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WPB Global Bitumen Price

Week 3 of JUNE 2026

The global bitumen market is currently experiencing a period of instability largely influenced by the geopolitical uncertainties surrounding the Strait of Hormuz. Across several Asian markets including China, Singapore, India, South Korea, Malaysia, Vietnam, Indonesia, Thailand, and Bangladesh, pricing behavior has shown irregular movements. Despite the absence of a stable pricing environment, most reported price benchmarks indicate moderate upward adjustments. These increases are largely associated with concerns over supply security and maritime transport risks.

While the pricing environment lacks full stability, prevailing market data indicates that most quotations have moved upward. These increases reflect the direct influence of regional geopolitical risk on petroleum derivative markets. The situation has also influenced other international markets such as Russia, Sri Lanka, and Australia, where traders and suppliers remain attentive to global supply chain developments. Although these countries are geographically distant from the Strait of Hormuz, international freight costs and energy market sentiment have introduced instability into local pricing structures. Recent market observations indicate that bitumen prices in these regions have generally increased. The upward movement remains moderate but consistent with global market reactions.

European markets, particularly Germany, Spain, and Italy, have also been affected by the broader uncertainty in international energy

logistics. Import dependent supply systems in these countries have resulted in cautious procurement strategies and fluctuating price signals. Despite this unstable environment, available market data suggests that most price references have experienced gradual increases. These movements largely reflect precautionary adjustments to global supply risks. Similarly, markets in Brazil, South Africa, and Venezuela demonstrate a comparable pattern of instability combined with upward price pressure.

The international repercussions of the Strait of Hormuz situation have influenced freight calculations and energy trade expectations in these regions. While price movements have not been extreme, the majority of market quotations indicate a clear upward direction. Overall, the global bitumen market currently reflects an unstable environment accompanied by moderate price increases across most regions.

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In the Middle Eastern region, including Iran, Iraq, the United Arab Emirates, and Turkey, bitumen markets have been particularly sensitive to developments in the Strait of Hormuz due to their geographic proximity to the strategic shipping corridor. Market sentiment has been characterized by heightened caution and fluctuating expectations.

Iran

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (Drum)	530 ± 5	FOB Bandar Abbas
	60/70 (Bulk)	500 ± 5	FOB Bandar Abbas
	60/70 (Jumbo Bag)	515 ± 5	FOB Bandar Abbas
	60/70 (Drum)	452 ± 5	Ex-work Bandar Abbas
	60/70 (Bulk)	400 ± 5	Ex-work Bandar Abbas
	60/70 (Jumbo Bag)	430 ± 5	Ex-work Bandar Abbas

Bitumen prices in Iran have recently shown an unstable pattern influenced by ongoing uncertainties surrounding the Strait of Hormuz. Market participants continue to monitor logistical and geopolitical developments affecting regional supply routes. Despite the prevailing volatility, current price indications reveal a noticeable upward adjustment. This increase reflects heightened risk perception within the regional energy and shipping environment.

Singapore

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	515 ± 5	CIF Singapore
	60/70 (bulk)	450 ± 5	FOB Singapore

In Singapore, bitumen prices have been subject to fluctuating sentiment due to uncertainties affecting maritime transport through the Strait of Hormuz. Market stability has been weakened as traders reassess regional freight risks. Despite the unstable backdrop, the majority of price benchmarks have registered modest increases. The market currently reflects cautious upward adjustments rather than dramatic shifts.

Russia

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	365 ± 5	FOB Novorossiysk
	60/70 (drum)	290 ± 5	FOB St. Petersburg
	60/70 (drum)	455 ± 5	FOB Ust-Luga
	60/70 (drum)	315 ± 5	FOB Primorsk
	60/70 (drum)	295 ± 5	FOB Vysotsk

The Russian bitumen market has experienced irregular pricing conditions amid global supply chain concerns linked to the Strait of Hormuz situation. Although Russia is geographically distant from the region, international trade sentiment has contributed to pricing instability. Market data indicates that most quotations have moved slightly upward. The upward tendency reflects broader global risk premiums affecting petroleum derivatives.

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UAE

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	555 ± 5	FOB Jebel Ali
	60/70 (drum)	595 ± 5	CFR Jebel Ali

Bitumen pricing in the United Arab Emirates has shown signs of volatility influenced by developments in the nearby Strait of Hormuz. Regional logistics uncertainty has introduced fluctuations in supply expectations. Despite these unstable conditions, most current price indications reflect a measurable increase. Market participants continue to operate under elevated geopolitical awareness.

Sri Lanka

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	500 ± 5	CFR Colombo

The Sri Lankan bitumen market has encountered unstable pricing dynamics influenced by international shipping uncertainties tied to the Strait of Hormuz. Import-dependent supply structures have heightened sensitivity to geopolitical developments. Recent price assessments indicate a general upward movement across available quotations. This trend reflects increased freight and procurement concerns.

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	496 ± 5	FOB Bandar Abbas
	60/70 (bulk)	443 ± 5	FOB Bandar Abbas

Bitumen prices in Iraq have displayed significant volatility as the regional geopolitical environment surrounding the Strait of Hormuz remains uncertain. Market conditions have been influenced by shifting expectations regarding export logistics and regional demand. Despite the unstable environment, prevailing price indications reveal a clear upward direction. The increase is largely attributed to perceived supply risks within the broader Middle Eastern energy market.

Turkey

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	555 ± 5	CFR Istanbul

The Turkish bitumen market is currently experiencing fluctuating pricing conditions linked indirectly to the strategic uncertainties of the Strait of Hormuz. Regional energy market sentiment has influenced procurement behavior and trade negotiations. Available data indicates that most price references have increased moderately. This upward movement reflects cautious adjustments to global supply risk.

Australia

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	582 ± 5	CIF Brisbane
	60/70 (bulk)	500 ± 5	CIF Brisbane

Bitumen prices in Australia have shown unstable short-term movements influenced by global energy market developments connected to the Strait of Hormuz. Although geographically distant, shipping cost expectations have affected market sentiment. The majority of recent quotations demonstrate moderate increases. These changes suggest indirect exposure to international supply uncertainties.

South Korea

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	451 ± 5	CFR Busan
	60/70 (drum)	486 ± 5	CIF Busan

In South Korea, the bitumen market has been affected by irregular pricing patterns as geopolitical tensions near the Strait of Hormuz influence global oil derivatives. Market participants remain attentive to potential disruptions in maritime transport. Despite the unstable outlook, current price levels have generally increased. This reflects precautionary adjustments by suppliers and distributors.

Vietnam

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	488 ± 5	CFR Haiphong
	60/70 (drum)	498 ± 5	CFR Ho chi Minh

Bitumen prices in Vietnam have shown inconsistent movement influenced by international market concerns surrounding the Strait of Hormuz. Import logistics and freight expectations have contributed to unstable market sentiment. Nevertheless, current market quotations generally indicate upward adjustments. These increases remain moderate but noticeable.

China

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	500 ± 5	CFR Chongqing
	60/70 (drum)	505 ± 5	CFR Hong Kong
	60/70 (drum)	501 ± 5	CFR Ningbo
	60/70 (drum)	515 ± 5	CFR Huangpu
	60/70 (drum)	513 ± 5	CFR Yunfu
	60/70 (drum)	512 ± 5	CFR Tianjin
	60/70 (drum)	508 ± 5	CFR Dalian
	60/70 (drum)	511 ± 5	CFR Guangzhou
	60/70 (drum)	516 ± 5	CFR Nansha
	60/70 (drum)	506 ± 5	CFR Zhuhai

Chinese bitumen price levels have demonstrated a lack of firm stability amid concerns surrounding Middle Eastern shipping corridors. The strategic importance of the Strait of Hormuz has generated cautious behavior among importers and distributors. Recent market indications show that prices have generally trended upward. This gradual increase appears linked to perceived supply security risks.

India

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	540 ± 5	CFR Chennai
	60/70 (drum)	535 ± 5	CFR Cochin
	60/70 (drum)	549 ± 5	CFR Haldia
	60/70 (drum)	525 ± 5	CFR Mundra
	60/70 (drum)	520 ± 5	CFR Kandla
	60/70 (drum)	530 ± 5	CFR Nhava sheva
	60/70 (drum)	538 ± 5	CFR Tuticorin
	60/70 (drum)	559 ± 5	CFR Kolkata

Indian bitumen prices have been characterized by unstable market signals amid growing concern about shipping routes associated with the Strait of Hormuz. The country's reliance on imported crude derivatives has amplified sensitivity to regional developments. Recent pricing data indicates a gradual upward trend. The increase appears to be driven by perceived supply chain risks.

Malaysia

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	506 ± 5	CFR Penang
	60/70 (drum)	530 ± 5	CFR Kota Kinabalu
	60/70 (drum)	493 ± 5	CFR port Klang
	60/70 (drum)	499 ± 5	CFR Pasir Gudang

The Malaysian bitumen market is currently experiencing pricing instability as global energy trade routes face uncertainty related to the Strait of Hormuz. Market participants have adopted cautious procurement strategies. Despite fluctuating sentiment, most recorded prices have moved slightly higher. The increase reflects the broader influence of geopolitical risk on petroleum products.

Brazil

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	651 ± 5	CIF Navegantes
	60/70 (drum)	630 ± 5	CIF Santos

The Brazilian bitumen market has displayed unstable pricing behavior as global energy markets react to geopolitical developments in the Strait of Hormuz. Although the region is geographically distant, international freight considerations have affected trade sentiment. Most recent price indications show incremental increases. The market is therefore experiencing moderate upward pressure.

South Africa

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	596 ± 5	CIF Durban

In South Africa, bitumen prices have been affected by fluctuating market conditions linked to uncertainty in international maritime routes. Developments related to the Strait of Hormuz have influenced global energy pricing expectations. Despite this instability, available quotations suggest a general upward movement. The increase appears to be driven by precautionary supply adjustments.

Indonesia

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	511 ± 5	CFR Belawam
	60/70 (drum)	496 ± 5	CFR Jakarta
	60/70 (drum)	496 ± 5	CFR Surabaya

The Indonesian bitumen market is currently facing unstable price signals due to heightened global concerns about the Strait of Hormuz shipping corridor. Import reliance has made the market sensitive to geopolitical developments. Most current price references show moderate increases. These adjustments reflect growing caution among suppliers.

Bangladesh

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	505 ± 5	CFR Chittagong

Bitumen pricing in Bangladesh has exhibited instability as international shipping conditions remain uncertain in connection with the Strait of Hormuz situation. Market participants continue to assess the potential impact on supply chains. Despite fluctuating conditions, recent price benchmarks show a modest upward trend. This increase is attributed to rising procurement concerns.

Italy

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	601 ± 5	CFR Genoa
	60/70 (bulk)	570 ± 5	CFR Genoa
	60/70 (drum)	598 ± 5	CFR La Spezia
	60/70 (bulk)	565 ± 5	CFR La Spezia

Thailand

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	510 ± 5	CFR Bangkok
	60/70 (drum)	496 ± 5	CFR Laem Chabang

The Thai bitumen market has experienced irregular pricing movements amid global energy market uncertainty related to the Strait of Hormuz. Traders and distributors remain cautious regarding supply continuity. Nevertheless, current market quotations demonstrate moderate price increases. These movements indicate precautionary adjustments within the market.

Venezuela

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	545 ± 5	FOB Jose Terminal
	60/70 (bulk)	480 ± 5	FOB Jose Terminal
	60/70 (drum)	536 ± 5	FOB Puerto La Cruz
	60/70 (bulk)	461 ± 5	FOB Puerto La Cruz
	60/70 (drum)	523 ± 5	FOB Amuay
	60/70 (bulk)	444 ± 5	FOB Amuay

Bitumen prices in Venezuela have shown unstable patterns influenced by broader global energy market uncertainties tied to the Strait of Hormuz. International sentiment regarding supply security has contributed to fluctuating expectations. Recent pricing data indicates that most quotations have increased. The rise reflects heightened risk considerations across petroleum markets.

