequence catalytic grants, technical assistance, blended finance, and commercial debt across a PUE company's growth path, and which funder types are best placed to lead at each stage;
- Capture what investors themselves say is holding back capital deployment into PUE — including the need for better sub-sector intelligence, comparable data, and a clearer pipeline of co-investable deals;
- Assess how to make PUE entrepreneurship an attractive, viable pathway for local entrepreneurs, in light of the specific gaps found at country level.

Bidders are encouraged to note where existing evidence is insufficient to support strong conclusions, and to propose pilot or innovation approaches where desk-based research alone cannot resolve a gap.

3.8 Conclusions and Recommendations

The report will conclude with high-level, actionable recommendations addressed to three primary audiences: governments and program designers, development partners and donors, and private investors. Recommendations should lead with jobs and livelihoods as the headline outcome — what justifies the investment in PUE. But the energy-economics gains PUE drives (higher consumption, ARPU, grid viability) are what makes those jobs outcomes possible at scale rather than only in subsidy-supported pockets. Jobs are the goal; better energy economics is how the sector gets there.

Hence, recommendations should include:

- How to identify high-potential PUE use cases and design effective interventions in specific regions, countries, value chains, or power supply settings;
- Priority cross-sector partnerships and the role of non-energy ministries in leading PUE programs;
- Approaches to subsidy design, financing mobilization, and coordination that are market-building;
- What it takes to move PUE markets from subsidy-dependent to commercially sustainable — including how RBF, blended capital structures, and emerging policy instruments like tripartite mini-grid concession arrangements should fit together rather than substitute for each other;
- The institutional and strategic conditions required for PUE markets to scale at country level — including cross-ministerial steering structures (energy, agriculture, water, trade, and finance), embedding PUE into national electrification, agricultural, and water strategies as well as utility business models, and adopting planning horizons long enough to give private investors confidence while building in periodic review to allow for sector evolution (for example, from agriculture-dominant PUE in the near term toward more diversified rural and peri-urban economic activity over the medium term);
- Areas requiring further research, including country-level geospatial mapping of PUE potential, estimation of current and potential PUE market size, research into PUE supplier business models, and best practices in B2B partnerships to address financing, capacity, and market linkage constraints. The report should also be clear about what the sector does NOT need more of (uncoordinated pilots for instance).

4 Open-Source AI for PUE Platform (Optional)

The platform is intended to provide a living, evolving resource for companies, investors, governments, and development partners — ensuring that the market intelligence generated through this assignment does not remain static but continues to inform decision-making over time. This platform is a separately priced, optional add-on to the core assignment; whether or not a Firm/Consortium proposes it, the analytical outputs (data, models, and frameworks) shall be structured for future ingestion into a platform, with clean data architecture, standardized model/dataset ingestion, usability, interoperability and modularity prioritized over AI functionalities.

The platform should be envisioned as a bi-directional data exchange rather than a passive repository; consequently, the Firm/Consortium will design a contribution framework and standardized ingestion protocols that allow external stakeholders—including developers, funders, and researchers—to submit auditable data, ensuring the platform serves as a collaborative tool to fill the industry’s ‘data void.’

At minimum, the platform should provide the full report content in accessible web format, interactive and downloadable charts, tables, models, and graphics, and introductory content for less familiar readers alongside ‘deep dives’ for expert audiences. Users should be able to download datasets and adjust model inputs to see how outputs change.

The exact content scope will be discussed and agreed with the selected Firm/Consortium at inception stage. The platform may be deployed in modular phases, but the underlying data schema and contribution framework should be finalized and ‘dialed-in’ during the inception stage to support long-term interoperability and a clean, structurally consistent core dataset as future modules such as advanced modeling or real-time IoT dashboards are integrated.

The Firm/Consortium is encouraged to move beyond basic keyword retrieval toward a ‘Knowledge Engine’ approach, incorporating Hybrid RAG (Retrieval-Augmented Generation) to provide grounded, context-aware responses. Furthermore, the platform should support agentic workflows, such as an automated ‘State of Affairs’ briefing tool that triggers upon a data refresh to synthesize raw datasets into executive summaries of market trends.

The Firm/Consortium is encouraged to propose approaches to maximize the accessibility and utility of the digital platform, including mobile-responsive design for low-bandwidth environments, API exposure to enable data use by third parties, and architecture that supports low-cost annual data refreshes. Bidders should also indicate year-two operating costs as part of the add-on price, and include creation of proper handover documentation in this regard.

