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THE LEDE

Gulf airports are adding fuel storage and pipelines, but a refinery outage could still force airlines to cut flights, analysts say

INFRASTRUCTURE November 16, 2026

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0:00 / 10:40

Gulf airports are building more jet fuel storage and pipelines, and the weak point may sit upstream, at the refinery. Strikes **set** fuel tanks ablaze at Kuwait International Airport and hit fuel storage **near** Bahrain International Airport in March, and a **separate** strike on a fuel tank at Dubai International Airport (DXB) briefly halted flights. "Additional storage buys time; redundancy buys resilience," Addison Schonland, founder of AirInsight Group, tells EnterpriseAM.

Four hubs are rethinking their fuel infrastructure: Dubai is **considering** fuel storage at its future Al Maktoum International Airport and a **higher-capacity** pipeline from Jebel Ali. Abu Dhabi is **building** underground tanks for 192 mn liters of jet fuel, Qatar is **advancing** a pipeline from Mesaieed to Hamad International Airport, and Jeddah is **preparing** a new fuel farm. Several of the projects predate the conflict, but the question now is how long airports can keep aircraft flying when supplies are disrupted, and not only how much fuel they can handle.

Protecting the tanks is only part of the problem: Jet fuel passes through refineries, terminals, pipelines, pumping stations, and airport distribution systems before it reaches an aircraft, so an airport can hold substantial reserves and still be exposed if the infrastructure that refills them fails. A hub is resilient when it combines usable inventory with multiple fuel sources, physically independent delivery routes, and redundant airport distribution systems, Schonland adds.

DXB shows how exposed the fuel side can be: It received 111 alerts of ballistic activity during the conflict, 17 of which resulted in strikes, one of them hitting above-ground fuel tanks and briefly interrupting operations. Underground fuel storage and reinforced infrastructure are among the protections being considered for Al Maktoum, Dubai Airports CEO Paul Griffiths told the **Financial Times**.

What's being built

Abu Dhabi is putting fuel underground: Adnoc awarded a contract estimated at up to USD 400 mn in 2024 to build underground fuel-storage facilities near Zayed International Airport, with capacity for 192 mn liters of Jet A-1, **Meed** reported. The project has 16 storage tanks plus supporting mechanical, electrical, and safety infrastructure, and is due for completion in 2027.

Dubai is adding a larger fuel line: Emarat affiliate Emdad appointed Germany's Bilfinger in November 2025 to design a pipeline connecting its Jebel Ali fuel terminal to Al Maktoum (DWC), according to a **press release**. The line is intended to carry more than 2.5 times the annual fuel volume handled by the pipeline supplying DXB.

Qatar and Jeddah are adding capacity too: QatarEnergy is **pursuing** a roughly 53 km pipeline from Mesaieed Industrial City to Hamad International Airport, with contractors submitting technical bids in September and commercial proposals requested in October. The country commissioned a 143 km jet-fuel pipeline from Ras Laffan in 2019, designed to allow supplies from both Ras Laffan and Mesaieed. Meanwhile, Jeddah Airports Company is planning a new fuel-farm package for 2Q 2027 as part of an expansion targeting 114 mn passengers a year by 2031.

Each project covers a different risk: Doha's pipeline could make fuel delivery more reliable and reduce reliance on alternative transport, Jeddah's storage could bring more fuel closer to aircraft demand and give greater cover during an upstream disruption, and Dubai's physical protection addresses the risk of fuel infrastructure itself being damaged, Sindy Foster, principal managing partner at Avaero Capital Partners, tells us. Whether they help depends on whether they provide a usable alternative when part of the existing system fails.

Days of cover

On-site fuel covers about 10 days at Abu Dhabi and Doha, by one estimate. That's based on public figures, David Tonyan, senior research analyst at Kpler, tells us. Storage can absorb a short interruption but can't sustain a major hub indefinitely without replenishment, he adds.

A full tank isn't all usable. Schonland distinguishes gross storage capacity from the fuel available for operations: minimum operating levels, maintenance, testing, and contamination reduce usable inventory, and high daily consumption at major connecting hubs can drain substantial reserves quickly.

Growth shortens the cushion: Expanding passenger traffic and aircraft movements raise daily fuel consumption, so unless storage and supply grow at a comparable pace, the same reserves give fewer days of cover, Foster tells us.

The refinery link

The biggest vulnerability may sit outside the airport: Jet-fuel pipelines depend on production facilities that can supply aviation-grade fuel, and no substitute can be built in the short term for lost refinery production, Tonyan tells us. Replacing those volumes takes another refinery, or an import terminal with a practical connection to the airport's fuel network, he adds.