Germany

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	600±5	CFR Hamburg
	60/70 (bulk)	570±5	CFR Hamburg

The German bitumen market has experienced unstable sentiment as geopolitical developments near the Strait of Hormuz influence global petroleum supply perceptions. European import structures have remained attentive to possible logistical disruptions. Current market data indicates moderate upward adjustments in prices. The increase reflects precautionary responses to international market risks.

Spain

Date	Bitumen Grade	Price (USD/MT)	Price Basis
Week 3 of June 2026	60/70 (drum)	591 ± 5	CFR Barcelona
	60/70 (bulk)	561 ± 5	CFR Barcelona
	60/70 (drum)	587 ± 5	CFR Valencia
	60/70 (bulk)	554 ± 5	CFR Valencia

In Spain, bitumen prices have demonstrated fluctuating behavior as international energy markets respond to uncertainty surrounding the Strait of Hormuz. Concerns regarding maritime transport costs have influenced trading sentiment. Despite the unstable environment, most available price indications have increased slightly. The market therefore reflects cautious upward pressure.

Ahmad Reza Yousefi – Razieh Gilani
Infinity Galaxy

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The turning point came on 28 February. According to the market narrative developed in Infinity Galaxy weekly reports, US and Israeli strikes on Iran pushed the conflict from political threat into operational disruption. The halt or severe restriction of tanker movement through the Hormuz Strait, the jump in war-risk insurance, slower vessel movement, and higher security costs moved the market from anxiety into crisis mode. In the first days, oil reacted fast. Brent rose from the \$70/bl area to around \$84-85/bl. More important than the number itself was the change in market psychology: the Hormuz Strait was no longer a theoretical risk. It had become an operational chokepoint. In the following weeks, the crisis shifted from a short-term shock to a war of attrition. Attacks on regional energy infrastructure, concern over damage to facilities in Saudi Arabia, the UAE, and Qatar, and lower vessel traffic forced the market to move beyond “possible disruption” and start pricing actual disruption in supply and shipping. Platts data referenced in Infinity Galaxy analysis showed that vessel traffic by mid-March remained below pre-war levels. That was enough for the market to understand that the crisis had moved from headlines into logistics.

By late March, the Hormuz Strait was neither fully closed nor truly open. Iran referred to the possibility of coordinated passage for non-hostile vessels, but the market did not treat that as a full reopening. For the global market, an open route means predictable, insurable, repeated, and low-friction commercial movement. What existed in March was limited and conditional passage. That is why crude remained above \$100/bl despite temporary pullbacks.

In April, temporary ceasefires and diplomatic extensions entered the picture. But the market quickly understood that a political ceasefire does not automatically remove maritime risk. Some ships were able to move, but shipping companies, insurers, and buyers remained cautious. During this period, the United States maintained naval pressure, while the market received reports of inspections, seizures, and attacks involving ships linked to Iranian trade. As a result, even ceasefire extensions were not enough to fully remove the risk premium.

Alongside the closed or semi-closed status of the Hormuz Strait, another critical factor shaped the period: the US naval blockade against Iran. This was not simply political pressure. It directly targeted Iranian trade and exposed vessels linked to Iranian ports or cargoes to the risk of inspection, seizure, delay, or loss of insurance acceptance. For that reason, even when limited reopening of the Hormuz Strait or some vessel passage was reported, the market did not treat Iranian exports as normal. For bitumen buyers, the main question was not only what price Iran was offering. The real question was whether that price could be converted into loading and delivery under naval blockade, restricted shipping access, unclear insurance conditions, and operational pressure. This blockade was one of the main reasons why Iran risk did not quickly disappear even when oil prices fell and political news improved.

In May, diplomacy returned to the center of the market, but the field situation did not fully follow it. On one side, reports suggested that Iran and the United States were moving closer to a preliminary understanding. On the other side, threats of renewed attacks, interruptions in talks, limited strikes, and tension on the Lebanon-Israel front continued. Oil entered a news-driven volatility phase: every positive diplomatic headline pushed prices lower; every attack or new threat pushed them higher again. This was the point when the market moved from direct shock into conditional pricing around headlines.

By mid-June, Infinity Galaxy weekly reports showed that the war had not fully disappeared, but the market was moving closer to a political exit. When the interim agreement and 60-day ceasefire framework between the United States and Iran were announced, oil fell quickly. The political message was clear: the path of war had been paused and a negotiation window had opened. But for the bitumen market, this was only the beginning of the next phase. The question was no longer only whether the deal had been signed. The question became: will vessels return, will insurers provide cover, will ports issue reliable loading programs, and will buyers trust the Iranian export chain again?

2. Brent Crude and Fuel Oil: From \$70 Brent to a Return Near \$77

On 20 February, oil was still in a manageable range. Argus data showed Brent averaging around \$69.6/bl for the week of 14-20 February. Singapore 180 cst fuel oil was also in the approximate range of \$427-444/t. This was an important base for bitumen because, in many markets, bitumen is priced directly or indirectly against fuel oil, refinery feedstock, and crude values. At that point, the market had not yet entered a crisis phase. European demand was weak, East Asia was quiet because of holidays and slow buying, and Iran was still trading under the weight of sanctions and weaker demand.

After 28 February, oil entered a sharp upward phase. In the 6 March Infinity Galaxy report, Brent was already around \$84-85/bl. The rise was not only about the military strike itself. The market was pricing the disruption or restriction of movement through the Hormuz Strait. When the route for crude, products, and refinery feedstock becomes uncertain, the market does not only price today's physical supply. It also prices tomorrow's shortage risk, insurance costs, delay risk, and precautionary inventory behavior.

By mid-March, the crisis had deepened. According to Infinity Galaxy reports, Brent reached the \$112/bl area by 19 March. At that point, the market was no longer pricing only a geopolitical premium. It was pricing possible damage to energy infrastructure and a higher threat to regional supply. Around the same period, Singapore HSFO 180 CST rose to about \$755/t and Mideast Gulf HSFO 180 CST to about \$680/t. This fuel oil jump mattered directly for bitumen. It put two-way pressure on the market: refinery feedstock and product alternatives became more expensive, while sellers became less willing to offer aggressively in a market where shipping and insurance risks were still rising.

In the week of 21-27 March, Argus data showed the same pressure more clearly. Brent traded in a range of about \$101.25-111.67/bl, averaging around \$105.9/bl. Rotterdam 3.5pc sulphur fuel oil also averaged around \$629/t. This means that even after the initial shock had partly faded, price levels remained far above the pre-war base. The market had entered a “high-price, high-risk” phase rather than a purely emotional spike.

In April, prices became more volatile. Ceasefire news, the possibility of limited reopening through the Hormuz Strait, and renewed negotiation expectations removed part of the premium. But shipping disruption prevented a full collapse in prices. Infinity Galaxy reports showed Brent back above \$100/bl around 23 April, trading near \$103/bl. Singapore 180 cst fuel oil was around \$591/t by 21 April, while Mideast Gulf 180 cst fuel oil was around \$518/t. The products market had released part of the war shock, but it was still far from normal pre-crisis levels.

In May, crude prices moved several times between hope and fear. Reuters reported price declines when negotiation headlines improved and sharp upward reactions when the Hormuz Strait risk intensified again. In late May, Argus showed Brent trading in a range of about \$91.89-100.56/bl during the week of 23-29 May, with an average near \$95.9/bl. That decline was linked to hope around US-Iran talks and a retreat in fuel oil. But the important point is that fuel oil still remained high: Rotterdam HSFO averaged about \$594.5/t in the same week.

By 12 June, Argus showed Brent averaging about \$91.6/bl for the week of 6-12 June, while Rotterdam 3.5pc sulphur fuel oil had fallen to around \$530.6/t. That decline was linked to growing speculation that a US-Iran deal was close. But at the same time, bitumen had not fully corrected. The reason is straightforward: crude prices trade political expectations, but bitumen prices trade supply limitations, production programs, vessels, insurance, and inventory reality.

By 18 June, after the interim agreement was announced, Reuters reported Brent falling to around \$77/bl. In oil-market terms, that move was significant. Traders were pricing the expected reopening of the Hormuz Strait, the possible return of Iranian supply, and a lower probability of direct war. But that point also made the gap between oil and bitumen more visible. Oil looked forward and fell quickly. Bitumen still needed execution evidence.

3. Bitumen: Iran, Singapore, and South Korea

On 20 February, the Asian bitumen market was still in a more normal price zone. Argus assessed Singapore bitumen at \$355-365/t and South Korea at \$365-370/t. Iran was around \$301/t on the Argus map. At that point, the main differences between markets were driven by demand, holidays, refinery maintenance, and sanctions on Iran. The Hormuz Strait had not yet entered bitumen pricing as a live operational crisis.

After 28 February, Iran was the first market to suffer operationally. The price on paper was only one part of the issue. Access to vessels, port entry, loading speed, insurance, and passage risk through the Hormuz Strait became the real problem. In Infinity Galaxy reports after the start of the war, the central question for Iran was no longer whether the offer was a few dollars higher or lower. It was whether loading and shipment could be executed at all. This logic continued across April, May, and June: in Iran, price without a shipping path has limited commercial value.

Singapore followed a different path. At first, the market did not move as aggressively because regional demand was weak and holiday effects were still present. But once feedstock disruption and limited supply became more serious, Singapore became one of the main centers of bitumen price strength. In the 20 March Argus report, Singapore bitumen reached \$614-624/t. By 27 March, it had increased to \$631-642/t. Infinity Galaxy reports also showed Singapore moving from around \$360/t before the crisis to above \$620/t. This was not only an oil effect. It was the result of high fuel oil, tight feedstock, lower production, limited spot cargo availability, and seller caution.

In April, Singapore stayed elevated. Even with some pullbacks in crude and ceasefire headlines, Singapore bitumen in late-April reports remained around \$660-670/t. This behavior shows that Asian bitumen did not correct quickly on political news alone. Producers were still dealing with feedstock limits and uncertain availability, while buyers were constrained by high costs and project budgets. The result was a market that was both expensive and thin in liquidity.

South Korea also reacted to the war, but not exactly like Singapore. On 20 February, South Korean bitumen was around \$365-370/t. By late March, Argus assessed South Korea at \$542-552/t. This sharp rise reflected both fuel oil and feedstock effects, as well as reduced bitumen output caused by changes in refinery crude slates.

Argus reports in April and June showed that some South Korean refiners produced less bitumen as they shifted from heavier Middle East grades to lighter crude. In June, Argus also referred to unusual bitumen imports by a major South Korean producer from South China, a strong signal of domestic tightness in a market that is normally export-oriented.

In Iran, the nominal price moved from about \$301/t on 20 February to roughly \$446-455/t in late May and June. But that number did not describe the full market reality. The 12 June Argus report showed Iran around \$446/t and at the same time emphasized that Iranian bitumen flows through the Hormuz Strait remained curtailed because of US naval attacks on bitumen and oil-product tankers. In the 18 June Infinity Galaxy report, Iranian drum bitumen was still around \$445-455/t, but the key point remained shipping access, vessel availability, and real export execution. Iran could look attractive compared with Singapore and South Korea on price, but execution risk defined the true difference.

In late May, Asian bitumen entered another two-layer phase. Argus assessed Singapore at \$566-575/t, South Korea at \$540-550/t, and Iran at about \$455/t on 29 May. In the same report, Asia-Pacific prices edged higher while Europe and the Mediterranean fell sharply on hopes of US-Iran negotiations. That contrast was important: crude and Europe reacted faster to the negotiation story, but Singapore was still supported by tight supply and feedstock constraints.

On 12 June, Singapore moved back to \$589-600/t and rose for a fifth consecutive week. This happened while Brent and European fuel oil were falling. That behavior shows why bitumen does not always follow crude in a straight line. If spot supply in Singapore is tight, production is curtailed, and buyers still need some cargoes even in a weak demand environment, bitumen can remain firm while crude weakens. In the same week, South Korea was around \$554-568/t and Iran around \$446/t. The price gap between Iran and East Asia remained wide, but Iran still carried a much higher execution risk.