Notwithstanding the above, this is an optional component to the core assignment. Bidders are not required to propose the AI platform in order to be eligible for, or to be awarded, the core research assignment. Firms/Consortia that do not wish to bid for the platform development can bid for the core research, analysis, and modelling scope described in Section 3. Firms or consortia who wish to bid for the platform may propose the platform described here as a separately priced, optional component alongside a bid for the core research, analysis, and modelling scope. Firms or consortia with specialised platform development expertise may also submit a standalone bid for the AI platform component only, without bidding for the core research assignment. Where a Firm/Consortium does not propose the platform component, the analytical outputs of this assignment — including data, models, and frameworks — should be structured and delivered in a format suitable for later ingestion into an interactive platform. should clearly indicate the scope of their application, as set out in Section 9.2, and should price any proposed platform component separately in accordance with Sections 6 and 9.3.

A firm may be part of more than one Consortium submitting a bid for the AI platform provided each bid is submitted and priced independently and no conflict of interest arises in scope, resourcing, or confidentiality across the bids.

5 Duties and Responsibilities

The Firm/Consortium shall be responsible for:

- Secondary data collection and literature review across the full scope of work;
- Research design, primary data collection, and analysis, including interview guides, stakeholder outreach, and data management;
- All data analysis, modelling, and content creation for the report;
- Development of analytical tools (use case model and Lifetime Customer Value Framework);
- AI platform content, in close collaboration with Center of Excellence colleagues, *if a platform component is awarded as part of this assignment*.
- Report writing, revision, and quality assurance through all review stages;
- Design and implementation of dissemination activities and outreach materials.

The Center of Excellence will be responsible for:

- Overall supervision and coordination of the assignment;
- Facilitating introductions to key stakeholders, particularly governments and World Bank task teams;
- Leading Quality Enhancement Review (QER) and Decision Review processes;
- Supporting development of the AI-enabled search function for the platform, *if a platform component is awarded as part of this assignment*;
- Final publication, design, and launch coordination.

6 Assignment Timeline

The project is expected to run for ten months from October 2026 to July 2027. The report must be fully drafted by end of April 2027 to allow time for Center of Excellence's internal review. Quality Enhancement Review (QER) and Decision Review followed by publication design and final launch in June or early July 2027. As described in Section 4, the AI platform is an optional add-on; Firms/Consortia proposing this component shall submit its cost as a separate, clearly identified budget line in their financial proposal, distinct from the core assignment budget, to allow the Center of Excellence to evaluate and decide on the add-on independently.

Table 1: Project timelines

Phase	Timeline	Key Deliverables
Project Duration	October 2026 – July 2027	Overall assignment implementation
Inception Report	October 2026	Inception report, data collection plan, list of KIs, data collection tools etc.
Draft Report	April 2027	Draft report
QER & Decision Review	April 2027 - May 2027	Quality Enhancement Review
Validation with Key Stakeholders	May 2027 - June 2027	Stakeholder validation and draft refinement
Editorial review and publication design	June 2027	Editorial quality assurance and design
Publication & Launch	End of June/Early July 2027	Final publication design and launch
AI Platform Add-on	Optional	Evaluated independently from core research

7 Qualifications and Evaluation Criteria

7.1 Firm and Team Qualifications

Given the breadth and interdisciplinary nature of this assignment spanning empirical field research, quantitative financial modelling, policy analysis, digital platform architecture, and strategic communications, bidders are expected to propose a team that combines deep PUE sector expertise with specialist technical capabilities. Consortium arrangements are strongly encouraged where a single firm cannot demonstrate full coverage across all required areas. The Firm/Consortium is expected to demonstrate:

- A minimum of 10 years of organizational experience in productive use of energy, off-grid solar, mini-grid, and/or rural electrification markets, with a demonstrable track record of delivering knowledge products for development finance institutions or comparable multilateral programs.
- Strong quantitative modelling capabilities, including financial modelling, IRR/NPV analysis, scenario modelling, and impact assessment, with experience producing open-source, non-specialist-accessible tools as formal deliverables.
- Demonstrated experience in primary data collection in low-income country contexts, including asset owner/operator interviews, multi-stakeholder consultations, and survey design, with a minimum of 5 years of field research experience in sub-Saharan Africa.
- Sector-specific knowledge of PUE value chains including agribusiness, light commercial, and light industrial sectors, with evidence of prior analytical work across at least two of these value chain categories.
- Government and institutional engagement experience, including direct engagement with energy ministries, national rural electrification agencies, World Bank task teams, and development partners in sub-Saharan Africa, with a minimum of 3 completed assignments involving government stakeholder consultation at the national level.
- Capacity to produce high-quality, accessible reports and open-source analytical tools for diverse audiences including investors, governments, and development partners, with at least 3 comparable published knowledge products as evidence of prior delivery.
- AI platform development capability is not a required qualification for this assignment but is an advantage for Firms/Consortia wishing to propose the optional platform add-on described in Section 4. Where proposed, this should include experience designing mobile-responsive, low-bandwidth-optimized platforms with API integration for development sector audiences, demonstrated through at least one prior platform of comparable scope.

The Firm/Consortium must name a Team Leader who is accountable for quality and delivery throughout the assignment, confirm their availability for the full ten-month period, and submit a Level of Effort (LoE) per team member alongside CVs as part of the technical proposal. The team is expected to include, at minimum, the following specialist roles:

Firms/Consortium can propose additional experts as they see fit based on their proposed methodology.

1. Team Leader

- a. **Responsibilities:** Overall responsibility for quality, delivery, stakeholder engagement, and client relationship management. Shall lead the Detailed Design Phase (investor profiling) and ensure integration across all three primary data collection components. Shall serve as the primary point of contact for Center of Excellence and coordinate engagement across multilateral institutions (ESMAP, World Bank, Global Energy Alliance), industry associations (GOGLA, AMDA), government ministries, national electrification agencies, development partners, private sector actors, and investors across CoE priority countries.
- b. **Qualifications:** Must hold a postgraduate degree (Master's or PhD) in energy, economics, development finance, or a related field, with a minimum of **15 years of professional experience** in energy access, productive use of energy, or rural electrification markets. Shall have led at least **3 completed assignments of comparable scope** as Team Leader or Principal Investigator for a development finance institution or multilateral program. Direct familiarity with World Bank processes — including Inception Reports, QER, and Decision Review — is mandatory. Experience contributing to Mission 300 country programs or CDMU

processes and deep contextual knowledge of at least one CoE priority country's energy sector are strongly preferred.

- c. **Availability:** Must be available full-time for the full assignment period, able to work independently while managing remote multi-country teams and named in the proposal with a confirmed CV and Level of Effort (LoE).

2. Financial Modelling Expert

- a. **Responsibilities:** Responsible for the PUE use case model, IRR/NPV analysis, Lifetime Customer Value Framework, Country Opportunity Briefs, and all scenario modelling under the grid and mini-grid energy economics workstream. Shall ensure all financial models are open-source, accessible to non-specialist users, and structured in formats suitable for DFI pre-diligence screening.
- b. **Qualifications:** Must hold a degree in finance, economics, engineering, or a related quantitative field, with a minimum of **10 years of experience** in financial modelling for energy access, infrastructure, or development finance contexts. Demonstrated experience building open-source, accessible financial models for non-specialist users is required, with at least **2 comparable open-source modelling tools** delivered as formal outputs. Specific experience with sensitivity analysis across subsidy regimes, tariff levels, and financing scenarios is essential. Familiarity with off-grid solar or mini-grid energy economics and results-based financing design is strongly preferred.
- c. **Availability:** Must be named in the proposal with a confirmed CV and Level of Effort (LoE).

3. PUE Sector and Primary Data Specialist

- a. **Responsibilities:** Responsible for the global best practice stocktake, asset owner/operator interview programme, IoT and smart metering data collection, and worked use case examples. Shall strengthen linkages between energy planning and productive sectors including agriculture, enterprise development, industrialization, health, and education.
- b. **Qualifications:** Must hold a degree in agriculture, economics, energy, or a related development field, with a minimum of **10 years of experience** in productive use of energy, agribusiness, or rural enterprise development in low-income country contexts. Deep knowledge of PUE value chains — including agribusiness (horticulture, dairy, grain processing, fisheries), light commercial services, and light industrial sectors — is required. Field research experience across at least **two sub-Saharan African countries**, including design and execution of semi-structured interview programmes at scale, is required. Experience with IoT and smart metering data from field-deployed assets and supporting the design and implementation of PUE pilot projects is strongly preferred.
- c. **Availability:** Must be named in the proposal with a confirmed CV and Level of Effort (LoE).

