Railway Developments in the Gulf Cooperation Council (GCC) States

Introduction

The six countries of the Gulf Cooperation Council (GCC) – namely Saudi Arabia, United Arab Emirates (UAE), Qatar, Kuwait, Oman and Bahrain – are undertaking ambitious railway infrastructure programmes. These efforts reflect strategic objectives such as economic diversification, improving freight and passenger mobility, reducing reliance on road transport, boosting regional integration and contributing to low-carbon goals.

However, these railway developments present a mix of realised successes, ongoing large-scale projects, and significant challenges — both technical and geopolitical. In this article we will take a long-form look at the landscape: the vision, the major national projects, the regional integration endeavours, the benefits and obstacles, and the outlook ahead.

The Strategic Rationale

Economic diversification & logistics

Many GCC states have recognised that oil revenues alone cannot sustain long-term growth and have therefore included transport infrastructure — including railways — in their diversification programme. Rail offers the potential to reduce heavy reliance on trucks for freight transport, lower logistics costs, enhance export competitiveness (especially for non-oil goods), and open up new corridors of mobility.

For example, in the UAE, Etihad Rail notes that shifting freight from trucks to rail will reduce greenhouse-gas emissions significantly — around 2.2 million tonnes annually in one case. saipem.com+2Sustainability Magazine+2

Regional integration & connectivity

Beyond national objectives, there is a vision of connecting the GCC states by rail into a cohesive regional network. This would enable faster movement of goods and people across borders, strengthen intra-GCC trade (which remains relatively modest compared with other economic blocs), and position the region better in global trade and logistics chains. The proposed inter-GCC rail link is a manifestation of that ambition. ORF Middle East+1

Sustainability & modal shift

Moving freight and passengers from road to rail can bring environmental benefits: fewer trucks on roads, lower emissions per tonne-km, and improved safety. In desert environments typical of the Gulf, managing transport resilience and reducing road wear and congestion are also important. Rail also aligns with many Gulf states' net-zero or low-carbon transition goals.

Major National Railway Projects

Let's examine several of the key national railway programmes in the GCC states.

United Arab Emirates (UAE) – Etihad Rail

Etihad Rail (established June 2009) is the operator/developer of the UAE's national rail network. Wikipedia+2Railway Technology+2

Stage 1 (freight) became operational in January 2016, transporting granulated sulphur from the Shah/Habshan gas fields to Ruwais in Abu Dhabi. saipem.com+1

Stage 2: a 605 km network from Ghuweifat (on the Saudi border) to Fujairah on the east coast was opened on 28 Feb 2023. Wikipedia+1. As of 2025: The network is about 900 km, freight services operational; passenger services are under development with target to launch in 2026. Railway Technology+1

Notably, Etihad Rail has formed a joint venture with Keolis (global transport operator) to launch passenger services. keolis.com. The network has been designed for mixed-use (freight + passenger), with heavy haul capabilities, modern signalling (ETCS), and construction standards for desert conditions. Railway Technology+1

Benefits cited include modal shift: one train can replace ~300 trucks; reduction in emissions; potential economic savings in land value uplift, accident reduction and road maintenance cost savings. saipem.com+1. The UAE also launched a sustainable finance framework for the project in August 2024, paving the way for green-bond issuance. Reuters

Saudi Arabia – High-Speed & Freight Links

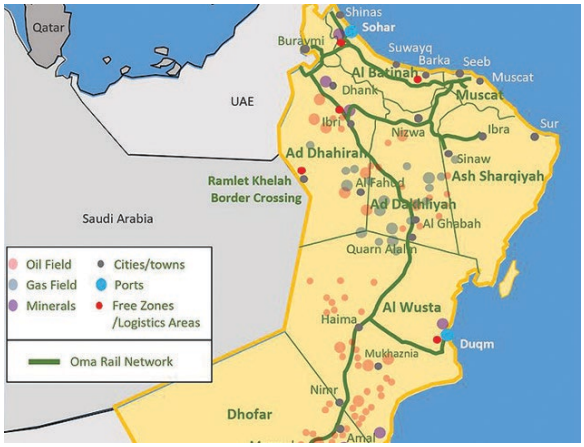
The Haramain High Speed Railway is one of Saudi Arabia's headline rail projects: connecting Mecca, Medina, Jeddah and King Abdulaziz Airport. It opened in October 2018. Wikipedia