By 18 June, after the agreement, East Asia entered a new phase. Singapore 180 cst fuel oil had fallen to around \$466/t by 17 June, while Mideast Gulf 180 cst fuel oil fell to about \$445/t. This was positive for bitumen, but it did not mean an immediate collapse in bitumen prices. Singapore was still supported by supply tightness, South Korea was softer but still limited, and Iran was standing at a sensitive point of potential export recovery. From 20 June onward, the

real direction of Iranian bitumen will depend on shipping schedules, insurance acceptance, practical removal of the blockade, and buyer confidence.

The final conclusion is clear: from 20 February to 18 June, Brent crude completed a full cycle: relative calm, war shock, a move above \$110/bl, and then a fall back toward \$77/bl after the agreement. Fuel oil followed the same broad path, but at the peak it put more direct pressure on bitumen. Iran, Singapore, and South Korea all saw bitumen prices rise, but not for the same reasons. Singapore was supported by tight supply; South Korea by lower output and feedstock shifts; Iran by risk and scarcity on paper, but constrained by execution and shipping risk.

The market has moved away from war shock, but it has not returned to normal. Oil absorbed the agreement first. Bitumen is still waiting for operational evidence. Over the coming weeks, three signals matter most: first, whether the Hormuz Strait truly reopens for normal, insurable commercial traffic; second, whether refiners return to heavier crude slates and stable bitumen production; and third, whether Iranian exports move from quotation to reliable execution. In this market, the winner is not the seller who only quotes the lowest price. The winner is the supplier that can connect price, vessel, timing, insurance risk, and real delivery into one executable chain. From this point forward, the bitumen market will look less at political headlines and more at practical signals: booking, loading, vessel movement, payment, insurance, and actual delivery.

Source Note

This report is based on the weekly Infinity Galaxy market reports published on the company's official website (www.infinitygalaxy.org), together with international market data and analysis from Argus and Platts, and external news verification from reputable international sources such as Reuters. It reviews the oil, fuel oil, and bitumen market path from 20 February to 18 June 2026, with a focus on the Iran war, the US naval blockade, the Hormuz Strait, Brent crude movements, and the gap between quoted price and real execution capability in the bitumen market.



Dispute Over the Strait of Hormuz: From the Threat of Shipping Tolls to the Future of Iran's Oil Exports

According to WPB, The Strait of Hormuz has recently returned to the center of Middle Eastern diplomacy as the latest dispute over passage through the waterway has linked regional security, oil exports, shipping insurance, and downstream materials such as bitumen in a single policy question. For Gulf exporters and import-dependent infrastructure economies, the issue is no longer limited to crude oil flows.

Any uncertainty around vessel movement through Hormuz now extends across refinery feedstocks, fuel components, heavy residues, marine logistics, asphalt supply chains, and road-building schedules. The latest development is that access to the strait is being discussed not only as a maritime security matter, but as a bargaining item tied to Lebanon, Iranian oil waivers, U.S.-Iran diplomacy, and possible toll arrangements for commercial vessels.

corridors. For shipping companies, insurers, refiners, and bitumen buyers, the statement adds a political condition to a logistical risk that had already been difficult to price.

Associated Press reporting placed the dispute within a broader diplomatic setting. U.S. Vice President JD Vance and Iranian officials were in Switzerland for talks aimed at adding details to an interim agreement intended to halt the war.

The AP account said the talks followed Tehran's statement that it had closed the strait because of Israeli attacks in Lebanon, while U.S. officials disputed the practical closure claim and said commercial traffic was still moving. That disagreement is central to the commercial reading of the event. Iran's position presents Hormuz as restricted by political conditions; the U.S. position presents the channel as still functioning, supported by reported vessel traffic and oil movements.



The new element is the explicit linkage reported a source close to Iran's negotiating team said the Strait of Hormuz would not be reopened while a ceasefire in Lebanon was not respected, and that the waterway would also remain closed until waivers permitting Iranian oil sales were issued. That combination is significant because it connects three files that are often treated separately: fighting in Lebanon, the commercial status of Iranian crude, and freedom of navigation in one of the world's most important energy

The second new component is the Swiss negotiation format itself. The talks were not described as routine back-channel communication. They involved senior U.S. and Iranian officials and were framed around implementation details of an interim arrangement. Reports also noted the involvement of Qatar and Pakistan in the diplomatic setting, giving the process a broader regional and international dimension. For commodity markets, this matters because the question is no longer simply whether a military incident

U.S. officials have cited continued vessel traffic through the strait and have said movement of oil and oil products remains broadly active. These figures provide a counterweight to Iran's closure claim and suggest that physical movement has not fully stopped. However, for procurement planning, the dispute itself remains material. A functioning waterway under contested political claims is still not the same as a stable logistics environment.

The significance of the latest developments is therefore not that Hormuz has suddenly become important. It has always been important. The significance is that shipping access, Iranian oil permissions, Lebanon-related security commitments, and possible toll arrangements are now being discussed within the same diplomatic moment. For crude oil, this affects export expectations and price sentiment. For bitumen, it affects supply confidence, shipment planning, contract discipline, and the willingness of buyers to rely on a narrow sourcing base.

Bitumen buyers should read the latest developments as a warning to strengthen procurement terms. Contracts that

mention only grade, quantity, and shipment month may not be sufficient during a politically sensitive maritime period. Buyers may need more precise clauses covering port delays, vessel substitution, insurance surcharges, payment timing, inspection windows, and delivery obligations. They may also need to monitor not only refinery offers but maritime advisories, diplomatic statements, and insurance market responses.

The broader lesson for the bitumen market is that road construction materials are increasingly exposed to geopolitical risk even when they are not the headline commodity. Crude oil and gas receive most of the attention when Hormuz enters the news, but refinery-linked products follow the same sea lanes, banking channels, insurance systems, and port constraints. If the recent negotiations produce a durable access arrangement, the bitumen trade may regain confidence quickly. If the talks leave major conditions unresolved, buyers may continue to face a market where logistics reliability is just as important as product availability.

Warning to Bitumen Buyers! Is Your Bitumen Grade Really What You Think It Is?

According to WPB, Bitumen remains one of the most widely traded construction materials in the world, supporting road networks, airports, ports, industrial zones, and large-scale infrastructure programs across every continent. As governments continue to invest in transportation systems and economic development, demand for paving-grade bitumen remains closely tied to national infrastructure priorities. Yet behind the familiar grade names that dominate international trade documents lies a growing issue that many buyers, contractors, and procurement teams are only beginning to recognize.

A bitumen grade printed on a specification sheet does not always provide a complete picture of how a material will perform in service, how it was produced, or whether it is

suitable for a specific climate and pavement design.

Recent discussions within the industry have renewed attention on a long-standing misconception surrounding bitumen grades. In international trade, grades such as 40/50, 60/70, 80/100, and similar classifications are often treated as if they represent fully standardized products that can be exchanged without significant differences in quality or performance. In reality, these grades primarily describe a limited range of laboratory properties and should not be interpreted as a guarantee that two products from different origins will behave identically once placed on a road.

The issue has become increasingly relevant as procurement activity expands across Asia, Africa, the Middle East,

Eastern Europe, and Latin America. Buyers today are sourcing material from a broader range of suppliers than ever before. Cargoes may originate from refineries in the Middle East, South Asia, Southeast Asia, or other exporting regions, while project specifications continue to evolve in response to traffic growth, climate conditions, and durability requirements. Under these circumstances, relying solely on a grade designation may expose purchasers to technical and commercial risks that are often overlooked during contract negotiations.

The most common example involves penetration grade bitumen. A designation such as 60/70 refers to a penetration range measured under specific laboratory conditions. While this parameter remains important, it represents only one aspect of material behavior. Two products classified within the same penetration range may differ in softening point, viscosity characteristics, temperature susceptibility, aging performance, and other properties that influence pavement durability. As a result, two shipments carrying the same grade label may not necessarily deliver identical long-term results under field conditions.

This distinction is particularly important for infrastructure authorities and contractors operating in regions characterized by extreme temperatures. Pavements exposed to prolonged heat, heavy axle loads, and intense traffic demand materials capable of maintaining structural integrity under challenging conditions. In such environments, a product that satisfies a penetration specification may still exhibit different resistance to rutting, deformation, or aging compared with another product carrying the same grade designation.

International buyers have become increasingly aware of this reality. Procurement departments that once focused primarily on grade designation are now paying closer attention to complete technical data sheets, certificates of analysis, production consistency, and historical performance records. The conversation has gradually shifted from a simple question "What grade is it?" toward a more sophisticated assessment of how a material is expected to

perform throughout the life cycle of a pavement.

This evolution is also encouraging closer examination of supply origins. While it would be inaccurate to suggest that one producing country consistently outperforms another, differences in crude sources, refining processes, operational practices, and quality-control systems can influence final product characteristics. Consequently, buyers frequently compare material from exporting hubs such as Iran, Iraq, Singapore, and other major supply centers using a broader set of technical criteria than in previous years.

For many procurement teams, consistency has become just as important as compliance. A supplier capable of repeatedly delivering material within predictable quality parameters may offer greater value than a supplier whose product occasionally approaches specification limits. This consideration is especially relevant for large road-building programs where variations between cargoes can create operational challenges during construction and maintenance.

At the same time, another development is attracting growing attention across the bitumen sector. Several countries have been moving toward performance-oriented specifications rather than relying exclusively on traditional penetration grading systems. Performance Grade, commonly known as PG, represents one of the most significant examples of this approach. Instead of focusing primarily on a limited number of laboratory measurements, PG specifications seek to evaluate how a binder is expected to behave under actual climatic and traffic conditions.

BITUMEN GRADES



COMMON PENETRATION GRADES



PACKAGING OPTIONS



Bitumen from Oil Sludge! Can Oil Sludge Change the Future of Road Pavements?

According to WPB, Recent research from Kazakhstan has drawn attention to an unconventional source of raw material for the bitumen sector: high-viscosity oil sludge generated during petroleum production and storage operations. The findings arrive at a time when oil-producing regions across the Middle East, Central Asia, and parts of Africa are simultaneously facing growing pressure to improve industrial waste management, reduce disposal costs, strengthen domestic supply chains, and expand the use of sustainable construction materials. While the research remains at the laboratory stage, it introduces a concept that could become increasingly relevant for countries where large volumes of petroleum residues are produced alongside continuous demand for road construction and infrastructure development.

The study focuses on high-viscosity oil sludge collected from the Mangystau region of Kazakhstan, one of the country's most significant oil-producing areas. For decades, oil sludge has been regarded primarily as an environmental and operational burden. It accumulates during crude oil extraction, transportation, storage, tank cleaning, and refining activities. Because of its complex composition and difficult handling characteristics, disposal and treatment have traditionally required considerable financial and environmental resources.

Unlike ordinary industrial waste, oil sludge contains a mixture of valuable and problematic components. Depending on its origin, it may include heavy hydrocarbons, asphaltenes, resins, waxes, mineral particles, water, salts, corrosion products, sand, clay, and trace metallic compounds. High-viscosity sludge is particularly difficult to process because it often contains large concentrations of heavy

organic fractions that cannot be easily recovered through conventional methods. As a result, substantial volumes of this material remain underutilized worldwide. Researchers involved in the recent investigation examined whether this petroleum residue could serve a useful purpose within modified bitumen systems rather than being treated solely as waste. Their findings suggest that, under controlled conditions and in combination with specific modifiers, selected sludge fractions can function as a filler within bitumen formulations and contribute to improved material performance.



The significance of this work extends beyond waste management. Bitumen itself is a petroleum-derived material composed of heavy hydrocarbon fractions including saturates, aromatics, resins, and asphaltenes. Because oil sludge often contains similar heavy organic compounds, researchers have long considered the possibility that certain residues could be incorporated into bituminous materials. However, practical implementation has been limited by concerns regarding compatibility, contamination, stability, and performance consistency.

The recent study addresses some of these concerns by examining how properly prepared sludge interacts with bitumen when introduced under controlled laboratory conditions. The researchers did not propose replacing conventional bitumen with sludge. Instead, the material was investigated as a supplementary component capable of influencing the internal structure of modified binders. From a technical perspective, the mechanism is relatively straightforward. Fine mineral particles present in the sludge may contribute to the physical structure of the binder, while heavy hydrocarbon fractions can interact with existing bitumen components. When suitable modifiers are added, compatibility between these materials can improve, allowing the mixture to develop a more stable internal network.

