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Understanding Supply-Side Regulations

A Technical Brief for African Policymakers

60%	7.5m	28
of annual additions to Africa's car stock are used, imported vehicles	used light-duty vehicles imported into Africa, 2015–2022	African countries with good or very good used-vehicle import rules, December 2023

The opportunity

Supply-side regulation changes what is supplied, not just what consumers can afford. It can raise fleet quality, cut fuel use and speed electrification at lower cost to the treasury.

Introduction

Africa's shift to cleaner mobility has largely been discussed through demand-side tools: purchase subsidies, tax incentives and charging infrastructure. These shape what consumers can afford and how easily they can charge. Far less attention has gone to the supply side of the market: the rules that determine what manufacturers and importers are permitted or required to bring into a country. That gap is now closing: several African markets are actively considering, drafting, or adopting supply-side instruments. This brief sets out what supply-side regulation means, surveys the instruments through which it is implemented, and examines the considerations that determine which instrument suits a given vehicle category or market context.

What Are Supply-Side Regulations?

Supply-side regulations (SSRs) are rules that place obligations directly on the businesses that make or bring vehicles to market, *such as manufacturers, assemblers and importers,* about what they may sell, and in what proportions or to what standard. They change what is supplied.

This is the mirror image of demand-side policy. Demand-side tools, *such as rebates, tax breaks and purchase subsidies,* shape consumer behaviour through price signals. Supply-side rules oblige the seller to change the mix of vehicles on offer, whatever individual consumers choose.

Neither lever works alone. Supply-side regulation, demand-side incentives and enabling infrastructure (charging, grid and testing capacity) are three complementary levers. Used together, they reinforce one another; used alone, each is easily blunted.

> **The Mango Analogy:**
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> Imagine a government that wants more mangoes on the market but, instead of paying shoppers to buy them, regulates the sellers:
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> - **A sales mandate:** "At least 20% of the fruit you sell must be mangoes." (In vehicles, a zero-emission vehicle (ZEV) mandate).
> - **A performance standard:** "All your fruit must meet a minimum freshness standard." (In vehicles, a fuel-economy or emissions standard).
> - **A feebate or credit-trading scheme:** "Sellers who exceed their mango quota earn credits they can sell to those who fall short."
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> Replace "fruit sellers" with vehicle manufacturers and importers, and "mangoes" with electric or efficient vehicles, and you have supply-side regulation in vehicles. Same logic, different commodity.

Why Africa Needs Supply-Side Regulations

Africa's vehicle market is defined by what it imports. Around 60% of the annual additions to Africa's car stock are used, imported vehicles.[1] Between 2015 and 2022, Africa took in roughly 7.5 million used light-duty vehicles, about a third of all used vehicles exported by the world's four largest exporters, the highest share of any region.[2] Demand-side incentives cannot reshape a fleet that is defined at the port of entry.

Fiscal space is also tight. Large consumer subsidies are costly and often regressive; supply-side obligations shift the cost of compliance onto industry rather than the treasury.

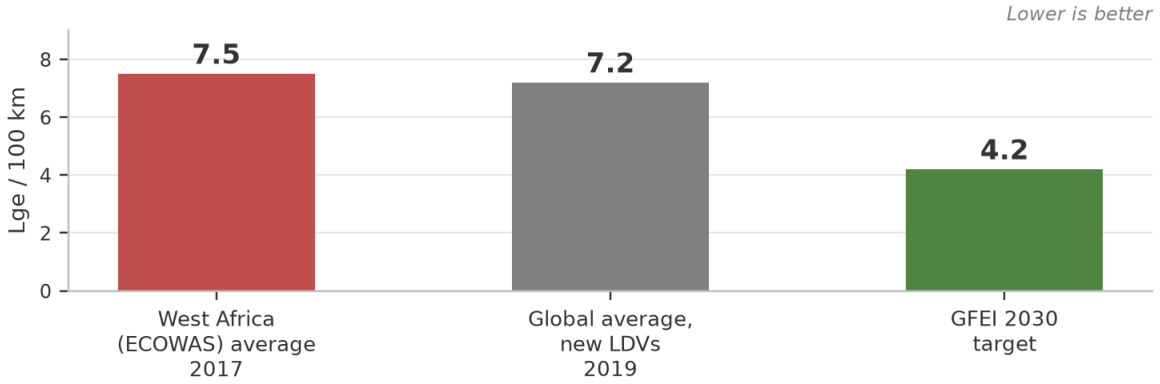
There is also the dumping-ground risk. As major markets tighten efficiency rules, electrify or ban the internal combustion engine, vehicles that no longer comply there need somewhere to go. Without