4. Digital Platform and Data Architect (required only for Firms/Consortia proposing the optional platform described in Section 4)

- a. **Responsibilities:** Responsible for the interactive platform, open API specification, data standard design, and platform architecture. Shall ensure the platform is mobile-responsive, optimized for low-bandwidth environments, interoperable with World Bank and partner systems, and structured to support low-cost annual data refreshes.
- b. **Qualifications:** Demonstrated experience with API design and interoperability, digital platform development for development sector or public-facing audiences. Demonstrated experience building mobile-responsive, low-bandwidth-optimized platforms for development sector audiences, donors, or multilateral systems is required.
- c. **Availability:** Must be named in the proposal with a confirmed CV and Level of Effort (LoE).

5. Policy and Government Enablement Specialist

- a. **Responsibilities:** Responsible for the subsidy design analysis, government consultation programme, cross-sector collaboration recommendations, and the political economy dimension of the report.
- b. **Qualifications:** Must hold a postgraduate degree in public policy, economics, political science, or a related field, with a minimum of **10 years of experience** engaging with energy ministries, national rural electrification agencies, and development partners in sub-Saharan Africa. Demonstrated experience in results-based financing instrument design, subsidy sequencing, and enabling environment reform is required, with at least **2 completed assignments** involving policy analysis and government engagement at the national level in the

energy access sector. Experience contributing to Mission 300 country programs or CDMU processes is strongly preferred.

- c. **Availability:** Must be named in the proposal with a confirmed CV and Level of Effort (LoE).

6. Additional Requirements

- a. Language: Bidders working in countries where French or Portuguese is the primary language of government should confirm language capabilities within the proposed team or describe how they propose to address this where capacity is limited.
- b. Conflict of interest: Bidders with a direct commercial interest in PUE markets for example as a distributor, investor, or financier active in the study's geographic scope must declare this interest in their proposal and describe how independence and objectivity will be maintained.
- c. Bandwidth and availability: Proposed team members must confirm their availability for the full assignment period. The Inception Report must include a staffing plan with Level of Effort (LoE) per team member per milestone.
- d. Consortium arrangements: Bidders are encouraged to identify partnerships that strengthen geographic coverage, language capacity, or technical specialization. Consortium arrangements must clearly designate a single lead firm with full contractual responsibility

7.2 Technical Evaluation Criteria

Technical proposals will be evaluated on the basis of the criteria set out below. The maximum technical score is 70 points. Only proposals achieving a minimum technical score of 49 points (70% of the available technical points) will be considered for financial evaluation. The final award will be determined on a combined score weighted 70% technical and 30% financial, in line with standard Center of Excellence procurement practice for quality-and-cost-based selection (QCBS). The evaluation will be conducted by the Center of Excellence-appointed review panel as per the following criteria. The criteria below apply equally to all bidders regardless of whether a platform component is proposed; platform-specific considerations are addressed separately in Section 9.3 and do not affect this 70-point score.

Criterion	Description	Score / Weight
Understanding of the Assignment and Analytical Framing	Demonstrated understanding of the assignment's objectives and the gaps in Section 1, including the jobs-and-livelihoods-first logic linking PUE to energy economics, clarity on the proposed treatment of PUE scope boundaries, and quality of the proposed prioritization across the Section 3 workstreams: which areas the bidder proposes to treat at full depth versus lighter treatment, with justification against the timeline and budget.	10
Technical Approach: PUE Use Case Model and Financial Analysis (Section 3.3)	Rigour and practicality of the proposed modelling methodology, including the segmentation framework, standardized assumptions, bankability filter, and use-case scorecards. Approach to exposing key business levers (price, seasonality, utilization ramp-up, off-taker arrangements, FX risk, default rates, etc.) as explicit, user-adjustable inputs rather than internal assumptions. Accessibility and open-source design: how the model will be genuinely usable by non-specialist analysts and suitable for DFI pre-diligence screening.	5
Technical Approach: Grid and Mini-Grid	Quality of the proposed empirical synthesis and scenario modelling, including how penetration scenarios will be parameterized and how both the incremental value and incremental cost of PUE will be	5