This interaction can influence several performance characteristics. One of the most important areas is high-temperature stability. Road pavements in hot climates are frequently exposed to conditions that encourage rutting, permanent deformation, and excessive softening. Heavy traffic loads combined with elevated pavement temperatures can gradually damage asphalt surfaces, increasing maintenance costs and shortening service life. According to the findings, sludge-enhanced formulations demonstrated improvements in mixture quality when compared with reference materials. Although further testing remains necessary, the results suggest that carefully processed sludge may contribute to greater structural consistency within the binder system.

Such improvements could potentially support better resistance to deformation under demanding operating conditions. For regions characterized by extreme temperatures, this aspect is particularly important. Countries throughout the Gulf region, North Africa, Central Asia, and parts of South Asia routinely experience pavement temperatures capable of accelerating asphalt deterioration. Any technology capable of enhancing binder performance while utilizing locally available materials naturally attracts industry interest.

Another notable aspect of the research involves resource efficiency. The global petroleum industry generates significant quantities of sludge every year. Managing these residues requires storage facilities, treatment operations, transportation resources, environmental monitoring, and regulatory oversight. These activities carry both direct costs and environmental implications. If a portion of these materials can be redirected into value-added applications, the economics of waste management begin to change. Instead of representing a pure disposal expense, some sludge streams may become feedstocks for industrial production. Such an approach aligns closely with broader efforts to improve resource utilization and reduce industrial waste generation.

For the bitumen industry, this possibility is especially attractive because the chemical relationship between petroleum residues and bituminous binders is closer than in many other construction applications. Rather than forcing the material into an unrelated product category, researchers are exploring a pathway that leverages characteristics already present within the residue itself. The environmental implications are equally significant. Oil sludge storage sites have historically raised concerns regarding soil contamination, groundwater protection, air emissions, and long-term land use. Although treatment technologies continue to improve, large inventories remain in many producing regions.

Incorporating selected sludge fractions into engineered construction materials may provide an additional management option. Such an approach would not eliminate the need for conventional treatment systems, but it could reduce the volume of material requiring disposal while simultaneously creating a useful industrial product.

The research also highlights opportunities for greater supply-chain resilience. Modified bitumen products frequently rely on specialty additives, polymers, and performance-enhancing materials. In many markets these inputs are imported, exposing producers to fluctuations in

海湾地区处于双重局面： 石油已进入市场，但海上航线仍然充满风险！



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根据 WPB, 近期波斯湾局势的发展，正在为能源出口商、航运企业、炼油厂、沥青贸易商以及亚洲、中东和非洲基础设施市场带来本年度最重要的商业议题之一。在极短时间内，三项重大事件同时出现：伊朗在最新外交突破后约2000万桶原油离港出口；有关霍尔木兹海峡周边战略航道仍存在数十枚海军水雷的消息得到确认；以及伊朗正在研究新的商业船舶通行安排。单独来看，每一项进展都具有重要意义，而将三者结合起来观察，则能够更清晰地理解未来数月地区能源贸易可能出现的新格局。与此同时，霍尔木兹海峡的现状仍然较为复杂，并存在不同的解读。

一些伊朗消息来源表示该海峡已经关闭，或对船舶通行实施了限制。然而，国际媒体报道以及船舶追踪数据显示，商业航运并未完全中断，油轮和货船仍在继续通过该水道。因此，更准确的描述应当是：霍尔木兹海峡目前处于“开放但受限且风险较高”的运行状态。对于沥青贸易商而言，这种情况甚至可能比完全关闭更加复杂，因为出口和装船活动仍然能够进行，但高额保险成本、运费波动、交货延迟以及未来可能出台的新通行要求，仍然会影响货物的最终成本和交付时间。

对于能源贸易商而言，核心问题不仅仅是伊朗原油出口是否恢复，更重要的是货物流动能否以足够稳定和高效的方式持续进行。约2000万桶原油离开伊朗港口表明出口活动正在恢复，但大量出口并不自动意味着运输链条已经恢复正常。最终决定商品流动的，仍然是物流体系本身。能源市场往往会对产量和出口消息迅速作出反应，但历史

经验表明，运输能力、保险条件、船舶可获得性以及海上安全状况才是真正决定商品流向的关键因素。当前局势正是这一现实的典型案例。尽管原油出口已经恢复，但航运企业仍在持续评估通过霍尔木兹海峡的运营风险。有关约80枚海军水雷仍然存在于相关海域的报告表明，商业航运尚未完全恢复至危机前水平。即便主要航线已经部分恢复安全，保险公司、船东、租船方以及货物融资机构通常仍需要更高级别的安全保证，才会全面恢复原有运营模式。

对于沥青贸易商而言，这一点尤为重要。与原油相比，沥青出口更加依赖稳定的船期安排和可预测的海运成本。即使只是数天的延误，也可能影响装货计划、船舶轮换、仓储利用率以及合同交付时间。在东非、南亚、东南亚以及部分地中海市场，大量基础设施项目都按照严格的采购和施工时间表推进，因此航运的不确定性往往会迅速向下游传导。

伊朗原油重新进入国际市场，其影响并不仅限于原油行业本身。伊朗炼油厂以及重质残渣加工设施是地区道路建筑材料供应体系的重要组成部分。炼油量增加通常意味着真空渣油等重质组分产量增加，而这些组分正是沥青生产的重要原料。因此，随着出口收入增长以及炼油厂利用率提高，沥青供应前景也有望得到改善。然而，只有在海运体系保持高效运转的前提下，这种供应优势才能真正转化为市场竞争力。

进一步分析可以发现，市场正进入一个供应扩张与运输限制并存的阶段。一方面，更多原油正在进入国际市场；另一方面，海上安全问题仍然影响航运决策。这种局面形成了一种特殊环境：商品供应增加，但运输成本依然维持较高水平。对于贸易商而言，这意味着机遇与风险同时存在。

市场高度关注的另一项进展是有关伊朗研究新船舶通行制度的消息。尽管具体细节尚未公布，但其潜在意义在于未来可能出现新的保险要求、行政程序或运营规定。即便只是有限度的调整，也足以影响油轮和成品油运输船的航次经济性。

航运市场对额外成本极其敏感。保险费率、行政收费、等待时间、检查程序以及合规要求的轻微增加，都可能显著提高货物最终交付成本。这种情况在利润率较低的商品领域尤为明显，例如沥青贸易。与部分高附加值石油产品相比，沥青交易通常依赖较低利润空间，因此运输效率直接关系到市场竞争能力。

从实际角度来看，未来竞争优势将越来越取决于物流管理能力，而不仅仅是生产成本。能够获得稳定船舶资源、优化卸货计划、保持灵活仓储能力以及有效管理运费风险的企业，将拥有明显优势。而高度依赖短期现货运输市场的企业，则可能面临更大的波动。

另一个值得关注的问题是市场心理。能源市场往往会迅速回应政治协议，但实体商品流动通常需要更长时间才能恢复稳定。伊朗大规模原油出口重新启动无疑吸引了市场关注，但经验丰富的贸易商更关注多个运输周期能否持续顺利运行，而不仅仅是单次出口行为。海运保险市场是观察这一问题的重要指标。保险机构不仅关注政治协议本身，也关注实际运营环境。水雷仍然

存在意味着风险评估尚未结束。即便地区局势有所缓和，保险费率仍可能在较长时间内维持高位，直到航运安全得到持续验证。这些额外成本最终将传导至整个供应链，并影响包括沥青在内的石油相关产品价格。这些发展并不仅仅影响伊朗。整个海湾地区的出口国都依赖稳定可靠的海上运输体系。沙特阿拉伯、阿联酋、科威特、伊拉克、卡塔尔以及其他地区出口国，都需要航运环境保持可预测性。因此，霍尔木兹海峡出现的任何不确定因素都将成为整个地区共同面对的商业问题。

对于非洲沥青进口市场而言，当前局势值得特别关注。东非多个国家长期依赖海湾地区供应商提供道路建筑材料。肯尼亚、坦桑尼亚、乌干达、莫桑比克等国的大型基础设施项目仍需要大量铺路材料。即便原料供应增加，如果海运市场持续紧张，进口成本仍可能保持在较高水平。

南亚市场也面临类似情况。印度、孟加拉国、斯里兰卡以及巴基斯坦的大规模基础设施建设仍在持续推进。区域供应增加有助于改善产品可获得性，但运输领域的不确定性仍可能影响采购计划和库存管理策略。

对于贸易商而言，最重要的结论是，当前局势不能仅从原油市场角度进行分析。原油出口、海上安全、保险成本、船舶资源以及潜在监管要求之间形成的相互联系，正在塑造一个涉及多个能源行业的商业环境。由于高度依赖海运体系，沥青行业正处于这一变化的核心位置。因此，对于沥青市场而言，真正重要的问题并不是霍尔木兹海峡究竟是完全开放还是完全关闭。更值得关注的是，这条海湾地区最重要的海上运输通道已经进入一个充满运营不确定性的阶段。在这一阶段，政治动态、航运通告、保险政策以及航行安全状况，都可能迅速影响装货计划、海运费率、交付周期以及贸易决策。

俄罗斯石油进入日本：制裁之墙出现新裂缝？

根据 WPB，最近，一批俄罗斯原油抵达日本能源设施，引起了能源分析师、航运观察员、炼油厂管理者和基础设施规划者的广泛关注。虽然这批原油只是全球石油网络中的一次单一运输，但其时间和目的地引发的讨论远超日本范围。这一事件不仅涉及原油贸易，还影响下游行业，包括交通燃料、石化原料、工业润滑油以及用于道路建设和基础设施项目的沥青。在各国政府继续应对制裁、能源供应安全和贸易模式变化的时期，这批俄罗斯原油抵达日本凸显了影响亚洲及全球能源采购决策的实际因素。

日本长期以来被认为是世界上最成熟的能源进口国之一。由于国内碳氢资源有限，日本高度依赖进口原油和成品

油，以支持交通网络、工业活动、制造业和公共基础设施。数十年来，日本炼油企业制定了多样化采购策略，以降低地缘政治中断带来的风险。然而，近年来的事件显示，即使在拥有先进规划系统和广泛商业关系的国家，能源安全仍然是一个不断变化的挑战。

俄罗斯原油的到港再次引起了对国家如何在政治承诺与工业需求之间保持平衡的关注。自俄罗斯相关重大地缘政治紧张局势爆发以来，许多国家出台了限制措施，以减少与俄罗斯能源出口相关的资金流。然而，这些限制在不同地区、行业和石油产品类别中的执行差异显著。某些豁免、过渡安排和战略考虑仍然影响采购决策。因此，能源贸易

Revolution in Pavement Engineering: Can Nano Alumina Transform the Lifespan of Roads?

According to WPB, A newly published investigation into nano-alumina has added fresh momentum to a growing area of research focused on improving bitumen performance through nanotechnology. The material, composed of ultra-fine aluminum oxide particles measured in nanometers, is attracting attention because of its ability to interact with bitumen at a microscopic level. Researchers involved in the latest study report that nano-alumina can increase stiffness, improve thermal stability, strengthen resistance to permanent deformation, and enhance the overall durability of asphalt binders. Although commercial adoption remains limited, the findings arrive at a time when transportation agencies, contractors, and research institutions are actively evaluating new materials capable of extending pavement life while reducing long-term maintenance demands.

The renewed interest in nano-alumina is not occurring in isolation. Across the global asphalt sector, scientific attention has increasingly shifted toward advanced modifiers designed to help pavements withstand heavier traffic loads, rising temperatures, and more demanding service conditions. Traditional approaches to bitumen modification have relied heavily on polymers, rubber, fibers, and mineral additives. While these materials continue to play an important role, researchers are now exploring nanoscale technologies that can influence binder behavior in ways not achievable through conventional modification techniques.

