

POLICY BRIEF

LOCALISING GHANA'S ENERGY TRANSITION

Why one national framework needs three local starting points



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Ghana has one national energy-transition destination, but its local starting points differ. Energy sources, income and employment systems, settlement patterns, cultural practices and social dynamics can determine whether a transition intervention is affordable, accepted, maintained and ultimately scaled.

SOUTHERN BELT		MIDDLE / TRANSITION BELT		NORTHERN BELT	
BASELINE LENS Urban/coastal/ mining and industrial-commercial contexts; household and market energy use; transport intensity; fisheries/cold-chain demand.		BASELINE LENS Mixed town-rural economies; agriculture, agro-processing and mining-linked livelihoods; biomass use; seasonal incomes and productive loads.		BASELINE LENS More dispersed settlements and livelihood systems; agriculture/livestock; energy access and reliability; biomass dependence; seasonal cash flow.	
WHAT TO TEST Clean cooking in Junior High and Senior High schools, Rooftop solar, efficiency, e-mobility, cold chain and productive energy.		WHAT TO TEST Productive-use solar, efficient processing, clean cooking, storage, public-facility solar and mini-grid pockets.		WHAT TO TEST Mini-grid/off-grid solar, irrigation and water pumping, cold storage, clean cooking and productive-energy services.	
3 analytical belts		4 diagnostic layers		5 action pillars	
6 policy recommendations					

A BELT-SENSITIVE PATHWAY FOR SUBNATIONAL IMPLEMENTATION

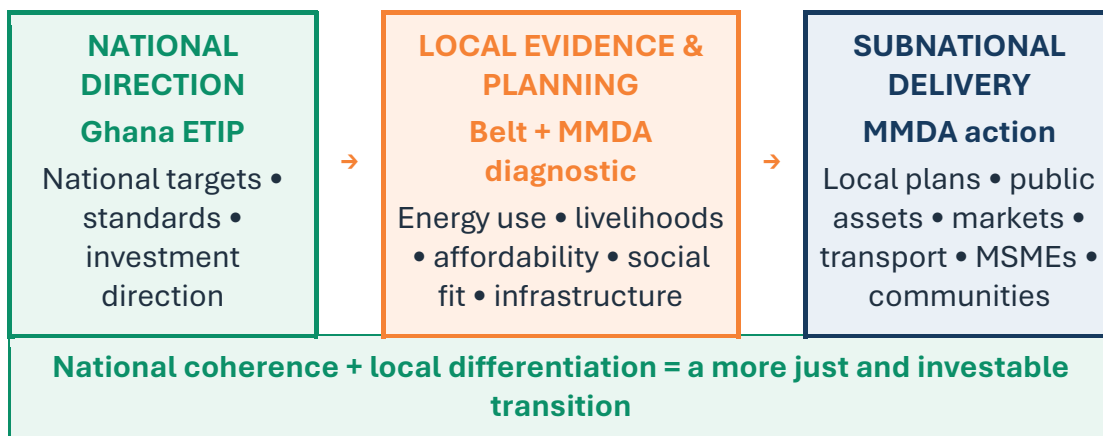
A policy framework for translating Ghana's Energy Transition and Investment Plan (ETIP) into locally evidenced, equitable and investable MMDA action.

1

THE POLICY PROBLEM

A national pathway can fail through local mismatch

Ghana's ETIP provides national direction on renewables, electrification, e-mobility, clean cooking, energy efficiency, storage and investment mobilisation. But the transition will be experienced locally - in homes, markets, public facilities, transport systems, businesses and communities.



WHY A WHOLESALE FRAMEWORK IS RISKY



Three local realities must shape implementation:

ENERGY & INFRASTRUCTURE Grid reach and reliability, LPG/biomass use, generators, rooftop potential, public assets, transport intensity and local service infrastructure differ across places.	ECONOMY, CULTURE & SOCIAL DYNAMICS Livelihoods, income seasonality, household decision-making, cooking practices, gender/time use, tenure, community institutions and technology acceptance can alter what is viable.
<i>The policy choice is not whether Ghana should transition; it is how to localise the transition without losing national coherence.</i>	

Source basis: Ghana Energy Transition and Investment Plan (ETIP) and the desktop evidence sources listed in this brief.

