

# Ethanol Blends and Energy Security:

## A Structural Shift in Fuel Policy

Recent geopolitical developments, including the war in Iran and broader instability in the Middle East, have accelerated a significant shift in global fuel policy. Energy security is no longer a theoretical concern; it has become a central driver of policy and investment decisions. In parallel, the realities of transport decarbonisation are increasingly shaped by considerations of cost, scalability, and resilience.

Against this backdrop, higher ethanol blends are moving from a niche climate policy instrument into the mainstream of energy security policy.

Momentum is building across major markets. In Europe, policymakers are considering E20 to increase domestic renewable fuel content and reduce reliance on imported fossil fuels. Brazil is progressing from E30 to E32, explicitly linking higher blends to reduced gasoline imports. India has already achieved nationwide E20 implementation and is preparing the regulatory framework for even higher blends, including flex-fuel vehicles and potentially E85 and E100 fuels. Emerging markets such as Vietnam and Indonesia are also advancing discussions around E10 and E20 respectively. In the United States, Congress recently voted in favour of allowing year-round nationwide sales of E15.

These developments are not isolated. They reflect a broader reassessment of liquid fuels within national policy frameworks. Governments are no longer evaluating fuels solely through the lens of emissions or cost, but increasingly through the resilience and security of supply.

The geopolitical context is critical. Disruptions linked to the Iran conflict and risks surrounding strategic transit routes such as the Strait of Hormuz have heightened concerns over oil and gas supply security. This has reinforced the strategic value of fuels that can be produced domestically or regionally.

In this context, ethanol is uniquely positioned as a strategic solution:

- It can be produced domestically and at scale
- It integrates efficiently with existing fuel infrastructure
- It directly displaces imported fossil fuels and strengthens fuel security

Importantly, market dynamics are also reinforcing ethanol's role. While oil prices have shown significant volatility—particularly in 2026—ethanol prices in major markets have remained comparatively stable. This strengthens ethanol's position as a cost-competitive transport fuel in uncertain markets.

The shift underway is structural. Ethanol is no longer viewed solely as a decarbonisation tool. It is increasingly recognised as a strategic liquid fuel capable of simultaneously delivering emissions reductions, supporting rural economies, and enhancing energy security.

As global energy markets become more volatile, ethanol is becoming an integral part of the energy security playbook.

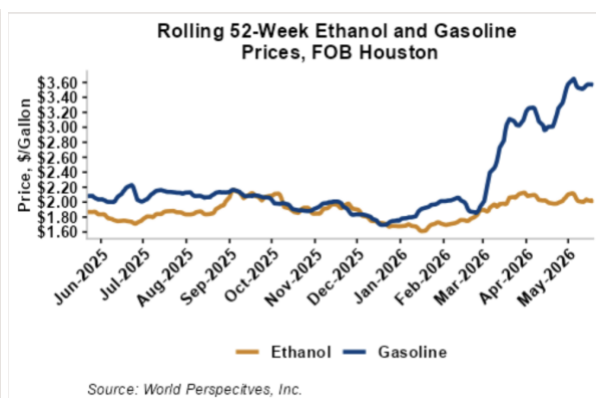
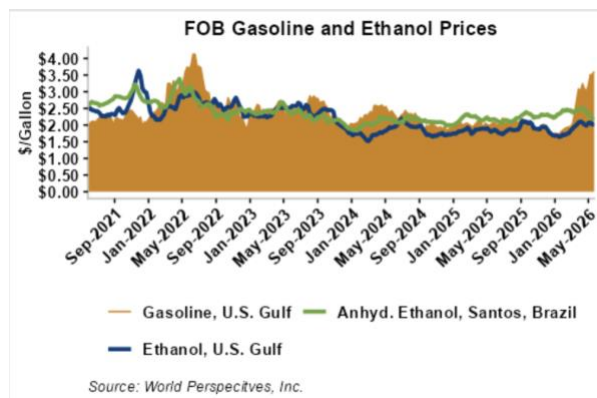
## Relative Price Stability

Beyond its strategic and geopolitical advantages, ethanol in the US, the world’s largest ethanol exporter, are also demonstrating greater market stability than conventional fossil fuels.

Over the past decade, ethanol prices in the US have demonstrated significantly lower volatility than crude oil prices, despite partial correlation with petroleum markets. Oil prices are highly exposed to geopolitical shocks, macroeconomic uncertainty, and supply disruptions, while ethanol prices are moderated by agricultural cost structures and renewable fuel policy frameworks.

Period	Approximate WTI Move	Approximate Ethanol Move
<b>2014–2016 OIL CRASH</b>	~\$100 → <\$30/barrel	moderate decline, not collapse-scale
<b>2020 COVID SHOCK</b>	briefly negative futures pricing	significant drop, but less extreme than crude
<b>2021–2022 RECOVERY/SPIKE</b>	~\$40 → >\$120/barrel	recovery tied to gasoline demand
<b>2023–2025</b>	continued high geopolitical volatility	relatively range-bound compared with crude

As illustrated in the charts below, gasoline and ethanol prices have followed markedly different volatility patterns over the past year. Ethanol prices have remained substantially more stable.