Bitumen remains one of the most critical components in modern transportation infrastructure. It serves as the binding material that holds aggregates together and contributes significantly to pavement flexibility, strength, and durability. However, changing environmental conditions and increasing traffic intensity continue to expose limitations in conventional binder formulations. Premature rutting, thermal cracking, oxidation, and aging remain persistent concerns for road authorities in many regions. As a result, the search for innovative solutions has accelerated, bringing materials such as nano-alumina into focus.

According to researchers, one of the defining characteristics of nano-alumina is its exceptionally high surface area. Unlike traditional fillers, which primarily occupy space within the binder matrix, nano-alumina interacts directly with bitumen components at a molecular level. This interaction can alter the internal structure of the binder and improve its resistance to mechanical and thermal stresses. Laboratory testing conducted as part of recent investigations suggests that even relatively small concentrations of nano-alumina can generate measurable improvements in key performance indicators.

Among the most closely watched findings is the material's ability to improve rutting resistance. Rutting occurs when asphalt layers gradually deform under repeated traffic loading, creating depressions in wheel paths that reduce ride quality and may increase safety risks. High pavement temperatures often accelerate this process by softening the binder. Researchers report that bitumen modified with nano-alumina demonstrates a greater capacity to resist flow and deformation under elevated temperatures, making it an attractive candidate for regions exposed to intense summer conditions.

Thermal stability has emerged as another area of interest. Pavements frequently experience significant temperature variations throughout their service life. In hot climates, excessive softening can weaken structural performance, while low temperatures can increase susceptibility to cracking. The latest findings indicate that nano-alumina may help stabilize binder behavior across a wider temperature range. This characteristic is particularly relevant as transportation agencies increasingly seek materials capable of maintaining consistent performance under diverse climatic conditions.

Researchers have also observed improvements in conventional physical properties commonly used to evaluate binder quality. Softening point values generally increase following the incorporation of nano-alumina, indicating greater resistance to heat. Penetration values often decrease, suggesting a harder and more stable material. Although the degree of improvement depends on

Aftershocks of the Hormuz Crisis:

ASIA AND EUROPE TURN TO EXPANDING STRATEGIC OIL RESERVES

According to WPB, the gradual recovery of tanker traffic through the Strait of Hormuz has prompted governments, energy authorities, infrastructure planners, and industrial sectors across Asia and Europe to reassess supply security strategies, reserve management policies, and long-term procurement planning. While maritime activity has shown signs of stabilization following weeks of uncertainty, recent developments have reinforced concerns about the vulnerability of global energy supply chains. The renewed focus on strategic petroleum reserves, emergency inventory systems, and logistics resilience is extending beyond crude oil markets and increasingly influencing industries linked to refining, transportation fuels, road construction materials, and international bitumen trade.

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Shipping data released on June 22 indicated that tanker traffic through the Strait of Hormuz has begun returning to more normal operating levels after a period of heightened caution among vessel operators and commodity buyers. Although shipping activity has not fully returned to conditions observed before recent regional tensions, the increase in vessel movements has eased immediate concerns regarding physical supply disruptions. For importing nations that rely heavily on seaborne energy flows, the development has been viewed as an important signal that maritime operations are gradually stabilizing.

The Strait of Hormuz remains one of the most strategically important waterways in the global energy system. A significant portion of internationally traded crude oil and petroleum products passes through the corridor every day. Any interruption affecting vessel movements immediately attracts attention from governments, refiners, traders, shipping companies, insurers, and industrial consumers. Even temporary uncertainty can alter procurement

decisions, inventory planning, freight markets, and investment strategies across multiple sectors.

Recent events have demonstrated how quickly geopolitical developments can influence energy logistics. Several governments have concluded that relying solely on uninterrupted maritime transportation is no longer sufficient as a long-term energy security strategy. As a result, discussions surrounding strategic petroleum reserves have gained momentum in multiple regions, particularly in Asia where energy demand continues to expand rapidly.

India has emerged as one of the most closely watched examples of this trend. Policymakers and energy officials have intensified discussions regarding future reserve capacity and long-term supply security planning. The country's rapidly growing economy requires increasing volumes of crude oil, refined fuels, and industrial feedstocks. Maintaining adequate strategic inventories is therefore viewed as an essential component of national energy planning. Analysts note that larger reserves provide governments with greater flexibility during shipping disruptions, geopolitical crises, or unexpected supply shortages.

India has already invested heavily in strategic storage infrastructure over recent years. Underground facilities capable of storing substantial quantities of crude oil have become central components of national preparedness efforts. The latest developments surrounding Hormuz have strengthened arguments in favor of additional capacity expansion. Officials and market observers increasingly view strategic storage not as a temporary emergency measure but as a permanent element of long-term energy policy.

Pakistan is also receiving growing attention in discussions surrounding reserve development. Although its existing storage infrastructure remains smaller than that of several larger economies, policymakers have become increasingly focused on strengthening energy resilience. Recent regional events have accelerated conversations regarding inventory management, emergency reserves, procurement diversification, and supply continuity planning. Energy experts argue that additional storage capacity could help reduce exposure to future disruptions while improving overall market stability.

The renewed interest in reserve development is not limited to South Asia. Governments across various regions are examining whether existing emergency stockpiles remain adequate under current geopolitical conditions. Energy security has become a broader policy objective encompassing not only crude oil supplies but also refined products, industrial fuels, petrochemical feedstocks, and transportation infrastructure requirements.

European markets have followed these developments particularly closely. Investors, industrial consumers, shipping operators, and policymakers throughout Europe continue monitoring both maritime traffic and diplomatic developments associated with the region. Stable access to internationally traded energy resources remains a critical requirement for economic activity across the continent. Consequently, developments affecting transportation routes in the Persian Gulf continue to influence strategic planning discussions within European institutions and private sector organizations.

Recent market reactions in Europe have reflected cautious optimism rather than complacency. The increase in tanker traffic has reduced immediate concerns regarding physical supply availability, yet many analysts believe the events of recent weeks have highlighted structural vulnerabilities that cannot be ignored. Discussions regarding energy diversification, reserve management, logistics resilience, and emergency preparedness have therefore remained

active despite signs of improvement in shipping conditions. Several European governments continue expanding infrastructure investment programs that require stable access to petroleum-derived materials. Road rehabilitation projects, highway expansion initiatives, airport developments, and transportation modernization programs all depend on reliable supply chains for construction materials. Consequently, policymakers are paying close attention to developments that could affect refining operations, shipping networks, and industrial production capacity.

The implications extend well beyond crude oil. International trade flows involving diesel, fuel oil, petrochemical products, lubricants, and asphalt materials are all influenced by broader developments in maritime logistics. For the global bitumen sector, shipping reliability represents a particularly important concern because transportation costs, vessel availability, delivery schedules, and export commitments remain heavily dependent on maritime conditions.

Bitumen exporters located in the Middle East supply customers across Asia, Africa, and Europe. Any disruption affecting shipping routes can alter freight economics, delivery timelines, inventory strategies, and procurement decisions. The recent increase in tanker activity has therefore been welcomed by producers, traders, contractors, and infrastructure agencies that depend on predictable logistics networks.



Industry observers note that uncertainty in maritime transportation often encourages buyers to increase inventories and adjust purchasing schedules. During periods of elevated risk, procurement departments frequently seek greater supply flexibility to reduce exposure to potential disruptions. Such behavior can influence trade flows even when actual physical shortages do not occur. The events surrounding Hormuz have once again demonstrated how logistics considerations can influence commercial decisions throughout the petroleum and construction materials sectors.

Insurance markets have also remained attentive to developments. Vessel operators, cargo owners, and freight providers continuously assess risk conditions when planning shipments through strategically sensitive waterways. Changes in perceived risk can influence transportation costs, delivery schedules, and commercial arrangements. Although recent improvements in tanker traffic have contributed to greater confidence, industry participants continue monitoring conditions closely.

Another important consequence of recent developments is the growing recognition that energy security and infrastructure planning are becoming increasingly interconnected. Governments responsible for transportation networks, industrial development, and

economic competitiveness are placing greater emphasis on supply continuity as part of broader national planning objectives. Strategic reserves are increasingly viewed not only as energy assets but also as tools that support economic stability and industrial resilience.

For the bitumen industry, these developments carry particular significance because road construction remains closely linked to energy supply chains. Refining operations influence feedstock availability, while shipping conditions affect export logistics and market accessibility. Stable maritime transportation therefore remains essential for maintaining reliable supply relationships between producers and consuming markets.

Analysts expect discussions regarding reserve expansion, logistics resilience, and energy security planning to continue throughout the remainder of the year. While the recovery in tanker traffic has reduced immediate concerns, recent events have reinforced the importance of preparedness within an increasingly complex global energy environment. Governments, infrastructure authorities, and industrial sectors appear likely to maintain a stronger focus on reserve management and supply security than was evident before the latest period of regional uncertainty.



Africa Bitumen Market

According to WPB, The African bitumen market is becoming increasingly important not only for the continent's infrastructure programs but also for trade flows connecting the Middle East, Europe and Asia. Over the past two years, changes in freight availability, refinery supply patterns, road construction spending and port logistics have elevated Africa's role in the global bitumen business. For exporters in the Gulf region and refiners around the Mediterranean, African demand has become a critical outlet for cargoes, while for importing nations across the continent, bitumen availability has become closely linked to transport

costs, shipping schedules and regional infrastructure priorities. As a result, developments in African bitumen markets are now influencing commercial decisions well beyond the continent itself and are increasingly monitored by suppliers across the Middle East.

During 2026, the African bitumen market has displayed significant regional divergence. Rather than moving as a single market, different parts of the continent have responded to local conditions, project pipelines, weather patterns and import dependencies. East Africa, West Africa,



Southern Africa and North Africa are each following distinct commercial trends, creating a more complex trading environment for suppliers and buyers alike. Recent market assessments indicate that freight expenses and supply-chain reliability have become nearly as important as the underlying value of bitumen itself when determining delivered costs into African destinations.

East Africa remains one of the most active importing regions. Countries including Kenya, Tanzania, Djibouti, Ethiopia and Mozambique continue to rely heavily on imported material for national road programs and urban development projects. The ports of Mombasa, Dar es Salaam and Djibouti have strengthened their positions as key entry points for bitumen cargoes arriving from the Gulf and other exporting regions. Importers in East Africa remain highly sensitive to shipping disruptions because much of the region's supply originates from producers located around the Persian Gulf. Recent freight challenges and periodic supply interruptions have supported higher delivered prices into East African destinations compared with several other regions. Market quotations during June 2026 placed delivered bitumen prices into Mombasa, Dar es Salaam and Djibouti at approximately USD 730 per metric ton for drummed cargoes, highlighting the premium associated with logistics and transport costs.

West Africa presents a different picture. Nigeria continues

to dominate regional demand due to its large population, expanding transportation requirements and ongoing investment in road rehabilitation. Lagos remains one of the continent's most influential bitumen trading hubs, attracting cargoes from Europe, the Middle East and neighboring African suppliers. Although imported cargo values have softened periodically during 2026, domestic market prices have often remained firm because previous increases in import costs continue to filter through local supply chains. Seasonal rainfall across parts of West Africa has also affected construction activity, temporarily slowing consumption in some regions while delaying infrastructure schedules. Nevertheless, long-term demand fundamentals remain positive as governments continue to prioritize transportation connectivity and economic integration projects.

Southern Africa has experienced a different set of market dynamics. South Africa remains the largest and most developed bitumen market on the continent, supported by established refining infrastructure, extensive road networks and sophisticated logistics systems. Durban continues to serve as one of Africa's most important bitumen ports, functioning both as an import gateway and a regional distribution center. During 2026, South Africa received additional cargoes originating from the Middle East, helping alleviate supply concerns that emerged earlier in the year. These arrivals have improved availability and provided buyers with greater procurement flexibility. At the same time,





Bitumen and Diesel Prices Rise; India's Road Projects Face Cost Pressure

According to WPB, in mid-June 2026, India's infrastructure governance framework initiated a renewed fiscal and parliamentary review mechanism addressing cost volatility in road construction inputs, particularly bitumen and diesel-linked logistics expenses. The development carries implications beyond domestic budgeting practices, extending into broader supply chain expectations across South Asia and selected Middle Eastern construction-linked trade corridors. The relevance of this administrative action lies not in the introduction of a new policy concept, but in the reactivation and intensification of an existing compensation architecture under conditions of heightened fuel and binder input stress.

