
Canopy Trust

2026

SECTOR BRIEF

LIQUEFIED PETROLEUM GAS (LPG)



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Accelerating the transition from charcoal and fuelwood in the Congo Basin

The Challenge: Cooking energy demand is degrading Congo Basin forests

The Congo Basin is the tropics' largest remaining net carbon sink and supports the livelihoods of 100 million people. However, rapidly growing demand for cooking energy is increasing pressure on forests through charcoal and fuelwood production. Repeated harvesting, inefficient kilns and expanding supply areas can severely degrade forests.

Traditional biomass cooking exposes households to harmful air pollution, with women and children facing the greatest health risks and the added burden of fuel collection and lengthy cooking times.

Liquefied petroleum gas (LPG) can provide a practical near-term alternative to charcoal and fuelwood in dense urban and peri-urban markets where electricity remains unavailable, unreliable or unaffordable.

It is recognised by the World Health Organization as a clean-cooking fuel at the point of use and produces far lower particulate-matter and carbon-monoxide emissions than traditional biomass stoves.

Although LPG is a fossil fuel rather than an end-state climate solution, it can serve as an important transition fuel where it delivers sustained substitution of non-renewable biomass, reduces pressure on forests and provides immediate health and time-saving benefits.

Around one billion Africans still cook with polluting fuels such as wood and charcoal, contributing to forest loss, avoidable emissions and deadly household air pollution, particularly among women and young children.

LPG sector dynamics:

- LPG is a WHO-recognised clean cooking fuel at the point of use, with far lower emissions than traditional charcoal and fuelwood stoves
- Portable and dispatchable, making it practical in dense urban and peri-urban markets
- A fossil-based transition fuel rather than an end-state climate solution
- Greater LPG accessibility through flexible business models, including small-volume and micro-refilling systems
- Safe scale-up through licensing, safety standards, operator training and consumer education

The Opportunity: Building inclusive and safe LPG markets

LPG is one of the few clean-cooking solutions that can be deployed quickly at scale without waiting for universal, reliable electricity. The [IEA's 2025 pathway for universal clean-cooking access in Africa](#) finds that LPG could provide more than 60% of new access through 2040, particularly in urban and peri-urban areas. Under this pathway, LPG consumption for cooking increases roughly fivefold to almost one million barrels per day by 2040, equivalent to around 8% of today's global LPG market.

Reaching universal clean-cooking access in Africa would require approximately USD 37 billion in cumulative investment by 2040, or more than USD 2 billion annually.

This creates major commercial opportunities across fuel supply, storage, bottling, cylinder production, transport, retail and last-mile distribution. With around half of sub-Saharan Africa's LPG currently imported, investment is needed in ports and supply infrastructure, while local manufacturing, maintenance and distribution can support domestic enterprises and jobs, provided recognised safety standards are met.

Replacing unsustainable charcoal and fuelwood with LPG can reduce emissions from biomass burning and deforestation while sharply improving household air quality. The greatest benefits occur when LPG largely replaces, rather than supplements, traditional fuels.



Photo by PayGas



Clean-cooking access remains highly restricted across much of the Congo Basin. In DRC, around 95% of households rely on wood energy for cooking, and per-capita LPG consumption is only about 1.1 kg per year, roughly a quarter of the sub-Saharan average (~4 kg). The result is a combined forest, climate, health and gender challenge.



Affordability and convenience are central. Conventional LPG often requires households to purchase a stove, cylinder and full refill in a single transaction, while charcoal can be bought daily in small quantities.



Photo by PayGas

Prices also vary sharply across the region: retail LPG costs around USD 2.50–3.00/kg in Kinshasa, where prices are unregulated, compared with about USD 0.90/kg in Brazzaville and Yaoundé, where prices are regulated and subsidised.

Small-volume and micro-refilling models can align LPG purchases with irregular household cash flows, reduce the minimum purchase size and generate transaction data that supports customer financing and supply-chain management.

LPG should be positioned within a diversified transition. Electric cooking, biogas, bioethanol and clean advanced biomass may offer suitable alternatives where they are reliable, affordable and appropriate to local conditions. LPG infrastructure and business models should therefore be designed to complement, rather than lock out, progressively lower-carbon cooking options.

LPG's untapped opportunity:

- Large, underpenetrated market, with African LPG cooking demand projected to grow fivefold by 2040
- Rapid replacement of charcoal and fuelwood in urban and peri-urban areas
- Recurring fuel revenues and investment opportunities across storage, bottling, transport, cylinders and retail
- Small-volume and micro-refilling systems that match low and irregular household cash flows
- Consumer finance for stoves, cylinders and safety equipment, including targeted support for low-income households
- Decentralised, local retail networks that improve access and safety
- Conversion of commercial and institutional users, including restaurants, schools and hospitals
- Digital systems for payments, traceability, safety and impact monitoring
- Regional investment in ports, storage, transport and cylinder manufacturing
- Future integration of bioLPG, renewable electricity and other low-carbon fuels

Key barriers to scale

Despite strong potential, Congo Basin LPG markets face structural, financial and regulatory barriers. Limited national storage capacity is a major bottleneck that requires substantial DFI or government investment. Gaps in bottling, transport and retail, along with heavy import dependence, expose markets to price, currency and supply shocks. Regulation also varies: Cameroon's framework is mature but restrictive, while DRC's is still nascent.

Affordability remains a major constraint. The upfront cost of equipment and a first refill may be unaffordable for low-income households, while fuel-price volatility can drive users back to charcoal. Small-volume and micro-refilling models reduce payment sizes but not the underlying cost of LPG and distribution.