2	A THREE-BELT STARTING POINT Stratify first; validate local realities before selecting technologies
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This policy brief recommends three analytical belts for the initial diagnostic: Southern, Middle/Transition and Northern. These are a practical sampling and planning lens - not new administrative boundaries and not a substitute for Ghana's formal agro-ecological classifications.

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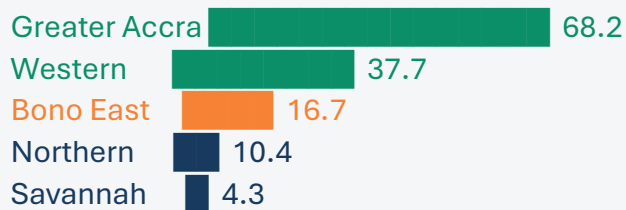
WHAT THE BELT APPROACH IS DESIGNED TO REVEAL

ENERGY SOURCES	LIVELIHOODS & JOBS	SOCIAL / CULTURAL FIT	SETTLEMENT & MARKETS
Electricity, biomass, LPG, diesel, solar, reliability and household/business energy costs.	Agriculture, fisheries, mining-linked work, services, informal/formal employment and productive-energy demand.	Cooking practices, decision-making, gender/time use, local institutions, tenure and willingness to adopt.	Urban density, rural dispersion, roads, markets, grid access, public assets and maintenance/supply chains.
WORKING-HYPOTHESIS PRINCIPLE Belts narrow the questions; they do not pre-select the answers. A technology that performs well in one belt should not automatically be promoted in another.			

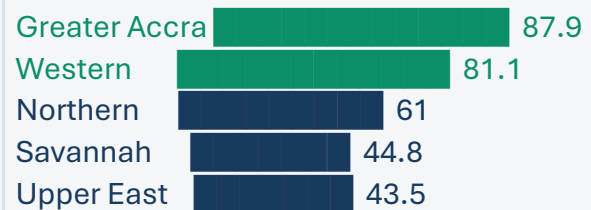
Illustrative belt profiles are hypotheses for survey design and must be defined and validated during inception.

A desktop review of Ghana Statistical Service, agriculture, energy and climate evidence shows that local transition conditions vary sharply across the country. The evidence does not justify rigid belt boundaries; it does justify stratifying the first diagnostic so that technology, financing and delivery choices are tested against different starting conditions.

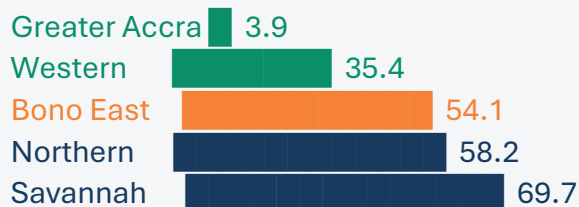
LPG AS MAIN COOKING FUEL (%)



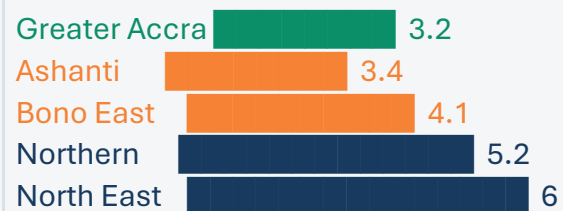
RURAL ELECTRICITY FOR LIGHTING (%)



AGRICULTURE / FORESTRY / FISHING EMPLOYMENT (%)



AVERAGE HOUSEHOLD SIZE



WHY THE DATA MATTERS

The national average is not the implementation reality. LPG use, rural electricity access, livelihood structure and household size can differ by several multiples between regions - changing what people can adopt, pay for and maintain.

ENERGY LADDER

A household already using LPG and reliable grid power has a different e-cooking pathway from one dependent on fuelwood with weak electricity service.