Energy Economics (Section 3.4)	quantified per use case. Credibility of the proposed approach to the Lifetime Customer Value Framework and PUE Data Playbook.	
Technical Approach: Qualitative and Policy Workstreams (Sections 3.1, 3.2, 3.5–3.7)	Quality of the proposed approach to the stocktake, depth of the proposed subsidy and RBF analysis, including analysis of firm-level characteristics that determine RBF responsiveness and approach to the demand generation and ecosystem workstreams, including treatment of thin-evidence areas.	5
Data Collection Strategy and Evidence Base	Primary and secondary data collection strategy: asset owner/operator interviews and stakeholder consultation design, approach to structuring all analytical outputs (data, models, frameworks) in platform-ready formats aligned with the Section 4 data standards, regardless of whether a platform is proposed.	10
Organizational Qualifications and Track Record	Demonstrated organizational experience in PUE, off-grid solar, mini-grid, or rural electrification markets, with evidence of at least 10 years of relevant work and a track record of delivering knowledge products for DFIs or multilateral programs. Track record of delivering comparable knowledge products (reports, open-source tools, digital platforms) evidenced by at least 3 completed assignments of comparable scope. Evidence of experience working in multi-stakeholder environments involving government, private sector, and development partners simultaneously in sub-Saharan Africa. Note: Bidders are required to submit at least three professional references from prior clients in support of their organizational experience, including at least one from a development finance institution or multilateral program. References should speak to the quality of analytical outputs, adherence to timelines, and effectiveness of stakeholder engagement. The evaluation panel reserves the right to contact references as part of the assessment of this criterion.	15
Team Qualifications and Composition	Team Leader: Qualifications, years of experience, demonstrated leadership of comparable assignments, and confirmed availability for the full period. Financial Modelling Expert: Demonstrated experience in IRR/NPV analysis, open-source modelling tools, sensitivity analysis, and DFI-facing financial products. PUE Sector and Primary Data Specialist: Knowledge of PUE value chains, field research experience in sub-Saharan Africa, and experience with IoT and smart metering data from field-deployed assets. Policy and Government Specialist: Experience with government engagement, subsidy design, results-based financing, and Mission 300 or CDMU processes in sub-Saharan Africa.	10
Work Plan and Timeline	Work plan clarity and feasibility: Clarity and realism of the proposed work plan, including the sequencing of the three primary data collection components and alignment with the proposed timelines.	10

	Staffing and availability: Realism of the proposed Level of Effort (LoE) per team member per milestone, and evidence that all proposed team members have confirmed availability for the assignment period.	
Total		70

7.3 Optional AI Platform Add-On: Evaluation Considerations

As described in Section 4, the platform is an optional add-on and is not required for eligibility or award. The 70-point technical score in Section 7.2 applies equally to all bidders and does not include or depend on the platform component. Where a platform component is proposed, the Center of Excellence will assess it independently and reserves the right to accept, decline, or partially scope the add-on. In making this assessment, the Center of Excellence will consider:

1. **Data architecture first.** The soundness of the proposed data schema, standardized ingestion protocols, and contribution framework — assessed as the primary consideration, ahead of any AI functionality.
2. **Interoperability and modularity.** Compatibility with partner systems (including DRE Atlas), API design, and the ability to add modules (including AI features) in later phases without re-architecting the core.
3. **Usability and accessibility.** Mobile-responsive, low-bandwidth performance and suitability for non-specialist users.
4. **Sustainability of operation.** Quoted year-two operating costs, handover documentation, and the credibility of low-cost annual refresh arrangements.
5. **Price, fit, and available budget,** evaluated against the separately identified budget line required under Section 9.3.

8 Data Management and Confidentiality

8.1 Data Management Plan

The Firm/Consortium shall maintain a data management plan throughout the assignment, covering data collection, storage, processing, and archiving. The plan shall be submitted as part of the Inception Report and updated as needed at each milestone. All primary data collected through interviews, surveys, or stakeholder consultations shall be stored securely and made available to the Center of Excellence upon completion of the assignment. The Firm/Consortium shall follow the Global Energy Alliance Data Management Guidelines and ensure compliance with applicable data protection standards.