Imports could fill the gap within one to two weeks: An airport connected to a suitable Gulf import terminal could secure alternative jet fuel in that time if regional supplies remain available, Tonyan estimates. October voyages from Bahrain to Jebel Ali took about 1.3 days from loading to berth, and shipments from Jubail took 1.2–1.4 days. Moving

fuel from Jebel Ali to Dubai's airports could add another one to two days, with cargo booking, loading arrangements, and terminal availability accounting for the rest of the lead time.

Without an import terminal, there's no fix: If no import terminal connects to a pipeline, an airport depends on its refinery and has no feasible way to replace lost supply, Tonyan argues. Road tankers can make emergency deliveries but can't replace the pipeline volumes a major international hub needs, he adds, and a prolonged interruption would eventually force airlines to cut flights.

Two pipelines can still share one weak point. A second pipeline offers limited protection if both depend on the same terminal, pumping station, power supply, or physical corridor. Even when alternative fuel reaches an airport, it has to pass through receipt facilities, quality-control systems, pumps, and hydrants before aircraft can refuel, Schonland tells us.

Defending the system

Underground tanks don't ensure an open airport. Protected storage can reduce exposure to drone and missile attacks, but its value depends on whether the airport can keep moving fuel through the rest of its infrastructure, MENA geopolitical risk consultant Amandeep Kaur Ahuja tells us. Sustaining refueling takes a protected, functioning system around the tanks.

More assets also mean more to defend: New pipelines, fuel farms, and delivery connections can help airports ride out shorter disruptions, but they add infrastructure that can be attacked, Ahuja tells us. They need security planning and coordination with defense authorities, and refinery dependence stays the central issue, since damage to a production facility can interrupt supply even when the pipeline survives, she adds.

Cheap attacks change what protection has to do. The conflict has shown how relatively inexpensive attacks can disrupt infrastructure supporting much larger economic activity, Ahuja argues. "Future designs of airports and aviation infrastructure will keep in mind two things: That disruption is possible at any time and at relatively low cost to adversaries; that quick restoration of services is essential," she adds.

The test after an attack is how fast an airport can fly again. Resilience means being able to "restore operations safely and gradually scale them up," Ahuja tells us, and protecting fuel reserves is a key part of it, since reserves are one factor an airport controls itself, unlike regional disturbances. A dependable reduced schedule that starts immediately can also secure back the trust of passengers and cargo carriers, she adds.

Keeping flights going takes military and civilian coordination. Maintaining civilian aviation through a prolonged security crisis requires coordination between military

authorities, aviation regulators, and airport operators, Ahuja tells us, and threat assessments can determine whether flights resume safely. "Military assessment of threat levels can translate into immediate action for civilian entities. The coordination would need to be foolproof to achieve this," she says. It should extend to Gulf partners and international allies with stronger intelligence capabilities, she adds, alongside stronger local capabilities.

Fallbacks and their costs

A fuel shortage can unravel an airline network before the tanks run dry. Long-haul carriers need to depart with enough fuel to complete non-stop journeys, particularly on widebody aircraft across international networks. If fuel becomes unavailable at their main hub, airlines may have to carry more from earlier airports or add intermediate refueling stops, Hans Elnaes, aviation analyst, tells us. Those workarounds get expensive for aircraft such as Emirates' A380s, he adds.

Tankering fuel is a stopgap, with costs: Carrying extra fuel adds aircraft weight and fuel burn, can reduce available payload, and shifts fuel demand to the departure airport, Schonland tells us. It's a useful contingency tool and not a long-term substitute for bulk fuel supply, he adds.

Reliable fuel could become a competitive edge. Repeated disruption could influence where airlines allocate aircraft, add frequencies, or launch routes, Foster tells us. Home carriers depend on their main hubs, while foreign airlines generally have more flexibility to shift capacity elsewhere, she adds.

The cost of a disruption reaches beyond the fuel farm. A short interruption at a major connecting hub can affect airport revenue, aircraft schedules, passenger transfers, and cargo operations, with recovery costs continuing after normal supplies resume, Foster argues. Backup infrastructure should be judged against the financial losses it could prevent, she adds, and not only against how often the extra capacity is expected to be used.

THE BOTTOM LINE- A project that mainly adds capacity raises the volume the system can handle in normal conditions, while a resilience investment raises what it can sustain when conditions are disrupted, Foster tells us. Some projects do both, she adds, but the benefit has to stay demonstrable as traffic and fuel demand grow. A resilience project should show how operations are protected during a defined disruption: "how much flying can continue, for how long, and how quickly supply can be restored," she says. That could mean alternative delivery routes, more usable stock near the airport, physical protection, or independent power and pumping capability.

Tags: Adnoc | Al Maktoum | AVIATION | Bahrain | DXB | Emdad | energy infrastructure | Gulf | Hamad International | Jeddah | jet fuel | Kuwait | Qatar | Saudi Arabia | The Lede | UAE | Zayed International

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