Source: USGBC



## Global Policy Momentum

Across major regions, a clear policy trend is emerging: governments are increasingly viewing higher ethanol blends as a strategic tool to strengthen energy security, reduce import dependence, and support transport decarbonisation. While policy frameworks differ across markets, the direction of travel is remarkably consistent.

### United States

In the United States, support for higher ethanol blends has become increasingly linked to energy independence and fuel affordability. The recent Congressional vote in favour of year-round nationwide sales of E15 reflects growing recognition that domestically produced renewable fuels can help reduce exposure to oil price volatility and strengthen fuel supply resilience. Ethanol policy continues to benefit from strong agricultural support, particularly across the Midwest.

### Brazil

Brazil continues to demonstrate the viability of high ethanol blends through its mature flex-fuel vehicle ecosystem and extensive domestic ethanol production capacity. The country is progressing from E30 to E32, with policymakers explicitly linking higher blends to reduced gasoline imports and enhanced energy security. With millions of Brazilian drivers already using E100 fuel on a daily basis, Brazil's experience illustrates how ethanol can evolve from an agricultural policy instrument into a core component of national fuel strategy.

### India

India has rapidly emerged as one of the world's most ambitious ethanol markets. Having already achieved nationwide E20 implementation, the government is now preparing the regulatory and industrial framework for even higher blends, including flex-fuel vehicles and potentially E85 and E100 fuels. Ethanol policy in India is closely tied to broader objectives, including reducing crude oil imports, generating foreign exchange savings, supporting rural development, and strengthening national energy independence.

### Europe

In Europe, discussions around E20 are gaining momentum as policymakers reassess fuel security following the energy disruptions triggered by Russia's invasion of Ukraine. The debate increasingly extends beyond emissions reduction under RED III and broader climate objectives. Higher ethanol blends are now also being considered through the broader lens of strategic autonomy, industrial resilience, and reducing dependence on imported fossil fuels.

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## Japan

Japan is gradually moving toward higher ethanol blends as part of its broader energy security and decarbonization strategy. In 2024, the government announced targets to introduce E10 gasoline by 2030 and E20 by 2040, while also advancing vehicle compatibility standards for higher blends. The policy is increasingly linked to reducing dependence on imported fossil fuels and strengthening long-term fuel supply resilience.

## Southeast Asia

Several Southeast Asian countries are accelerating ethanol blending policies as part of broader energy diversification strategies. Indonesia is actively considering higher blends, including E20, while Vietnam is expected to roll out E10 in June 2026. Thailand, already one of the region's more advanced biofuel markets, continues to support ethanol as part of its domestic energy and agricultural strategy. Across the region, rising fuel demand, import dependency, and strong agricultural sectors are creating favourable conditions for ethanol expansion.

Taken together, these developments demonstrate that the shift toward higher ethanol blends is not isolated or region-specific. It is a structural global trend unfolding across diverse political systems, economic models, and stages of development.

## Standardisation

The expansion of higher ethanol blends may benefit from greater international fuel standardisation and regulatory alignment on octane. As more countries move toward E15, E20, and higher blends, fuel specifications will become increasingly important for vehicle manufacturers, fuel suppliers, and policymakers.

At the centre of this discussion is octane. Higher-octane fuels enable improved engine efficiency, lower emissions, and better vehicle performance. Ethanol is one of the most effective and commercially available octane enhancers, offering a low-carbon alternative to traditional fossil-based octane components.

As outlined in the Climate Ethanol Alliance's work on global fuel standardisation, aligning higher-octane fuel standards with advanced engine technologies represents a significant opportunity to improve both energy efficiency and energy security while supporting decarbonisation objectives.

## Conclusion

Governments are increasingly recognising the importance of fuel stability and resilience in the face of geopolitical disruption, while also acknowledging ethanol's broader strategic benefits.

Momentum is building behind efforts to overcome long-standing policy and regulatory barriers, including:

- Revising the Fuel Quality Directive to enable ethanol blending beyond the current 10% limit in Europe.
- Advancing year-round E15 sales in the United States as the legislation moves to the Senate despite opposition from some small refiners.
- Advancing toward E32 in Brazil despite ongoing technical debates and questions around implementation timing.
- Expanding beyond E20 ambitions in India through the continued rollout of flex-fuel vehicles and higher ethanol blends (E22-E30).
- Increasing ethanol blending in highly oil-import-dependent economies across Asia and Africa.

Higher ethanol blends are emerging as one of the fastest, lowest-cost, and most scalable tools available to improve liquid fuel security while supporting decarbonisation and reducing exposure to geopolitical oil supply shocks.

As the world's largest renewable transport fuel, crop-based ethanol (including corn and sugarcane) are already positioned to make an immediate and scalable contribution to energy security, fuel resilience, and transport decarbonisation.

Ethanol is now emerging as a core component of national energy security architecture.

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