LIVELIHOOD FIT

Where agriculture dominates employment, productive-use energy, irrigation, storage and processing may matter more than urban mobility interventions.

HOUSEHOLD REALITY

Household size, income level and seasonality alter appliance size, repayment schedules, cooking needs and willingness to switch technologies.

Desktop evidence sources include Ghana Statistical Service 2021 PHC reports on housing and economic activity. Figures shown are selected regional examples and should not be read as fixed belt boundaries.

WHAT THE EVIDENCE MEANS FOR LOCAL DELIVERY

One national destination; differentiated starting conditions and pathways

POVERTY & ABILITY TO PAY GSS multidimensional-poverty evidence shows much higher rural deprivation in several northern regions than in Greater Accra, Ashanti and Bono. Financing cannot assume identical monthly cash flow or ability to pay.	SETTLEMENT ECONOMICS Population density ranges from very dense metropolitan areas to highly dispersed districts. This changes the economics of grid reinforcement, charging networks, mini-grids and local service/maintenance chains.
CLIMATE & RESOURCE CONDITIONS Coastal districts face flooding, erosion and salt exposure; middle and northern areas face differing rainfall, heat, drought and water-stress risks. Solar, storage, siting and productive-use design must respond to place.	CULTURE & TECHNOLOGY FIT Ghanaian cookstove studies show that stove size, local dishes, safety, spare parts, household size, affordability and stove-stacking shape adoption. Culture is therefore something to investigate locally, not stereotype by belt.

SOUTHERN BELT	MIDDLE / TRANSITION BELT	NORTHERN BELT
DESKTOP EVIDENCE • Higher grid/LPG penetration in many urban/coastal areas • Denser settlements and larger commercial/service markets • Smaller average household sizes in many southern regions • Transport, fisheries/cold chain, commerce and public-building loads WHAT TO TEST FIRST E-cooking where grid reliability permits; EV charging & urban mobility; rooftop/public-facility solar; cold-chain/market energy; efficiency retrofits.	DESKTOP EVIDENCE • Mixed electricity, LPG, charcoal and fuelwood use • Agriculture and agro-processing strongly shape energy demand • Seasonal incomes and mixed town-rural settlement patterns • Cocoa/tree crops, food crops, mining-linked and secondary-town economies WHAT TO TEST FIRST Productive-use solar; agro-processing & storage; hybrid clean-cooking pathways; solar cold chain/irrigation; seasonal finance products.	DESKTOP EVIDENCE • Lower LPG use and lower rural electricity access in several regions • High dependence on agriculture and biomass in many districts • Larger households and dispersed settlements • Strong solar opportunity alongside heat, drought and water stress WHAT TO TEST FIRST Mini-grid/off-grid solar; irrigation & water pumping; grain/sheanut processing; affordable clean cooking; local maintenance networks.

STEP	DIAGNOSTIC LAYER	EXAMPLES / QUESTIONS
1	BELT	Southern • Middle/Transition • Northern
2	SETTLEMENT	Urban • Peri-urban • Rural
3	LIVELIHOOD / ECONOMY	Fishing • Services • Mining • Cocoa • Food farming • Livestock • Agro-processing • Trading
4	VULNERABILITY / ABILITY TO PAY	Income level • Seasonality • Gender/time burden • Energy poverty • Distance to facilities • Climate exposure

The recommended design is nested: belt -> settlement type -> livelihood/energy economy -> vulnerability/ability to pay. The final technology and financing package should be determined at MMDA and user-group level.

5	BASELINE FIRST The survey is a decision instrument - not an awareness survey
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Before an MMDA is asked to adopt electric cooking, solar, e-mobility or efficiency measures, the baseline should establish the problem, the user, the cost, the local economy, the social fit and the infrastructure conditions. The same core survey can enable national comparison while belt- and MMDA-specific modules capture local differences.