Another major project is the Saudi Landbridge Project: a freight (and potentially passenger) line linking Jeddah on the Red Sea to Riyadh, then to Jubail/Dammam on the Gulf coast. This is part of the logistics hub ambition under Vision 2030. Wikipedia+1

Saudi Arabia is also expanding its network significantly: in October 2025 reports suggest the network will grow from 5,300 km to over 8,000 km as part of its "Landbridge" vision. The Times of India

Challenges: these are large scale, expensive, and in some parts still in planning/design phases.

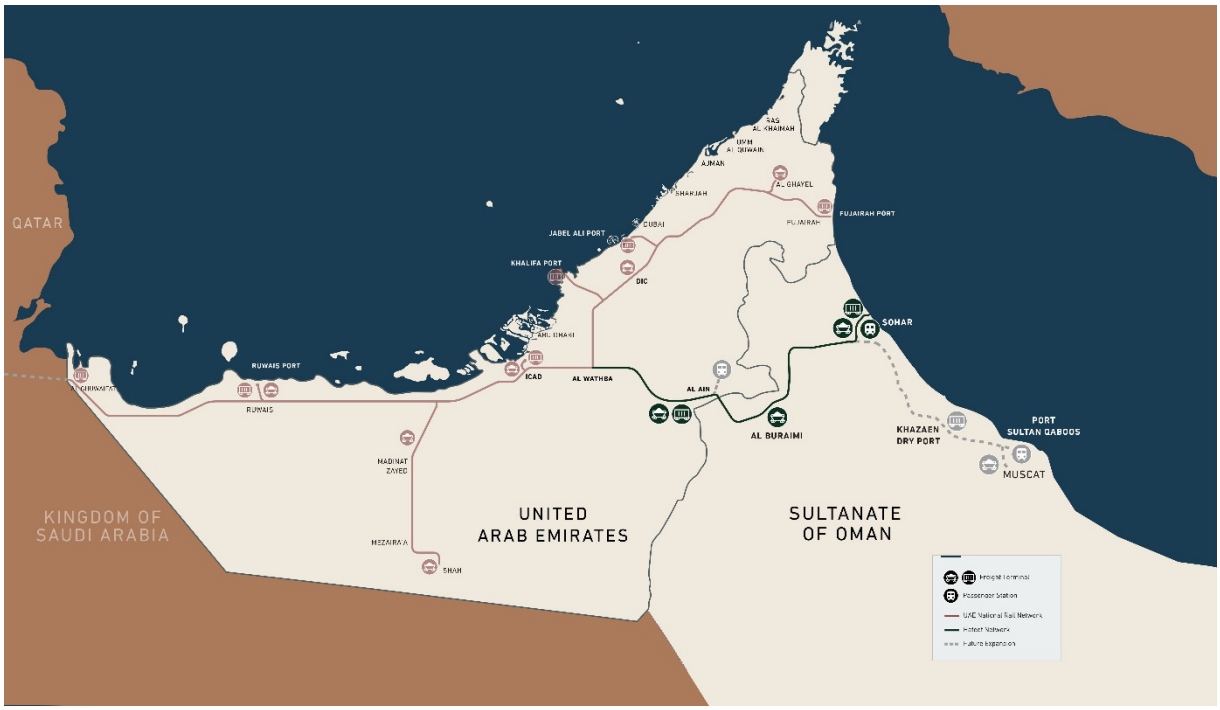
Oman – Oman Rail & Cross-Border Link



Oman has planned a national railway network via Oman Rail, envisaged to connect its ports (Sohar, Duqm), population centres and link to the wider GCC rail network. [araburban.org+1]

A significant cross-border link between the UAE and Oman was announced: Hafeet Rail (JV between Etihad Rail and Oman Rail) to connect Abu Dhabi with Sohar (and via Al Ain) in Oman. [Wikipedia+1]

The Hafeet Rail link, if built, would be a first international segment under the broader Gulf rail vision.



