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LPG NATIONAL MARKET: How Domestic LPG Systems Can Deliver Energy Security Without Subsidies

CONTRIBUTORS:

- H.E. KHAMIS AL MAZROUEI, CEO, SNOC
- RICHARD HALL, CEO, DANA GAS
- NADER ITAYIM, MIDDLE EAST BUREAU CHIEF, ARGUS MEDIA

How can national governments and producers ensure stable, affordable, and equitable access to LPG within domestic markets: UAE CASE STUDY?

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- H.E. KHAMIS AL MAZROUEI, CEO, SNOG
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Securing a domestic LPG market begins with coordination, not competition, among national players. The UAE's system, built around ADNOC, ENOC, EMARAT, and SNF, shows how collective responsibility ensures seamless supply even in emergencies. Unified logistics, shared trucking fleets, and contingency planning allow gas to reach every Emirate regardless of crisis or climate event.

This collaboration underpins business continuity. Instead of parallel networks, integrated operators share storage depots, transport fleets, and safety protocols, avoiding duplication and enabling rapid disaster response. The result is not just efficiency but resilience: a national energy system that maintains stability amid volatility.

Transparency is another hallmark of success. In the UAE, LPG pricing remains market based and largely unsubsidized, ensuring healthy competition without distorting investment decisions. Marginal price variation across regions promotes fairness and fiscal discipline while incentivizing efficiency and innovation among suppliers. In short, open markets and collective responsibility can coexist when framed within a coherent national energy security policy.

Safety modernization is equally critical. Transitioning from legacy metal cylinders to advanced composite designs has reduced explosion risks and extended product life cycles. These lighter, corrosion resistant containers are safer to transport and easier to monitor, particularly in restaurants and households where visibility of gas levels matters. Technology has transformed what used to be a weak point in domestic distribution into a benchmark for safety and reliability.

Infrastructure, Innovation, and Policy Stability

Infrastructure is the backbone of national energy security. A domestic LPG market cannot thrive without the physical capacity to receive, store, and distribute product. Investments in modern terminals, truck loading racks, and regional depots ensure supply even during demand spikes or import interruptions. For new entrants, this principle is fundamental: build the foundation before expanding the footprint.

But infrastructure alone is not enough. Long term policy stability provides the confidence investors need to finance refineries, storage, and bottling plants that often take a decade to deliver returns. Frequent regulatory changes erode trust, while transparent multi year roadmaps allow both public and private stakeholders to plan investments aligned with national goals.

Integrated government oversight helps maintain quality and fairness

across the system. Regulators must enforce unified safety standards and transparent auditing while allowing private distributors room to innovate. Clear governance protects consumers and investors alike.

Domestic refining capacity also plays a decisive role. Regions without refineries, such as Fujairah, face higher import costs and exposure to supply shocks. Linking refining, bottling, and distribution within one ecosystem reduces risk and keeps household energy affordable.

Equally vital are logistics. Well maintained roads, efficient ports, and modern transport fleets determine how safely and cost effectively LPG reaches end users. Every broken road or outdated port terminal adds risk and cost to the value chain. Investing in these assets strengthens both the economy and national resilience.

Security and maintenance must be prioritized alongside expansion. Pipelines and depots should incorporate modern surveillance, drones, and AI monitoring to prevent leaks, theft, or sabotage. Preventive maintenance and rapid response teams turn infrastructure from a potential liability into a national asset.

Innovation sustains this progress. Encouraging R&D in digital metering, composite materials, and smart valves can create new efficiencies, improve safety, and build domestic technical capability. Governments that support startups and university industry partnerships turn the LPG sector into a test bed for advanced engineering and sustainability solutions.

Inclusive Growth and Governance for a Secure Market

Infrastructure and innovation mean little without good governance. Corruption, political turnover, or inconsistent regulation can undo decades of progress. Transparent procurement processes, independent audits, and stable leadership attract foreign capital while ensuring that every dirham or dollar invested actually strengthens capacity on the ground.