The renewed scrutiny emerges from a period of elevated volatility in energy-linked construction materials, where bitumen procurement costs and transportation fuel indices experienced simultaneous upward pressure. While such fluctuations are not unprecedented, the 2026 episode is distinguished by the convergence of multiple cost drivers within a compressed fiscal window, prompting parliamentary-level reassessment of contractor compensation frameworks. This includes review of escalation clauses embedded in national highway contracts and associated reimbursement formulas tied to diesel price benchmarks.

Historically, India has implemented cost adjustment mechanisms for infrastructure contractors during periods of inflationary stress in petroleum-derived inputs. However, the June 2026 development differs in its procedural visibility and institutional engagement. The formation or activation of a parliamentary review panel specifically referencing bitumen supply conditions indicates an elevated administrative priority assigned to the material within national infrastructure policy. This shift reflects not a structural redesign of procurement systems, but a reinforcement of oversight intensity over existing contractual frameworks.

A key element of the current situation is the indirect linkage between bitumen pricing stability and transportation fuel dynamics. Bitumen, as a residual product of crude oil refining, is structurally exposed to refinery margin fluctuations, while its distribution chain remains heavily dependent on diesel-powered logistics. Consequently, simultaneous volatility in both input categories amplifies project cost uncertainty. The June 2026 policy response is therefore directed at stabilizing contractor expectations rather than altering production or refining systems themselves.

The global relevance of this administrative adjustment is primarily transmitted through India's scale of consumption.



Iran-U.S. Deal? Is the Strait of Hormuz Set to Reclaim Its Role as the World's Energy Artery?

According to WPB, The signing of a preliminary understanding between Iran and the United States on June 19, 2026, in Switzerland is expected to initiate a gradual dismantling of maritime restrictions in the Strait of Hormuz, an alteration that directly reshapes the security calculus for energy shipments originating from the Persian Gulf and, for the Middle East, reduces the immediate risk of supply interruptions across all fronts including Lebanon, while globally the anticipated release of Iranian crude and condensate into lawful markets introduces a new supply variable that leaves tanker operators, refiners, and bitumen manufacturers in a state of controlled anticipation over a 60-day period preceding a final comprehensive agreement.

Under the terms of the memorandum of understanding, the United States agrees to lift its naval blockade of Iranian ports immediately, and Iran agrees to reopen the Strait of Hormuz to international commercial shipping, a reciprocal arrangement that within hours of implementation begins to lower war risk premiums for vessels moving through the Persian Gulf and the Gulf of Oman.

For bitumen, which is a heavy, high-viscosity product requiring specialized heating equipment aboard tankers and specific storage conditions at destination ports, the resumption of normal shipping lanes directly reduces delivered prices at key markets in India, China, Southeast Asia, East Africa, and South America. Prior to the understanding, Iranian bitumen exporters had resorted to complex ship-to-ship transfers at sea, transshipment through Omani and Emirati ports, or overland trucking to Pakistan and Turkey, all of which added between 80 and 120 US dollars per metric ton to logistics costs.



With the reopening of the Strait of Hormuz and the removal of the naval blockade, direct loadings from Bandar Abbas to Asian ports resume within two to three weeks, reducing average maritime shipping time from 45 days via indirect routes to approximately 18 days for direct voyages to Mumbai or Singapore. This reduction in transit time alone lowers bitumen freight costs by an estimated 45 to 55 dollars per ton.

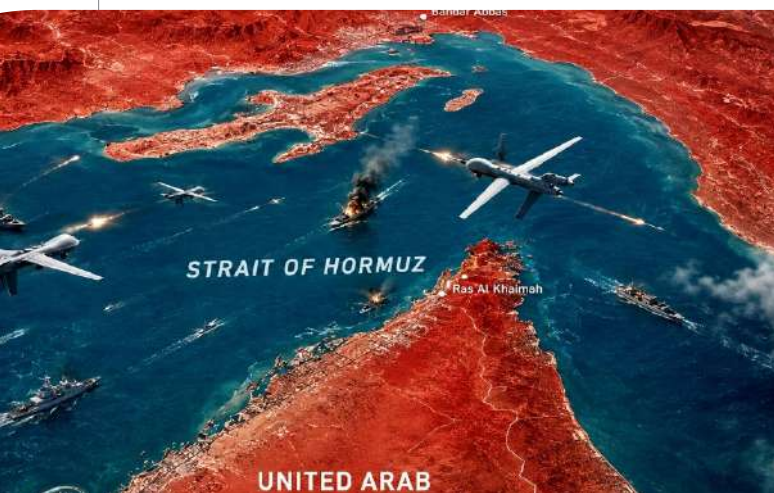
Regarding pricing, the understanding introduces two opposing forces that market analysts expect to resolve downward for bitumen prices over a three-to-six-month horizon. The first force is the reduction of logistics and insurance expenses, which acts as a direct subtraction from the delivered cost of Iranian bitumen.

The second force is the increase in global crude oil supply resulting from the return of 1.5 to 2 million barrels per day of Iranian crude and condensate to international markets, which exerts downward pressure on heavy crude benchmarks such as Oman, Dubai, and Venezuela's Merey, thereby reducing the feedstock cost for bitumen production at Iranian refineries.

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Iranian refineries at Bandar Abbas, Tehran, and Arak operate at approximately 60 percent of capacity during the period of maximum sanctions pressure before the understanding, but with the lifting of primary sanctions included as a second-phase negotiation item, these facilities are expected to increase run rates to 85 percent within 90 days after the final agreement.



Higher run rates produce larger volumes of vacuum bottom residue, the direct feedstock for blown and oxidized bitumen grades, which further increases exportable supply and places additional downward pressure on export prices. Security conditions for energy infrastructure represent a separate but interconnected variable.

The understanding explicitly halts military operations including drone strikes on refinery complexes, pipeline junctions, and storage tanks, all of which had suffered periodic attacks from early 2025 through May 2026.

Iranian domestic bitumen storage facilities at Mahshahr and Khorramshahr, which had been partially damaged or placed in standby mode due to attack risks, now initiate safety inspections to resume full operation within 45 days. The restoration of security guarantees allows fixed asset recovery programs at these locations, increasing available storage capacity by an estimated 400,000 tons by the fourth quarter of 2026.

For freight rates beyond tanker insurance, the cost of containerized transport for packaged bitumen in drums or polybags, which had shifted to rail routes through Central Asia and the Caucasus, begins a gradual return to sea routes

as shipping lines reinstate regular services to Iranian ports. Mediterranean and Black Sea buyers, who had sourced replacement material from Azerbaijan and Russia at premiums of 30 to 40 dollars per ton above Iranian prices, now recalculate procurement strategies, with early indications showing a 15 to 20 percent shift back to Iranian suppliers by the end of the third quarter of 2026.

Overland logistics costs for landlocked destinations such as Afghanistan, Central Asian republics, and Eastern Turkey, which had benefited from reduced road congestion during the naval blockade period, are expected to rise slightly as Iranian trucking capacity reallocates toward ports rather than border crossings. However, this increase remains modest, estimated at 5 to 8 percent, compared to the substantial decreases in sea freight.

For buyers in West Africa, specifically Nigeria and Ghana, the key variable is not freight but availability, as Iranian bitumen had largely disappeared from those markets during the blockade, replaced by higher priced material from Spain, Greece, and South Korea.

The understanding brings Iranian product back into competition, with initial delivered prices quoted for Lagos at 520 to 540 dollars per ton compared to South Korean material at 580 to 600 dollars per ton, a differential that expands further as logistics normalize.

Freight rates for very large crude carriers and Aframax tankers operating in the Persian Gulf region drop by an estimated 25 percent within the first month after the understanding, based on forward freight agreements traded on the Baltic Exchange, with full normalization to pre-conflict levels requiring the final agreement and confirmation of uninterrupted passage through the Strait of Hormuz for six consecutive months.

Charter rates for medium range tankers suitable for bitumen transport, which had peaked at 65,000 dollars per day in April 2026, decline to 40,000 dollars per day in mid-June 2026 following the announcement, with further declines to 30,000 dollars per day projected by August 2026.

Port handling fees at Iranian terminals, which had incor-

From Fuel to Materials: Assessing the Role of Bitumen and Vacuum Residues in the Production of Advanced Carbon Materials

According to WPB, the structural realignment of global heavy oil marketing toward non-combustion manufacturing frameworks is exerting direct geopolitical pressure on Middle Eastern national oil companies and international refining hubs. As traditional fuel demand faces long-term contraction due to net-zero mandates, the strategic diversion of bitumen away from burning and into advanced material production introduces a structural shift in global supply chains. For heavy oil producers in both the Western Hemisphere and the Persian Gulf, the transition from thermal cracking to chemical synthesis alters the economic baseline of heavy crude streams.

Middle Eastern refineries, historically optimized for maximum middle distillate yield, face a new competitive landscape where the asphalt and bitumen fractions of the barrel are no longer treated as low-value residues but as primary chemical feedstocks. This structural pivot directly impacts maritime trade flows, cross-border infrastructure investments, and the valuation models used by state-owned enterprises to price heavy, sour crude grades against lighter benchmarks.

The mechanical foundation of this paradigm shift relies on the complete isolation of the heavy hydrocarbon matrix from oxidative combustion pathways. Under traditional refining configurations, atmospheric and vacuum distillation units separate heavy crude into lighter fractions, leaving vacuum residue as the bottom product. This residue is typically directed toward delayed coking units to produce petroleum coke, or blended with lighter distillates to meet marine fuel oil specifications. The alternative operational architecture dictates the immediate diversion of these complex, high-molecular-weight asphaltene and resin fractions into controlled chemical transformation zones. By suppressing the thermal cracking processes that yield volatile short-chain hydrocarbons, industrial facilities preserve the inherent macro-polycyclic structures found within the bitumen matrix. This process avoids the generation of carbon dioxide

and carbon monoxide emissions that occur during conventional refining and combustion, keeping the carbon atoms locked within solid-phase material matrices.

The processing sequence requires specialized chemical engineering interventions to isolate and functionalize specific molecular weight distributions within the bitumen. Asphaltenes, which are highly aromatic clusters substituted with aliphatic chains and heteroatoms such as sulfur, nitrogen, and vanadium, undergo targeted DE asphaltting via solvent extraction utilizing paraffinic solvents like butane or pentane. The isolated solid asphaltene fraction undergoes controlled carbonization or graphitization under inert atmospheres to prevent oxidation. Through precise thermal profiling between 800 and 1500 degrees Celsius, the amorphous carbon structures within the asphaltene matrix align into ordered, hexagonal carbon networks. This chemical sequence transforms low-value refining residues into high-performance carbon fibers, which possess high tensile strength and structural rigidity suitable for structural applications.

Concurrently, the resin and aromatics fractions derived from the separation process are directed toward polymer synthesis streams. Instead of undergoing catalytic cracking, these heavy liquid fractions are subjected to oxidation, sulfonation, or chemical cross-linking using specific polymeric agents to create advanced asphalt binders and high-modulus specialized sealants.

The addition of bio-derived modifiers or industrial byproducts further alters the rheological properties of the matrix, creating a highly stable viscoelastic material capable of withstanding extreme mechanical shear and climate-induced thermal cycling. The integration of these chemical pathways into existing refinery designs allows operators to alter their output ratios dynamically based on regional industrial demand rather than fixed fuel specification mandates.

The commercial implications of this manufacturing model alter the baseline economics of global heavy crude marketing. Historically, bitumen and heavy oil grades suffered from significant price discounts relative to light sweet crudes, driven by the high cost of upgrading, transport logistics, and the intensive hydrogen processing required to remove sulfur and heavy metals. By eliminating the requirement for hydrocracking and desulfurization targeted at fuel production, the capital expenditure profile of heavy crude processing changes. Refining centers located along major maritime routes can reallocate processing capacity toward non-combustion products, insulated from fluctuations in international transportation fuel regulations and carbon taxing frameworks. This creates a distinct market segment where heavy crude is valued specifically for its high concentration of polycyclic aromatic hydrocarbons, transforming a refining liability into a primary manufacturing advantage.