[1] IEA (2026), Global EV Outlook 2026, "Trends in electric cars". https://www.iea.org/reports/global-ev-outlook-2026/trends-in-electric-cars
[2] UNEP (2024), Used Vehicles and the Environment: Update and Progress 2024. Africa imported 7.47 million used light-duty vehicles between 2015 and 2022 (33% of the total from the EU, USA, Japan and Republic of Korea), the largest regional share. https://www.unep.org/resources/report/used-vehicles-and-environment-global-overview-used-light-duty-vehicles-flow-scale

supply-side guardrails, Africa risks becoming that destination.[3] Used vehicles imported into Africa average roughly 10 to 19 years old in many markets, and only about 1.4% of used electric vehicles exported globally reach the continent.[4]

Momentum is building. By December 2023, 28 African countries had adopted good or very good used-vehicle import regulations.[5] ECOWAS has adopted a regional fuel-economy roadmap (5 L/100 km by 2025 and 4.2 by 2030) and clean fuels and vehicles directives that include import age limits; the East African Community has adopted Euro IV emissions standards.[6] Individual states are moving: Côte d'Ivoire caps imports at five years and Kenya, Senegal at eight,[7] while Ethiopia has banned the import of internal combustion vehicles outright.[8]

Figure 1. Average rated fuel consumption of light-duty vehicles.



Lower is better. Sources: ECOWAS/GFEI West Africa Fuel Economy Roadmap (West Africa weighted average, 7.5 Lge/100 km, 2017); GFEI Working Paper 22 (global average, 7.2 Lge/100 km, 2019); GFEI 2030 target (4.2 Lge/100 km).[9]

Pros and Cons of Supply-Side Regulation as an Approach

No instrument is a silver bullet. Before choosing among them, policymakers should weigh the approach honestly.

Pros	Cons
Predictable, long-term market signal	Costs may be passed through to consumers in higher vehicle prices
Shifts compliance cost to industry, not the public budget	Requires real regulatory, testing and enforcement capacity
Moves the entire fleet, not just marginal buyers	Vulnerable to weak monitoring and gaming
Does not require large public expenditure	May not suit fragmented, import-heavy markets without regional coordination

These trade-offs play out differently depending on the specific instrument chosen.

[3] ECOWAS and GFEI (2020), West Africa Fuel Economy Roadmap. The roadmap warns that the region "could continue to be a destination for used and polluting vehicles that do not comply with the policies of the countries from which they are imported." https://sustmob.org/GFEI/CommunicationMaterial/Africa/Reports/Summary_WestAfricaFuelEconomyRoadmap_English.pdf
[4] UNEP (2024), op. cit. Average import ages in West African markets ranged from about 10 to 19 years; Africa received 1.4% (1,432 units) of used light-duty battery-electric vehicle exports from the EU, Japan and the Republic of Korea, 2017–2022. https://www.unep.org/resources/report/used-vehicles-and-environment-global-overview-used-light-duty-vehicles-flow-scale
[5] UNEP (2024), op. cit. Three African countries were assessed as "very good" and 25 as "good" on UNEP's used light-duty vehicle regulatory scale (December 2023).
[6] UNEP (2024), op. cit. (EAC Euro IV adoption, 2022; Uganda's 15-year import age limit and Tanzania's 10-year limit).
[7] ECOWAS and GFEI (2020), West Africa Fuel Economy Roadmap (Côte d'Ivoire's 5-year limit; Senegal's limit revised from 5 to 8 years in 2012; ECOWAS directive limits of 5 years for light-duty and 10 years for heavy-duty vehicles).
[8] IEA Policies Database, "Ban on import of internal combustion engine vehicles" (Ethiopia, 2024). The prohibition on importing petrol and diesel vehicles took effect in January 2024. https://www.iea.org/policies/30386-ban-on-import-of-internal-combustion-engine-vehicles
[9] ECOWAS and GFEI (2020), West Africa Fuel Economy Roadmap, sales-weighted regional average of 7.47 Lge/100 km in 2017; GFEI Working Paper 22 (2021), Vehicle Fuel Economy in Major Markets 2005–2019, global average of 7.2 Lge/100 km in 2019; GFEI target of 4.2 Lge/100 km by 2030. Fuel consumption in litres of gasoline equivalent per 100 km (Lge/100 km); lower values are more efficient.