ENERGY MIX & COST Grid electricity, LPG, charcoal/firewood, diesel/generators, solar, reliability and monthly expenditure.	INCOME & EMPLOYMENT Livelihood sectors, formal/informal work, productive-energy demand, income seasonality and ability to pay.
CULTURE & SOCIAL DYNAMICS Cooking practices, household decision-making, gender/time use, tenancy/land, community institutions and acceptance.	SETTLEMENT & INFRASTRUCTURE Urban density, dispersed settlements, markets, roads, grid reach, public assets and service access.
LOCAL ECONOMY & SUPPLY CHAINS Technicians, appliance/solar vendors, finance, transport operators, agro/fish value chains and local maintenance.	SEASONALITY & VULNERABILITY Rainfall/agricultural calendar, migration, energy-price exposure, climate risks and groups at risk of exclusion.

BASELINE DESIGN

WHO & HOW Sample across all three belts, with MMDA selection stratified by urban/peri-urban/rural settlement, livelihood systems and vulnerability. Use a sample size adequate for statistically credible local comparisons.	WHAT TO MEASURE Household energy; public assets; enterprises/markets; transport; grid/access; jobs and local suppliers; GIS; affordability; income seasonality; and social/cultural factors.	HOW TO VALIDATE Administrative data + household survey + facility census + enterprise survey + mobility assessment + GIS + focus groups and key-informant interviews.
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FIVE OUTPUTS THAT TURN EVIDENCE INTO ACTION

01 MMDA Energy Profile	02 Energy Vulnerability Map	03 Opportunity Map	04 Priority Intervention Matrix	05 Investment Pipeline
The baseline should identify who lacks reliable/affordable energy, which groups risk exclusion, what local use-cases have real livelihood value, and which projects are technically and financially ready to move forward.				

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FROM EVIDENCE TO LOCAL ACTION

Five pillars - selected by need, not by technology preference

#	LOCAL ACTION PILLAR	ILLUSTRATIVE FOCUS
1	CLEAN COOKING	Households, institutions and food vendors; electric or improved-biomass pathways selected by local evidence.
2	DISTRIBUTED SOLAR	Public assets, mini-grids/off-grid solutions, storage and community/service infrastructure.
3	PRODUCTIVE ENERGY	Markets, fisheries, agro-processing, irrigation, MSMEs, refrigeration and cold chain.
4	E-MOBILITY	Charging locations, fleet pilots and local mobility incentives where demand and grid conditions support them.

5	ENERGY EFFICIENCY	Buildings, appliances, cooling, lighting and green procurement in public and private facilities.
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PILLAR	ILLUSTRATIVE LOCAL INTERVENTIONS	KEY TEST
Clean cooking	Segmented household/institution/food-vendor demonstrations; electric or improved biomass where appropriate; consumer finance; after-sales support.	Adoption
Distributed solar	Rooftop solar and storage for public facilities; solar water pumping; mini-grid/off-grid solutions for underserved areas.	Savings / service
Productive energy	Solar cold rooms, ice-making, agro/fish processing, irrigation, market energy hubs and MSME energy services.	Income / productivity
E-mobility	Charging-location demonstrations; small municipal/taxi/motorcycle fleets; grid assessment; operating-cost and user-acceptance evidence.	Operating cost
Energy efficiency	Public-building audits and retrofits; efficient appliances; energy management; greener MMDA procurement.	Energy savings

#	SCORECARD TEST	WHY IT MATTERS
1	Severity	How serious is the current energy/service problem?
2	People / assets affected	How many households, enterprises or public assets benefit?
3	Affordability	Can users or institutions pay without worsening vulnerability?
4	Technical feasibility	Does the grid, site, technology and O&M environment support it?
5	Emissions / climate value	Does it materially improve the transition or resilience outcome?

6	Bankability	Is there a credible financing, revenue or public-investment pathway?
7	Equity / inclusion	Does it include women, youth and vulnerable groups and avoid unequal burdens?

Decision rule: an intervention advances only if it fits the local problem, user demand, technical feasibility, cultural/social fit, affordability pathway, inclusion needs and a credible route to finance and maintenance.