The shift toward solid carbon production creates new inter-industry supply chains that link the petroleum refining sector directly to manufacturing, civil infrastructure, and transportation industries. The production of carbon fibers from a low-cost, abundant feedstock like bitumen reduces the manufacturing cost of composite materials, which have historically been restricted by the high cost of polyacrylonitrile precursors. Lower production costs facilitate the broader adoption of carbon-fiber-reinforced polymers in large-scale structural engineering, automotive manufacturing, and aerospace components. In civil infrastructure, the deployment of advanced, chemically stabilized bitumen matrices extends the operational lifespan of highway networks and specialized containment facilities, reducing long-term maintenance cycles and minimizing the total lifecycle emissions of public works projects.

Furthermore, this operational model changes how financial institutions and regulatory bodies evaluate the carbon intensity of heavy oil extraction and processing. Under conventional accounting methods, the scope three emissions associated with the ultimate combustion of refined products represent the largest component of the carbon footprint of an oil sands or heavy oil project. By binding the carbon permanently into structural solids, the scope three

profile is effectively neutralized. This allows heavy oil producers to comply with tightening corporate sustainability disclosures and capital allocation criteria established by institutional lenders. The ability to verify the permanent sequestration of carbon within marketable industrial products creates a distinct regulatory category, shielding operators from the financial penalties associated with high-emission asset classes.

The integration of non-combustion manufacturing also impacts regional industrial planning and infrastructure development. Refining complexes operating within specialized economic zones can establish co-located carbon fiber spin-milling and polymer formulation plants, creating localized industrial clusters that process heavy crude from incoming vessels directly into finished structural components. This configuration minimizes the logistics costs associated with transporting raw bitumen or hazardous intermediate products across long distances. It also provides a stable domestic supply of critical industrial materials for nations lacking primary petrochemical manufacturing capabilities, strengthening supply chain resilience against geopolitical disruptions or maritime transport restrictions.

Ultimately, the transition to non-combustion bitumen processing establishes a new baseline for the global energy and materials trade. By decoupling heavy hydrocarbon extraction from atmospheric carbon emissions, the methodology provides an alternative economic path for regions dependent on heavy oil reserves. As refining configurations adapt to prioritize solid-phase chemical products over liquid transportation fuels, the criteria for evaluating crude oil quality will shift from API gravity and sulfur content to molecular structural complexity and polycyclic aromatic density. This long-term structural adaptation ensures that heavy hydrocarbon matrices remain integrated into global industrial supply chains, serving as a foundational material resource within a highly regulated, carbon-constrained global economy.





Game Changer in the Strait of Hormuz: Examining the Role of the Tehran–Washington Agreement in Stabilizing the Global Bitumen and Asphalt Market

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According to WPB, Diplomatic progress toward an organized agreement between Washington and Tehran, through the Islamabad memorandum of understanding, could mark a turning point for international markets for liquid fuels, heavy crude oil, and industrial commodities linked to heavy hydrocarbons. The final draft of this temporary peace arrangement, announced by mediating officials in Pakistan, is not merely a political statement or symbolic declaration.

Rather, it offers an operational framework for easing maritime tensions, reopening commercial routes, and containing the disruptions that have placed energy transport flows in the Persian Gulf under serious uncertainty over the past three months. The significance of this agreement lies in the fact that the Persian Gulf, and especially the Strait of Hormuz, is not only a corridor for crude oil but also one of the world's key arteries for the movement of heavy feedstocks, refined products, petrochemical derivatives, and basic materials used in infrastructure industries.

At the core of the text is a phased implementation mechanism: the immediate but controlled removal of blockages affecting commercial shipping lanes in the Strait of Hormuz within a thirty-day period, alongside the lifting of the United States' maritime blockade around Iran's oil ports. If fully implemented, this part of the agreement could noticeably reduce operational risk in one of the world's most sensitive energy corridors. In parallel, the agreement provides for a temporary sixty-day sanctions waiver covering Iran's primary crude oil, petrochemical derivatives, and

heavy refinery residues. This waiver is intended to create a short but decisive window for subsequent negotiations on nuclear monitoring, the release of sovereign assets, and frameworks for economic reconstruction. In other words, the understanding is not a final settlement, but rather a "time corridor" for testing trust, measuring commitments, and managing the economic consequences of de-escalation.

The immediate implementation of such a document would first alter supply volumes across the global heavy hydrocarbons chain. Lower navigational risk in the Strait of Hormuz would allow significant volumes of heavy crude, sour crude, and accumulated vacuum residues to re-enter formal international shipping routes. The natural destination for a large share of this flow would be refining and manufacturing hubs across the Asia-Pacific region, where complex refineries are designed to process heavy crudes and downstream industries—from bitumen and asphalt to industrial polymers—are structurally dependent on polyaromatic and carbon-rich feedstocks. Once maritime security is standardized and war-risk insurance premiums decline, the physical availability of heavy and sour crude oils would expand rapidly, helping to ease part of the cost pressure on complex refineries.

The importance of this shift is not limited to higher volumes of oil entering the market. If secondary economic penalties on petrochemical derivatives and heavy products are explicitly suspended, industrial centers in the Mediterranean, East Asia, and even some developing



The End of the Landfill Era? Australia Turns Waste into Road Construction Materials

According to WPB, Major infrastructure agencies and road construction contractors across Asia, the Middle East, and Europe are increasingly examining alternative raw material streams as pressure grows to reduce landfill volumes, lower construction emissions, and secure long-term bitumen supply resilience. Against that backdrop, a proposed large-scale asphalt recycling facility in Queensland, Australia, has attracted attention beyond the country's borders. Although the project is being developed to serve regional transportation networks, industry observers believe its operating model may offer valuable lessons for jurisdictions facing rising demand for road maintenance materials while simultaneously pursuing stricter environmental targets. The proposal arrives at a time when governments are evaluating how recycled resources can be integrated into bitumen-based infrastructure without compromising engineering performance or network reliability.

The proposed facility, announced in June 2026 for the Gympie region of Queensland, is designed around a circular resource framework that combines reclaimed asphalt pavement, recycled glass, end-of-life plastics, and recovered rubber materials. Rather than treating these waste streams as disposal challenges, the plant intends to process them into usable inputs for road construction products. The concept reflects a growing trend within the asphalt sector where waste management and bitumen manufacturing are becoming increasingly interconnected. Industry analysts note that asphalt has emerged as one of the few large-scale construction products capable of incorporating significant quantities of recycled material while maintaining technical standards required by transportation authorities.

At the center of the proposed operation is reclaimed asphalt pavement, commonly known as RAP. This material originates from existing roads that are milled during maintenance or reconstruction projects. Conventional road rehabilitation generates substantial quantities of asphalt containing aggregates and aged bitumen. Historically, some of this material was reused, while large volumes remained underutilized. The Queensland facility intends

to increase recovery rates by processing removed asphalt into a refined feedstock suitable for new asphalt mixtures. Through crushing, screening, grading, and quality-control procedures, recovered aggregates can be separated and prepared for reintroduction into fresh pavement production. The aged bitumen retained within RAP can also contribute to the binder system when appropriately engineered. The proposed integration of recycled glass represents another notable component of the project. Glass recovered from municipal waste streams is expected to undergo cleaning, sorting, and crushing before being converted



into a fine aggregate substitute. Depending on engineering specifications, processed glass can replace a portion of virgin sand and aggregate resources traditionally used in asphalt production. Transportation authorities in several countries have conducted trials involving glass-enhanced asphalt mixtures, reporting acceptable performance when material quality and particle sizing are carefully controlled. By incorporating recycled glass, the Queensland operation aims to reduce reliance on newly quarried aggregates while simultaneously creating an end market for difficult-to-manage waste materials.

Plastic recycling within asphalt applications has received increasing attention over the past decade, and the Gympie proposal seeks to expand its practical implementation. The facility is expected to utilize selected post-consumer and



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post-industrial plastic streams that can be processed into asphalt-modifying additives. Depending on formulation requirements, plastics may be incorporated through dry processes, where shredded material is blended with aggregates, or through wet processes that introduce polymer-rich material into the bitumen phase. When properly engineered, certain recycled plastics can contribute to improved rutting resistance, enhanced durability, and longer service life. However, project developers are expected to work within strict regulatory and technical frameworks to ensure compliance with road authority specifications and environmental requirements.

Recycled rubber derived from end-of-life tires forms another key element of the proposed manufacturing strategy. Tire rubber can be processed into crumb rubber and incorporated into asphalt binder systems. Rubber-modified bitumen has been utilized in various international markets for decades and is often associated with enhanced flexibility, improved resistance to cracking, and extended pavement lifespan. By integrating recovered tire materials into asphalt production, the facility seeks to address two challenges simultaneously: reducing waste tire stockpiles and improving road performance characteristics. For transportation agencies managing extensive road networks, longer-lasting pavements can translate into lower maintenance expenditures over time.

The proposed plant has not yet entered full operational status. As of June 2026, the project remains within planning and regulatory assessment stages. Developers have submitted proposals outlining facility design, anticipated throughput volumes, and environmental management measures. Regulatory authorities are expected to review impacts related to traffic, emissions, noise, water management, and community considerations before final approvals are granted.

Construction timelines will depend on permitting outcomes, financing arrangements, and infrastructure requirements. Industry observers nevertheless view the proposal as one of the more ambitious regional recycling-oriented asphalt developments currently under consideration in Australia. Supporters of the project argue that its economic rationale extends well beyond waste diversion. Road construction remains heavily dependent on aggregates and bitumen sourced through extensive supply chains. Any mechanism capable of recovering usable materials from existing infrastructure can reduce procurement costs and improve resource efficiency. In periods of supply disruption, recycled feedstocks may provide additional flexibility for contractors and public agencies. While recycled materials cannot fully replace virgin inputs, they can reduce consumption rates and strengthen overall supply security.

The relationship between the project and the bitumen sector is particularly significant. Bitumen remains the essential binding component that holds asphalt mixtures together. Even when recycled materials are incorporated, careful engineering is required to ensure compatibility with binder systems and long-term pavement performance. Modern recycling facilities increasingly focus on maximizing the value of existing bitumen embedded within recovered asphalt.

Advanced processing methods can allow a portion of aged binder to remain active within new mixtures, reducing demand for entirely new binder additions. This approach can improve resource utilization while supporting sustainability objectives sought by infrastructure agencies.

Environmental considerations are expected to play a major role in evaluating the facility's long-term value. Diverting glass, plastics, tires, and asphalt waste from landfill sites may contribute to reduced disposal volumes and lower

environmental burdens.

At the same time, utilizing recycled inputs can decrease demand for virgin aggregate extraction activities. Several lifecycle assessment studies conducted internationally suggest that increased recycled content in asphalt mixtures may contribute to measurable reductions in material-related emissions, although outcomes depend on transportation distances, processing methods, and mixture designs.

Forecasts regarding the project's future potential remain necessarily cautious because final approvals and operational outcomes have not yet been determined. Nevertheless, industry specialists anticipate growing demand for facilities capable of integrating multiple recycled feedstocks into asphalt production. Transportation authorities across Australia continue to evaluate procurement policies that encourage recycled content in public infrastructure projects. If the Gympie development proceeds as proposed

and demonstrates reliable technical performance, it may encourage similar investments in other regions seeking practical pathways toward resource-efficient road construction.

The broader significance of the project lies in its attempt to connect waste recovery systems, bitumen utilization strategies, and transportation infrastructure requirements within a single industrial framework. Rather than focusing exclusively on disposal management or road construction, the proposal seeks to create value across both sectors simultaneously. As governments continue pursuing environmental objectives while maintaining extensive road networks, facilities capable of converting waste materials into engineering-grade construction inputs are likely to attract increasing attention from policymakers, contractors, and infrastructure planners alike.

Europe's New Package Targets the Shadow Fleet; A New Crisis Hits the Bitumen and Infrastructure Markets?