The data collection plan submitted at Inception shall include a primary data sampling plan covering all three primary data collection components of this assignment. The sampling plan shall specify:

- **Target respondent numbers:** the minimum number of asset owners/operators, government stakeholders, and World Bank task team members to be engaged per country, value chain, and power supply setting (on-grid, mini-grid, off-grid), with justification for the sample size relative to the analytical objectives of each workstream.
- **Selection criteria:** the criteria by which respondents will be identified and selected, including technology type, business scale, geographic location, institutional role, and — for asset owners/operators — operational status (active, dormant, or failed assets).
- **Geographic coverage:** the distribution of engagement across the CoE priority countries (DRC, Ethiopia, Kenya, Madagascar, Nigeria, Sierra Leone, Zambia) and, where applicable, comparator countries in LatAm or Asia included for best practice purposes.
- **Stratification approach:** how the sample will be stratified to ensure adequate representation across technology categories (agribusiness, light commercial, light industrial), power supply settings, business model types, and gender of business owner or operator.
- **Data collection methods:** the proposed mix of in-person interviews, remote interviews, surveys, and IoT or smart metering data extraction, with justification for the approach in each country context.
- **Coordination with prior data collection:** an explicit statement of whether and how the Firm/Consortium will seek access to primary data already collected under concurrent programmes to avoid duplicate outreach to the same respondent pool.

The sampling plan shall be approved by the Center of Excellence before primary data collection commences.

8.2 Ownership of Outputs and Intellectual Property

All outputs produced under this assignment including the flagship report, analytical tools, datasets, models, frameworks, country products, code, and any platform components are the intellectual property of the Center of Excellence upon delivery. The Firm/Consortium shall ensure that all team members, sub-contractors, and data collection partners are bound by this condition prior to commencement of work.

All deliverables shall be provided in open, accessible formats to facilitate future use, update, and dissemination by the Center of Excellence and its partners. Where possible, outputs shall be designed for easy annual refresh at minimal marginal cost.

8.3 Data Governance and Access Tiers

The Firm/Consortium shall establish a data governance framework that applies to all data collected, produced, or compiled under this assignment. The framework shall distinguish between the following access tiers:

- **Publicly accessible data:** data that can be freely published and disseminated without restriction, including aggregated findings, summary statistics, and publicly available secondary sources.
- **Partner-restricted data:** data shared by institutional partners (companies, governments, utilities, DFIs) under specific data-sharing agreements. Access shall be limited to parties specified in those agreements.
- **Confidential data:** proprietary or commercially sensitive data provided by companies, investors, or other stakeholders. This data shall not be published in identifiable form without explicit written consent.
- **Aggregated outputs:** where underlying data is confidential, findings shall be presented in aggregated or anonymised form that prevents identification of individual companies, respondents, or transactions.

Company-level data on sales volumes, customer economics, system performance, or financial metrics shall not be published or shared without the explicit written consent of the data provider, regardless of whether a platform component is awarded.

8.4 Data Validation and Provenance

All datasets and data layers produced or compiled under this assignment shall carry clear provenance documentation specifying source, date of collection or publication, licence or data-sharing agreement, methodology, geographic resolution where applicable, and update status. The Firm/Consortium shall distinguish clearly between official country data, partner-provided data, modelled estimates, and assumptions, and shall flag the confidence level and limitations of each data layer.

Headline statistics in the flagship report shall clearly indicate whether figures are observed, compiled, estimated, or scenario-based. The Firm/Consortium shall not present modelled outputs as empirical findings without explicit qualification.

8.5 Post-Assignment Data Stewardship

The Firm/Consortium shall submit, as part of the final deliverable package, a Post-Assignment Data Stewardship Plan covering all outputs produced under this assignment. The plan shall address:

- Handover of all datasets, models, analytical tools, and code to the Center of Excellence in open formats, with full documentation sufficient for a third party to understand, run, and update each output.
- Archiving arrangements for primary data (interview records, survey responses, stakeholder consultation notes), including storage location, retention period, and access controls.
- Recommended update cycle for key outputs particularly the use case financial model and country opportunity briefs and the estimated resource requirement for each annual refresh.
- Identification of any outputs that require ongoing technical maintenance or licensing arrangements, and recommendations for how the Center of Excellence should manage these.