7

IMPLEMENTATION STRATEGY

Diagnose, demonstrate, learn, finance and scale

#	PATHWAY	POLICY ACTION
1	DIAGNOSE	Build the belt + MMDA baseline and map energy vulnerability and opportunity.
2	PRIORITISE	Agree locally fitted actions using the common scorecard and an MMDA action/investment plan.
3	DEMONSTRATE	Test selected technologies and delivery models before scaling.
4	FINANCE	Prepare viable projects, financing pathways and aggregated investment packages.
5	SCALE & LEARN	Expand what works, monitor outcomes, and feed evidence back into policy and MMDA planning.

1 DIAGNOSE Belt + MMDA baseline	2 PRIORITISE Local action plans	3 TEST & LEARN Before scale	4 FINANCE & SCALE Bankable pipelines
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INSTITUTIONALISE LOCAL DELIVERY INSIDE MMDAs**LOCAL OWNERSHIP**

Each MMDA should integrate a **Local Energy Transition Action & Investment Plan** into its medium-term plan, annual action plans and budget.

INVESTMENT READINESS

Projects move from concept to pre-feasibility, business case and investment-ready preparation, using MMDA funds, PPPs, consumer/MSME finance, concessional/blended finance and climate finance where appropriate.

WHAT GOOD SUBNATIONAL IMPLEMENTATION SHOULD DELIVER

Comparable evidence Belt + MMDA baselines	Local planning MMDA action & investment plans	Tested solutions Monitored demonstrations
Finance pathway Projects move beyond concept	Local capability MMDA staff + local technicians strengthened	Replication National toolkit + belt-sensitive playbooks

Progress should be judged by evidence quality, local fit, affordability, institutional ownership, livelihood benefits, inclusion and investment readiness - not by technology counts alone.

8	POLICY RECOMMENDATIONS Make subnational delivery evidence-led, belt-sensitive and investable
1	Adopt a belt-sensitive diagnostic as the entry point for subnational ETIP implementation. Start with Southern, Middle/Transition and Northern comparative evidence, while validating differences within each belt.
2	Commission the comparative baseline before large-scale technology rollout. Cover energy mix/cost, income and employment, culture/social dynamics, settlement/infrastructure, local supply chains and seasonality/vulnerability.
3	Require MMDA Local Energy Transition Action & Investment Plans. Translate baseline evidence into costed priorities, local responsibilities, financing pathways, safeguards, indicators and scale routes.
4	Demonstrate first; scale only what works locally. Use limited demonstrations before scale-up; measure performance, affordability, user acceptance and O&M.

5

Build local investment pipelines and aggregate projects.

Move viable opportunities from concept to business case and finance; bundle small assets where aggregation can improve bankability.

6

Institutionalise learning and protect the just-transition objective.

Track gender, livelihoods, seasonal incomes, affordability, vulnerable groups, local jobs and distribution of costs/benefits - not only installations and emissions.

INSTITUTIONAL ROLES FOR DELIVERY

National government & energy institutions Policy and enabling role Set national targets and standards, align regulation, enable finance and maintain comparable national data.	RCCs & MMDAs Local planning and delivery Lead baselines, local action plans, site selection, budgeting, permits, community engagement and performance monitoring.	Utilities, private sector, finance, civil society & research Implementation and accountability Provide infrastructure, technology, O&M, capital, consumer finance, independent evidence, inclusion safeguards and learning.
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**ONE NATIONAL TRANSITION. THREE
LOCAL STARTING POINTS. MANY
LOCALLY VIABLE PATHWAYS.**

SELECTED SOURCES

- Government of Ghana / Sustainable Energy for All. Ghana Energy Transition and Investment Plan (ETIP), 2023.
- Ghana Statistical Service. 2021 Population and Housing Census - Housing Characteristics and Economic Activity reports.
- Ghana Statistical Service. Multidimensional Poverty in Ghana report.
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- Peer-reviewed Ghana studies on clean-cookstove adoption, stove stacking and household technology fit in Kintampo and northern Ghana.