LPG businesses also require significant upfront investment in infrastructure, cylinders, safety systems, technology and working capital before demand is established. Cylinders remain tied up in the distribution network, while low transaction sizes and dispersed customers can make unit economics difficult.

Safety and consumer trust depend on well-maintained cylinders, effective inspections and consistent standards. Decentralised refilling requires clear licensing, fire-safety, metrology, training and cylinder-recirculation systems, yet not all Congo Basin countries currently permit micro-refilling, mainly due to safety concerns.

Households may keep using charcoal for some meals or when LPG is unavailable, reducing health and forest benefits. Surveys in Kinshasa, Brazzaville and Yaoundé found that many respondents had already used LPG (around 45%, 80% and 64%), suggesting that cost, access and supply reliability, more than unfamiliarity, determine whether households switch fully. Reliable supply, suitable equipment, consumer engagement and monitoring are therefore essential.

As a fossil fuel, LPG is a transitional rather than long-term climate solution. Projects should report emissions, avoid subsidy dependence and infrastructure lock-in, and consider impacts on charcoal-sector livelihoods. In remote rural areas, electric cooking, biogas or clean advanced biomass may be more suitable.

Constraints to inclusive LPG markets and a sustainable pathway:

- High upfront equipment and fuel costs
- Exposure to volatile prices, exchange rates and LPG imports
- Limited national storage; inadequate bottling, transport and retail
- Limited working capital and weak distributor economics
- Fragmented regulation; micro-refilling not permitted everywhere
- Weak cylinder inspection, maintenance and consumer protection
- Safety concerns, low awareness and continued charcoal use
- Limited data on demand, sustained use and charcoal displacement
- Risk of fossil-fuel lock-in without a low-carbon transition pathway
- Livelihood impacts in charcoal value chains without transition support

The role of blended finance and Canopy Trust

LPG distributors may serve markets with large underlying demand, but early projects are often not bankable because business models or infrastructure must be built before volumes are proven, household affordability is uncertain and regulatory or supply risks remain unresolved.

Canopy Trust can help bridge this gap by linking forest protection to clean-cooking investment. Technical assistance can identify the locations where LPG is most likely to displace charcoal from threatened forest supply. It can also support the assessment of regulation, safety, pricing and logistics.

Catalytic finance can support eligible capital expenditure and working capital, including safe micro-refilling stations, cylinders, stoves, digital systems and distribution assets to reduce early risk while preserving incentives for commercial efficiency.

Public actors remain essential. Governments can establish clear licensing and cylinder-recirculation rules, enforce safety standards, rationalise taxes and duties, coordinate emergency supply planning, and target consumer support to households that would otherwise remain dependent on biomass.

The LPG sector offers multiple scalable entry points for investment:



- Target urban markets linked to high-pressure forest areas
- Expand bottling, transport and supply infrastructure
- Develop licensed local refilling, retail and delivery networks
- Support cylinder circulation, equipment finance and small-volume and micro-refilling models
- Conversion programmes for food vendors, restaurants, bakeries, schools, hospitals and other high-volume users
- Transition planning that enables future bioLPG, renewable electric cooking and other lower-carbon alternatives

Well-targeted LPG investment can deliver:

- Reduced charcoal and fuelwood demand, helping prevent deforestation
- Net climate benefits from avoided forest loss and lower methane and black-carbon emissions
- Substantially lower household air pollution and cleaner working environments for food businesses and institutions
- Time savings, reduced fuel collection and improved health, especially for women and girls
- More affordable, reliable access through financing and local distribution
- Jobs across transport, maintenance, retail and digital services
- Safer, more formal cooking-energy markets
- A just transition through retraining and alternative livelihoods
- A bridge to renewable and lower-carbon cooking systems

Example: PayGas' affordable clean-cooking expansion supported by Canopy Trust

	Project	PayGas (www.paygasgroup.com) 
	Location	Democratic Republic of the Congo, Republic of the Congo, Cameroon and Gabon
	Sector	Clean cooking energy
	Overview	PayGas' cashless micro-refilling system enables households to buy LPG in small, flexible quantities at nearby refilling stations, reducing upfront costs and improving convenience and traceability. Following deployment in South African townships, the model is preparing to expand into the Congo Basin.
	Challenge addressed	<ul style="list-style-type: none"> • Heavy reliance on charcoal and fuelwood • High upfront costs for LPG equipment and refills • Limited last-mile distribution and supply infrastructure • Regulatory, safety and logistics uncertainty in new markets
	Canopy Trust role	<p>Technical assistance for pre-feasibility studies*:</p> <ul style="list-style-type: none"> • LPG regulations, safety standards, supply conditions and sustainable energy pathways • Market demand, affordability, suppliers, retail partners and potential pilot locations <p>The support guides country selection, de-risks pilot deployment and prepares the project for investment and scale-up.</p>
	Expected Impact	<ul style="list-style-type: none"> • Forests (SDG 15): reduced pressure on forests through displacement of charcoal and fuelwood • Climate (SDG 13): lower net emissions from avoided forest loss and from reduced methane and black-carbon emissions • Health and gender (SDGs 3 and 5): reduced time and health burden on women and girls associated with fuel collection and cooking, while creating job opportunities

Targeted LPG is not a long-term decarbonisation solution, but where it safely and affordably replaces unsustainable charcoal or fuelwood, it can reduce forest pressure, emissions and household air pollution. Projects should also support the pathway to lower-carbon alternatives.



Canopy Trust is developing a pipeline of high-impact investment opportunities across the Congo Basin to reduce deforestation. Learn more: www.canopytrust.org