8.6 AI Platform-Specific Governance

Where the platform component is awarded as part of this assignment, the Firm/Consortium shall submit a mandatory Data Governance, Ownership and Sustainability Plan as part of the Inception Report, in addition to the data management plan required under Section 8.1. This plan shall address the following platform-specific provisions:

- **Platform ownership:** explicit confirmation that all platform components — including the codebase, datasets, cloud accounts, domain name, and any third-party licences will be fully transferred to the Center of Excellence upon completion of the assignment, in a state that allows the CoE to operate, update, and maintain the platform independently.

- **Administrator credentials and access:** the Firm/Consortium shall document all administrator credentials, access protocols, and system architecture, and shall transfer these to the CoE at final handover. No access rights shall be retained by the Firm/Consortium or any sub-contractor after the assignment closes.
- **Costed post-project operating model:** a costed estimate of the annual resources required for platform hosting, technical maintenance, content updates, and user support beyond the assignment period. This estimate shall be provided to assist the CoE in planning for platform sustainability and shall not constitute a contractual commitment.
- **Interoperability and open standards:** the Firm/Consortium shall assess existing open-source digital public-good infrastructure relevant to the platform's geospatial and data functions and shall build on or interoperate with such infrastructure rather than create parallel functionality. All platform outputs shall use open, standardised geospatial and data formats. The platform architecture and any API shall be fully documented and made available to the Center of Excellence upon completion.
- **User needs validation:** the platform design shall be validated with intended users including CoE country teams, utilities, mini-grid developers, investors, governments, and local businesses as part of the inception phase, prior to development commencing. A user-needs and user-journey assessment shall be submitted as part of the Inception Report.
- **Technical documentation:** the Firm/Consortium shall produce comprehensive technical documentation covering the platform architecture, data schema, API specification, content management procedures, and update protocols. Documentation shall be written to a standard that enables a non-specialist CoE team member to manage routine content updates without external technical support.

8.7 Confidentiality

The Firm/Consortium and all team members shall maintain strict confidentiality of all proprietary and commercially sensitive information obtained through the assignment. Interviewees and survey respondents shall be given the option of anonymity, and data shall be reported in aggregated or anonymised form where individual or company-level identification could cause harm.

All draft reports and analytical outputs are confidential until approved for publication by the Center of Excellence. The Firm/Consortium shall not publish or publicly disseminate any outputs or findings from this assignment without prior written consent from the Center of Excellence.

9 Proposal Submission

9.1 Key Dates

This ToR is issued on Friday, 4 August 2026. The following timetable applies:

- **Clarification period:** 4 August 2026 – 12 August 2026. Firms wishing to raise questions on this ToR must submit them in writing to the [RFP Clarification Questions Form](#) by 12 August 2026. All questions and consolidated responses will be circulated to all invited Firms by 17 August 2026 to ensure equal access to information.
- **Proposal submission deadline:** Wednesday, 9 September 2026 by 5:00 PM EAT.

9.2 Scope of Bid

As described in Section 4, the AI platform is an optional add-on to the core assignment. Firms must clearly indicate at the outset of their proposal which of the following bid configurations they are submitting:

- **Core Assignment Only** — Research, analysis, modelling, and dissemination as described in Sections 2–3 and 5–9. No platform component proposed.
- **Core Assignment with Platform Add-On** — Full scope as above, plus the AI platform described in Section 4, proposed as a separately priced component.
- **AI Platform only** – AI Platform described in in Section 4.

The Center of Excellence reserves the right to award the core assignment independently of any platform proposal, and to accept or decline the platform add-on as a separate decision.

9.3 Submission Requirements

All proposals must be submitted via the Center of Excellence’s Smartsheet submission portal via the Flagship [PUE Study Proposal Submission Form](#) by the deadline above. Proposals submitted by any other means will not be accepted. Each submission must comprise two separately uploaded components:

- **Technical Proposal** — addressing the evaluation criteria set out in Section 7.2 (and Section 7.3 where a platform is proposed), including the proposed approach and methodology, team CVs and Levels of Effort, work plan, and any additional information required under Section 7.1. The Technical Proposal must not contain any pricing information.
- **Financial Proposal** — providing a detailed cost breakdown for the core assignment, structured by milestone and team role. Firms proposing the AI platform add-on (Bid Configuration 2) must include the platform cost as a separate, clearly identified budget line, as described in Section 9.3. The Financial Proposal must be uploaded separately from the Technical Proposal. The Financial Proposal must be priced in US Dollars.