Qatar, Kuwait & Bahrain

Qatar has built advanced rail infrastructure domestically (metro, light rail) but its participation in the wider GCC rail network faces delays. According to commentary, Qatar was ready to begin its portion of the GCC railway but awaited other states. [ORF Middle East+1]

Bahrain, smaller scale and constrained by geography, has no full national inter-city rail in operation; its involvement in the GCC network (via causeways or cross-border links) is still largely aspirational. [ORF Middle East]

Kuwait has encountered regulatory and land acquisition delays for its national strand of the GCC rail plan. ORF Middle East

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The GCC Inter-State Railway Vision (The “Gulf Railway”)

A key ambition is the Gulf Railway (also known as the GCC Railway) — a proposed 2,100-2,200 km network linking all six GCC member states (Kuwait → Saudi → Bahrain → Qatar → UAE → Oman) via a standard-gauge rail line. Estimates suggest a cost of up to US$ 250 billion. Wikipedia+1

Route & Scope

- The envisaged network would start in Kuwait City, proceed south into Saudi Arabia (Eastern Province), then via Bahrain (via a causeway), into Qatar, then through the UAE, and then into Oman (to Muscat). Wikipedia+1.
- Total length: approximately 2,177 km. Wikipedia+1.
- Designed for mixed traffic: passenger trains at up to ~220 km/h, freight at 80-120 km/h (in earlier planning assumptions). Wikipedia.

Status & Progress

- While visionary, the project has faced significant delays. Some studies suggest the earliest realistic completion might be 2025, but more likely 2030 or beyond. ORF Middle East

In July 2025, the GCC Secretariat announced that member states are “keen to complete” the project and asked the Railways Authority to redouble efforts. GCC SG

Many cross-border links (Saudi–Qatar, Saudi–Kuwait, Bahrain-Qatar, Oman–UAE) remain undeveloped or only in preliminary planning. ORF Middle East

Benefits

- Enhanced intra-GCC trade: Currently intra-GCC trade is modest; a rail network could ease cargo flow and reduce logistics costs. ORF Middle East
- Better connectivity for people: Cross-border travel (both business and leisure) could be boosted.
- Strategic logistics hub: The Gulf region could improve its role in global trade corridors, offering alternatives to heavy maritime dependence.
- Environmental benefits: Shifting freight from road to rail reduces emissions and road wear.

Challenges & Risks

- Alignment of interests: Different states have varying priorities, timelines and fiscal capacities. ORF Middle East
- Technical & regulatory harmonisation: Border controls, customs, signalling standards, competing rail gauges (if varied) and operator models all pose complexity. ORF Middle East
- Financing & oil-price risk: Large upfront costs (US$ 250 billion+ estimate) make the project sensitive to macroeconomic shocks in the Gulf. Alg Global
- Geographic & engineering issues: Desert terrain, cross-sea causeways (e.g., between Bahrain–Saudi) and remote stretches require major investment.
- Changing priorities: Some states prioritise domestic projects, metros or road/air infrastructure ahead of cross-border rail.

Key Economic & Operational Implications

Freight vs Passenger

In many GCC states, initial emphasis has been on freight: moving mined resources, ports, industrial goods. For example, Etihad Rail’s Stage 1 is a freight line carrying sulphur. saipem.com Passenger services are emerging as the next wave: the UAE aims passenger operations by 2026. keolis.com+1

Port & Industrial Integration

Rail links to ports (e.g., Fujairah in UAE, Sohar in Oman, Jeddah/Jubail in Saudi) are central. Rail can help shift container traffic and bulk goods efficiently. For example, the UAE rail network links to Khalifa Port, Jebel Ali, Fujairah. Railway Technology+1

Urban & Suburban Rail vs Long-Distance

While the national/regional rail network is high on the agenda, many Gulf states are also pursuing urban transit (metros, light rail) that complement longer-distance rail. For example, Saudi Arabia's Dammam Metro was announced. Wikipedia

Environmental & Social Impacts

- Modal shift: One freight train might replace hundreds of trucks, reducing emissions and accidents. saipem.com
- Land value uplift: Stations and associated development generate new urban zones.
- Safety and congestion: Fewer heavy trucks on roads can reduce accidents and road maintenance cost.
- Labour & jobs: Large infrastructure programmes drive employment and skills development.