The Instruments of Supply-Side Regulation

SSRs are not one tool but a family of instruments, each suited to different market conditions and policy goals. Six matter most in an African context.

1. **Sales or production mandates.** A required minimum share of sales or imports must be zero-emission (a "ZEV mandate").[10] How it works: each importer or assembler must ensure a set percentage of its annual sales are zero-emission, often with credit trading to lower the cost.
   Pro: it creates a guaranteed market for electric vehicles and a clear, visible target.
   Con: it can raise prices or constrain supply where affordable models are unavailable.[11]
2. **Vehicle efficiency standards (VES).** This is the workhorse instrument. A VES sets a fleet-average fuel economy or energy-consumption target that each importer or manufacturer must meet across the vehicles it sells. It is expressed in familiar metrics, i.e., kilometres per litre, litres per 100 km, or grams of CO_2 per kilometre. Crucially, it covers every powertrain: a battery-electric vehicle is measured in kilometres per litre of gasoline equivalent (its kWh/100 km value converted to km/Lge), so "fuel economy" alone is too narrow a label even though it is the metric most often discussed.
   Pro: it is technology-neutral, works across powertrains, avoids the need for a phase-out date for any technology, and carries a lower enforcement burden than a mandate, because compliance is assessed against a certified figure the vehicle already carries from its source market.
   Con: it requires reliable data and a common test cycle.[12]
3. **Emissions standards.** These cap the pollutants a vehicle may emit. The Euro-equivalent tailpipe limits already adopted by the EAC and ECOWAS.
   Pro: proven, improves air quality, and builds on existing regional frameworks.
   Con: they do not by themselves improve fuel economy or force electrification.[13]
4. **Import restrictions and age limits.** These ban or cap imports of older used vehicles, for example, no vehicle older than eight years.
   Pro: simple to administer at the border, and it quickly raises the average quality of the fleet.
   Con: it is blunt, can raise prices and constrain supply, and can be evaded through transshipment.[14]
5. **Feebate-linked supply obligations.** A charge on inefficient vehicles funds a reward for efficient ones, with tradeable credits.
   Pro: largely self-financing, and it rewards improvement.
   Con: complex to design and administer, and it depends on accurate performance data.[15]
6. **Minimum quality and safety standards.** Minimum technical requirements for batteries, charging compatibility and components.
   Pro: protects consumers, enables charging interoperability, and supports local assembly.
   Con: requires testing capacity and can raise costs.