Incomplete submissions — including those missing either component, those that include pricing in the Technical Proposal, or those that do not identify a bid configuration may be disqualified at the discretion of the Center of Excellence.

10 References

- Acumen and Open Capital Advisors (2026). Productive Use Has Challenges: What's Holding the Sector Back? How Companies and Investors Should Respond. NextBillion, January 2026. Available at: <https://nextbillion.net/productive-use-has-challenges-whats-holding-sector-back-how-companies-investors-should-respond/>
- Africa Minigrid Developers Association (AMDA) (2024). Benchmarking Africa's Mini-Grids Report 2024. AMDA, in partnership with Odyssey Energy Solutions.
- Business Daily Africa (2024). Kenya Power revenues hit as rural homes use Sh3-30 daily. Business Daily Africa.
- CLASP (2024). Carbon Credit Financing for Productive Appliance Markets. CLASP. Available at: <https://www.clasp.ngo/research/all/carbon-credit-financing-productive-appliance-markets/>
- CLASP (2025). The Missing Piece of Energy Access: Why a Larger Share of Energy Infrastructure Investment Must Go to Appliances. CLASP, September 2025.
- COMESA (forthcoming, 2025–2026). COMESA Multi-Market PURE Assessment. Conducted under the World Bank ASCENT programme.
- EEP Africa and Open Capital Advisors (2026). From Pilots to Scale: Lessons from EEP Africa's Early-Stage Clean Energy Portfolio. EEP Africa, April 2026. Available at: <https://eepafrica.org/img/From-pilots-to-scale-lessons-from-EEP-Africas-early-stage-clean-energy-portfolio.pdf>
- Efficiency for Access and Energy Saving Trust (2026). Scaling Potential: Strengthening Early-Stage Support for PURE Companies. Efficiency for Access, April 2026. Available at: <https://efficiencyforaccess.org/publications/scaling-potential-strengthening-early-stage-support-for-pure-companies/>
- ESMAP (2022). Mini Grids for Half a Billion People: Markets and Opportunities. Energy Sector Management Assistance Program, World Bank Group, Washington, DC.
- ESMAP/Lighting Global (2022). Designing Public Funding Mechanisms in the Off-Grid Solar Sector. Energy Sector Management Assistance Program, World Bank Group, Washington, DC.
- ESMAP (2023). Accelerating the Productive Use of Electricity: Enabling Energy Access to Power Rural Economic Growth. Energy Sector Management Assistance Program, World Bank Group, Washington, DC. Available at: <https://documents1.worldbank.org/curated/en/099092023192023389/pdf/P1751521d3f58f6f1307c1499619e141b8baef6de8dd.pdf>
- ESMAP (2024). Uganda Solar Irrigation Programme: Income Effects and Demand Response Data. Energy Sector Management Assistance Program, World Bank Group.
- ESMAP. Off-Grid Solar Policy Toolkit. Energy Sector Management Assistance Program, World Bank Group.
- ESMAP. Multi-Tier Framework (MTF) for Measuring Energy Access. Energy Sector Management Assistance Program, World Bank Group.
- ESMAP and GIZ. PRODUSE: Productive Use of Electricity Methodology Framework. Energy Sector Management Assistance Program and Deutsche Gesellschaft für Internationale Zusammenarbeit.
- ESMAP, GOGLA, and AMDA (2024). Off-Grid Solar Market Trends Report 2024. World Bank Group, Global Off-Grid Lighting Association, and Africa Minigrid Developers Association.
- FAO. Solar-powered Irrigation Systems: A Clean-energy, Low-emission Option for Irrigation Development and Modernization. Food and Agriculture Organization of the United Nations.
- GIZ and EnDev. Results-Based Financing Programme Evaluations. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and Energising Development (EnDev).

GOGLA. Sales and Impact Data — Off-Grid Solar Industry. Global Off-Grid Lighting Association.

International Monetary Fund (IMF) (2024). Regional Economic Outlook: Sub-Saharan Africa. International Monetary Fund, November 2024.

Kenya Power Limited (2024). Rural Connections and Consumption Data. Kenya Power and Lighting Company.

Mastercard Foundation (2026). Africa Youth Population and Employment Outlook. Mastercard Foundation.

PAYGO Perform. Data Standards for Off-Grid Solar Performance Reporting. PAYGO Perform initiative.

Power for All (2025). Utilities 2.0 Results Fact Sheet. Power for All, April 2025.