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According to WPB, The European Commission's deployment of its twenty-first sanctions framework on June 9, 2026, marks a structural shift in international maritime oversight, cutting directly into the remaining operational frameworks of the non-compliant energy trade. While initial Western regulatory measures targeted primary crude flows, this updated regime systematically closes legislative gaps by prohibiting the logistics, insurance provisioning, and transfer mechanics of the sovereign non-aligned maritime transport apparatus. The repercussions of these coordinated interdictions extend far beyond the immediate Baltic and North Sea routes, triggering an immediate and profound structural rebalancing across the Mediterranean, the Persian Gulf, and the wider Asian industrial sectors.

By imposing strict technical and corporate liabilities on non-Western entities that facilitate the movement of heavily discounted Russian hydrocarbons, Brussels is deliberately destabilizing the secondary refining networks that have kept deep-conversion facilities operational

from the East Mediterranean to the fringes of the Indian Ocean. This regulatory escalation fundamentally alters the economic calculus of processing heavy, high-sulfur crudes, causing immediate disruptions in the output of specialized petroleum derivatives and heavy infrastructure materials globally.

The mechanisms of this latest punitive framework are distinct from previous volume-based restrictions, focusing instead on the absolute technical immobilization of targeted assets.





The European Union has blacklisted a specific registry of specialized vessels, stripping them of Western classification society certifications, access to international Protection and Indemnity clubs, and critical marine engineering support. Furthermore, the 21st package institutes a total ban on the transshipment of Russian liquefied natural gas and heavy residues through European waters, effectively ending the highly profitable practice of offshore ship-to-ship transfers in the Mediterranean and Atlantic approaches. For infrastructure networks across the Middle East and East Asia, this legislative barrier creates an immediate logistics deficit.

Coastal blending hubs in regions such as Fujairah and the Malacca Strait, which have historically relied on the unhindered flow of cheap, un-vetted feedstocks to balance their high-viscosity inventories, are now forced to source inputs from high-cost, compliant alternatives. The sudden restriction on transport assets drives freight premiums for non-sanctioned tankers to unprecedented levels, causing a sharp contraction in the operating margins of secondary refineries that depend heavily on discounted bottoms to sustain complex petrochemical and infrastructure production cycles.

The most critical, yet overlooked, casualty of this regulatory enforcement is the international asphalt and modified binder industry, a sector that relies entirely on the continuous supply of vacuum residue from heavy crude processing. For years, the global infrastructure market has been indirectly subsidized by the covert influx of Ural and Arctic heavy residues, which were systematically blended in

intermediate ports before being distributed as commercial bitumen to developing economies in Asia and Africa. With the EU's 21st package systematically impounding the specific tankers capable of hauling high-temperature, highly viscous products, this specialized supply line has collapsed. Refineries located in India, Turkey, and Southeast Asia, which optimized their secondary distillation units to process these specific, low-cost Russian feedstocks, are experiencing an acute shortage of the essential vacuum distillation bottoms required to produce road-grade bitumen. Because bitumen cannot be easily transported via standard dry cargo or conventional clean-product tankers, the sudden immobilization of the specialized dark-fleet asphalt carriers means that vast volumes of infrastructure-grade binders are effectively trapped at the source in the Russian interior, entirely cut off from the global construction markets that depend on them.

This artificial supply compression comes at a time when global infrastructure demand is peaking, forcing a severe structural transformation in corporate procurement strategies. Western European asphalt manufacturers, already operating under strict environmental mandates, face a sudden influx of competing demand from non-Western nations seeking to secure non-Russian heavy crudes from Middle Eastern producers.

This has ignited an intense procurement conflict over Latin American and Persian Gulf heavy crudes, such as Maya and Basrah Heavy, which are the primary alternatives for bitumen production. As international oil majors redirect these compliant heavy crudes to fulfill European and

From Refineries to Streets: Bitumen Shortage Brings Urban Projects to a Standstill!

According to WPB, the systemic breakdown of regional material distribution channels has introduced a severe deficit in the availability of heavy binder components across municipal public works networks, establishing an immediate correlation between macroeconomic logistics deadlocks and localized infrastructural paralysis. While major maritime conduits in the Middle East handle high-volume crude reallocations, the secondary processing facilities responsible for extracting construction-grade chemical bases face unprecedented operational volatility.

This regulatory and logistical friction has caused immediate shortfalls in critical public works projects, where the immediate absence of dense binding agents prevents the completion of primary transportation corridors. The broader economic consequences of this materials deficit are currently expanding from processing hubs into independent municipal systems, demonstrating that localized infrastructure planning remains fundamentally vulnerable to the broader vulnerabilities of cross-border supply lines.

The administrative emergency officially declared within the municipal governance of Chandigarh highlights the immediate structural vulnerability of regional development programs to sudden variations in heavy residue availability. Mayor Saurabh Joshi convened an emergency oversight assembly following reports from major engineering consortiums confirming that critical road resurfacing, stabilization, and re-carpeting initiatives had reached a total operational halt. The local engineering department documented that the primary impediment to these public works is a total depletion of baseline heavy binders, a material that cannot be substituted with standard aggregate variations. Because municipal project budgets are calculated based on predictable material procurement cycles, the sudden inflation and outright absence of these foundational binding elements have threatened to extend

project timelines indefinitely, exposing local administrative bodies to severe contractual liabilities and escalating public dissatisfaction.

The origin of this localized deficit lies within a broader systemic disruption characterizing the regional downstream petroleum refining sector. South Asian infrastructure initiatives have traditionally maintained a high dependency on domestic and semi-imported heavy vacuum distillation bottoms, which serve as the primary chemical foundation for all road-grade asphalt production. However, recent regulatory tightening, combined with the realignment of global tanker traffic, has reduced the volume of heavy, high-viscosity feedstocks reaching secondary distillation units. Refineries that previously yielded high percentages of dense residues are adjusting their thermal cracking units to optimize lighter, more profitable distillates, unintentionally reducing the total volume of infrastructure-grade binders available for immediate commercial purchase. Consequently, municipal contractors who rely on steady, localized refinery output find themselves unable to secure volume commitments, as primary energy suppliers prioritize industrial fuel oil and aviation components over the heavy residue market.

This specific materials crisis has developed at a highly precarious seasonal juncture, exacerbating the logistical urgency for public works authorities. The approaching monsoon season introduces strict climatological constraints, as the application of high-temperature binding agents requires dry substrate conditions to guarantee necessary structural adhesion and longevity. The directives issued by the municipal leadership to identify alternative procurement channels reflect a state of administrative urgency rather than a strategic transition.

Engineering divisions are currently forced to negotiate with distant distribution terminals, a process that introduces

Behind Recycled Asphalt: Green Savings or an Engineering Disaster?

According to WPB, A recently published scientific paper has examined RAP-modified high-performance asphalt pavements through three connected criteria: pavement performance, construction cost, and Global Warming Potential. The subject is highly relevant for road agencies, asphalt producers, contractors, and bitumen suppliers because future pavement decisions are no longer based only on strength or price. Across global infrastructure markets, including the Middle East, road construction is increasingly shaped by carbon targets, tighter public budgets, heavy traffic demand, and the need for longer pavement life. In this environment, bitumen is not only a binding material; it becomes a technical and economic factor in how recycled asphalt, cost efficiency, and lower emissions can be brought into the same design decision.

The focus is on high-performance asphalt pavements modified with reclaimed asphalt pavement, commonly known as RAP.

RAP contains both reclaimed aggregate and aged bitumen. This is important because the recycled material does not simply replace stone; it also brings an existing binder into the new asphalt mixture. That aged binder can reduce the need for fresh bitumen, lower material demand, and support a lower-carbon pavement strategy. At the same time, it introduces technical questions because aged bitumen is stiffer than new binder. If it is not properly managed, it can affect cracking resistance, workability, fatigue behavior, and long-term durability.

The main value of this approach is that it does not treat asphalt sustainability as a single-number target. Using more recycled material may look positive from an environmental point of view, but the final pavement still has to resist rutting, cracking, moisture damage, traffic loading, and climate stress. A mix with high RAP content can reduce the use of virgin aggregate and fresh bitumen, but it can also become too stiff if the aged binder is not balanced with suitable new binder, additives, or rejuvenating agents. On



the other hand, a conservative asphalt mixture with a lower RAP content may be easier to design and approve, but it may miss clear opportunities to reduce cost and carbon output.

The mechanism works by comparing pavement options through a multi-objective optimization process. First, several asphalt pavement alternatives are developed with different structural and material assumptions. These alternatives may vary in RAP content, binder demand, layer configuration, pavement thickness, performance expectations, and material-related inputs. Second, each option is evaluated against three major outputs: how well the pavement is expected to perform, how much it is expected to cost, and how much Global Warming Potential it is expected to generate. Third, the results are filtered to identify the combinations that offer the most balanced technical, financial, and environmental outcomes.

This is where Pareto optimization becomes important. A Pareto-efficient option is not necessarily the cheapest option, the strongest option, or the option with the lowest carbon footprint. It is an option where one target cannot be improved without weakening another. For example, a pavement design may reduce GWP by using more RAP, but if that same design increases the risk of cracking or shortens service life, it may not be the best practical choice. Another



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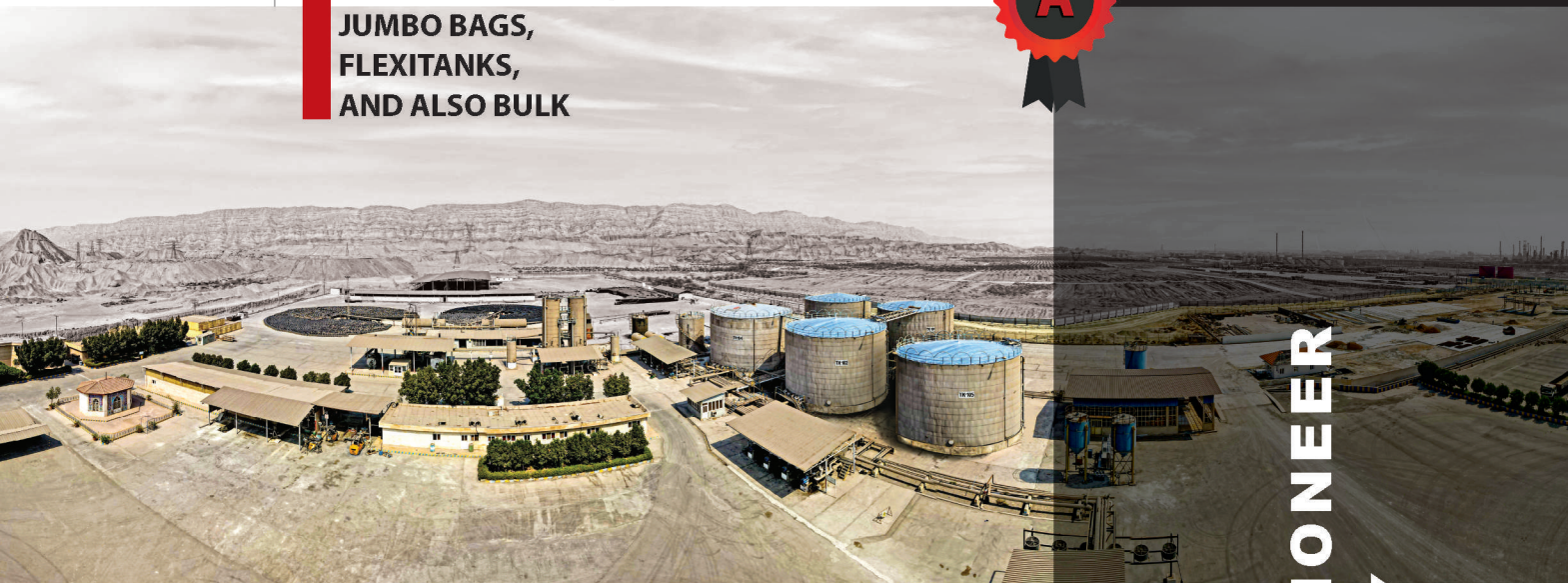


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