[10] See, for example, the United Kingdom's Vehicle Emissions Trading Schemes (a ZEV mandate). https://www.gov.uk/government/publications/vehicle-emissions-trading-schemes-vets-final-compliance-information-2024
[11] See, for example, the EU's 2035 zero-emission requirement under Regulation (EU) 2019/631 as amended. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52025PC0136
[12] GIZ (2025), Fuel Economy Standards in Kenya: A Technical Insight and Policy Rationale. https://changing-transport.org/publications/fuel-economy-standards-in-kenya/; UC Davis Global South Center for Clean Transportation (2026), Strategies to Build an Affordable Electric Passenger Car Market in Kenya. https://doi.org/10.7922/G2NZ8628. A 15 kWh/100 km vehicle records about 59 km/Lge, using the energy content of a litre of petrol (about 8.9 kWh).
[13] UNEP (2024), op. cit.; ECOWAS Clean Fuels and Vehicles Directives (Euro IV or stricter, 50 ppm sulphur). These are pollutant limits, distinct from the CO_2 and fuel-economy standards discussed above.
[14] Examples in force include Uganda (15 years), Tanzania (10 years), Côte d'Ivoire (5 years) and Senegal (8 years); see UNEP (2024) and ECOWAS/GFEI (2020).
[15] New Zealand's Clean Vehicle Standard, for example, combines per-vehicle targets with a charge-and-credit account that importers can bank or trade. https://www.nzta.govt.nz/vehicles/clean-car-programme/clean-car-standard

Table 1. The instruments compared.

Instrument	Mechanism	Pro	Con
Sales/production mandate	Minimum share of sales or imports must be zero-emission	Guarantees a market for EVs; clear, visible target	Can raise prices or constrain supply if models are scarce
Vehicle efficiency standard (VES)	Fleet-average fuel economy / energy target per importer	Covers all powertrains; no phase-out date; lighter enforcement via certified data	Needs reliable data and a common test cycle
Emissions standard (Euro-equivalent)	Caps tailpipe pollutants per vehicle	Proven; improves air quality; builds on EAC and ECOWAS frameworks	Does not by itself improve fuel economy or force electrification
Import restriction / age limit	Bans or caps older used-vehicle imports	Simple at the border; quickly raises fleet quality	Blunt; can raise prices and constrain supply; evasion risk
Feebate-linked supply obligation	Charges inefficient vehicles, rewards efficient ones; tradeable credits	Largely self-financing; rewards improvement	Complex to design; needs accurate performance data
Minimum quality / safety standard	Minimum technical requirements (battery, charging, components)	Protects consumers; enables charging interoperability; supports assembly	Requires testing capacity; can raise costs

Several African markets are currently weighing VES-type standards in preference to ZEV mandates or carbon taxes, a preference that reflects the import-dominated structure of their vehicle markets.

Choosing the Right Instrument: Matching Tool to Context

There is no single best instrument. The right choice depends on context, and the policymaker's task is to match the tool to the market. Six questions help.

1. Which vehicle category? Two- and three-wheelers, passenger cars, and trucks and buses each have different supply chains and regulatory needs.
2. What is the market structure? Is the market import-dominated, or is there a local assembly base to regulate?
3. What regulatory and enforcement capacity exists? A standard that relies on certified data from the source market is lighter to enforce than one requiring every vehicle to be tested.
4. What is the regional context? Shared bloc standards (EAC, ECOWAS) change the calculus and can reduce the cost of compliance.
5. What fiscal capacity is available? Where budgets are tight, self-financing instruments and industry-borne obligations are more attractive than subsidies.
6. How mature is the e-mobility market? Nascent markets may need foundational standards first; scaling markets can support more ambitious mandates.

The matrix below is a starting point, not a rulebook.

Table 2. Indicative fit of instruments by vehicle type and market context.

Vehicle type / market context	ZEV mandate	Vehicle efficiency standard	Emissions standard	Import age limit	Feebate / credit	Quality & safety standard
Two- and three-wheelers	High	Medium	Medium	Low	Medium	High
Passenger cars — import-dominated	Medium	High	High	High	High	Medium
Passenger cars — local assembly base	High	High	High	Low	Medium	High
Trucks and buses (medium / heavy duty)	Low	Medium	High	High	Medium	Medium

Fit rating: High = well matched; Medium = workable with careful design; Low = poorly matched to that context.

In practice, most markets sequence these tools. Foundational quality and emissions standards tend to come first; a vehicle efficiency standard follows as data and enforcement capacity mature; and mandates or feebates are added as the market scales. The sequence matters as much as the instrument.

This brief offers a shared framework for evaluating supply-side options as African markets continue to develop their regulatory approaches. The instruments are not rivals; the question is which combination fits a given market, and in what sequence.