Financial partnerships can share the burden of infrastructure development. Public private models allow governments to provide land, guarantees, or concessional finance, while private companies manage operations and risk. This balance accelerates modernization of bottling plants and transport fleets, transforming LPG from a commodity into a national service.

Subsidy reform must be gradual and targeted. Mature economies can phase out subsidies, but emerging ones need mechanisms that protect low

income households without distorting markets. Smart card systems or digital vouchers can make LPG affordable while maintaining fiscal health. Over time, these reforms cultivate a financially sustainable energy market.

Affordability also depends on consumer purchasing power. Pay as you go metering, micro cylinder programs, and mobile payments bring clean cooking to millions who would otherwise rely on biomass. These inclusive financial models reduce indoor pollution, improve health, and align with global sustainability goals.

Professionalizing the workforce underpins every reform. Trained and certified drivers, technicians, and installers ensure consistent service and safety. Partnerships between technical colleges and energy companies can produce a skilled labor pipeline, fostering national employment and operational excellence.

Ultimately, securing a domestic LPG market requires embedding it within a broader national energy resilience strategy. Integrating LPG with renewables, CNG, and future hydrogen solutions creates flexibility and reduces exposure to any single source. This diversified approach

future proofs energy security while supporting global decarbonization commitments.

Conclusion: From Energy Access to Energy Assurance

Building a secure domestic LPG market is not just about distribution; it is about trust, foresight, and inclusion. The UAE's experience illustrates how transparent pricing, unified safety standards, and coordinated logistics create a stable, investor friendly, and consumer safe ecosystem.

Every country aspiring to strengthen its domestic market must align policy, infrastructure, and governance. The path forward lies in balancing open market principles with social equity, replacing fragmentation with unity, and transforming LPG from a product of convenience into an instrument of national resilience.

The lesson is clear: energy security begins at home, with the systems, institutions, and people who keep the flame burning safely, affordably, and sustainably from port to plate. ■

Top 5 Recommendations

1. Establish Unified National Standards for Infrastructure and Safety

Standardizing infrastructure, facilities, and safety protocols across the supply chain from midstream loading to downstream distribution is essential. Countries should adopt unified national codes for cylinder specifications, pressure standards, and pipeline safety to prevent fragmentation and accidents, ensuring seamless distribution and interoperability across regions.

2. Ensure Government Policy Stability and Long Term Regulatory Vision

Stable and transparent policies are critical for investor confidence and infrastructure development. Governments must institutionalize energy frameworks that survive political transitions, ensuring continuity in pricing, subsidies, and supply governance. Policy consistency builds trust and sustains domestic energy security even amid political change.

3. Expand Business Continuity Partnerships Among National Distributors

Coordinated partnerships among domestic LPG distributors are key to ensuring uninterrupted supply. Joint contingency planning and shared storage infrastructure guarantee national coverage during disruptions such as floods or disasters, ensuring resilience and equitable service delivery.

4. Modernize Consumer Infrastructure with Composite Cylinders and Smart Safety Systems

Replacing outdated metal cylinders with composite, transparent, and corrosion resistant alternatives enhances safety and consumer confidence. These lighter cylinders reduce explosion risks and allow users to monitor gas levels visually, improving efficiency and household safety. Gradual nationwide replacement programs can raise safety standards while maintaining affordability.

5. Mobilize International Financing to Support Domestic Subsidy Gaps

Many developing economies lack fiscal space to subsidize LPG for low income consumers. Governments should leverage international financial institutions and climate linked funding to bridge affordability gaps. Blended finance models can support infrastructure expansion, stabilize domestic pricing, and encourage equitable access without overwhelming national budgets.

In summary:

Securing and serving domestic LPG markets requires unified standards, regulatory stability, cooperative national logistics, modernized consumer infrastructure, and innovative financing partnerships — a five point framework that ensures safe, affordable, and resilient national LPG delivery systems.

Source: Insights were harvested from a workshop hosted by ENOC at the 13th Fujairah Energy Markets Forum on Oct. 1st, 2025, where 100 LPG market stakeholders participated in a 3-hour curated brainstorming session