A Short Case Study: UAE's Etihad Rail

Let's delve deeper into the UAE's Etihad Rail project as an example of how modern Gulf railway development is proceeding.

Background & Implementation

- Created in 2009. Wikipedia
- Stage 1 (2011-2015) built a 264 km freight line from Shah/Habshan to Ruwais, handling sulphur exports. saipem.com
- Stage 2 (2020-2023) connected Ghuweifat (border with Saudi Arabia) to Fujairah, across 605 km. Railway Technology+1
- Freight operations began; the network is now ~900 km.
- Passenger services: In October 2025 Etihad Rail and Keolis formed a JV for passenger operations starting 2026. keolis.com

Technical Features

- Standard gauge rail.
- Freight heavy axle loads and allowance for double-stack containers. Railway Technology
- Signalling: ETCS Level 2 (European standard). saipem.com
- Rolling stock built for desert conditions (sand, heat) — e.g., locomotives with air filters, pulse cleaning. Railway Technology

Strategic Outcomes

- The Stage 1 freight line alone replaced hundreds of trucks, reducing road congestion and emissions. Sustainability Magazine

- With the cross-emirate link (west to east), the network enables movement across the UAE, not just within one emirate.
- The project also opens the prospect of the UAE being a logistics hub linking Gulf ports.
- Rail also supports future passenger mobility, connecting cities faster, reducing travel time, and improving connectivity between emirates.

Challenges

- Passenger service still to start; stations and passenger-oriented infrastructure remain under development.
- Integration with other transport modes (metro, bus, taxi) remains to be fully realised. For example, reports say full integration and unified ticketing (NOL card) expected for 2026. The Times of India
- The cross-border aspect (with Saudi Arabia, Oman) still faces alignment issues like border control, regulatory harmonisation.

Key Challenges across the Region

While much progress has been made, the Gulf railway landscape is not without obstacles:

1. **Funding & economics** – Large upfront capital required; oil price fluctuations affect public finances and priorities.
2. **Skills & Training** – Railways are large, complex, specialist domains which bring extensive needs for expertise and skills. It is vital for the success of the GCC railway ambitions that there are professionals with the necessary specialist skills in all aspect of railway design, operation, safety and security. These needs can only be met by invoking specialist training providers and investing in professional skills development.
3. **Coordination across states** – The Gulf railway vision spans sovereign states; aligning standards, border protocols, operator models, financing is complex.
4. **Technology & operations in extreme environment** – Desert conditions (heat, sand), remote stretches, sea causeways demand specialised engineering and maintenance regimes.
5. **Timing & priorities** – Domestic infrastructure (roads, airports, metros) often has priority; cross-border rail links may be delayed.
6. **Return on investment (ROI)** – For passenger rail especially, ridership levels in diffuse population areas may be lower; freight opportunities need to justify cost.
7. **Geopolitical/ institutional risk** – For example, the 2017 Gulf diplomatic crisis (Qatar vs other GCC states) disrupted regional cooperation and planning. ORF Middle East
8. **Integration with other modes** – Effective rail systems need connectivity with ports, roads, airports, metros, last-mile logistics; piecemeal implementation limits value.

Outlook & What to Watch For

Short to Medium Term (2025-2030)

- The Gulf Railway network's full inter-state realisation remains uncertain but 2030 is a commonly cited target for key segments. Benelux - DRN Dubai Real Estate+1
- Passenger services in the UAE from 2026 will be a milestone.
- Cross-border links such as UAE–Oman (Hafeet Rail) may move from concept to construction, setting a precedent.
- Saudi Arabia's railway expansion (Landbridge / high-speed) will progress, potentially increasing its status as a regional logistics hub.
- Sustainability and ESG aspects: More rail projects will be financed via green bonds or frameworks, as seen in UAE.

Longer Term (2030+)

- If fully implemented, the 2,177 km Gulf Railway could dramatically change freight and passenger movement across the Arabian Peninsula.
- Growth in freight corridors linking Gulf ports to hinterlands and global trade routes.
- Urban and inter-city passenger rail could significantly shift mobility patterns, reducing domestic flights/road travel.
- The region may see a transition in modal share: more goods by rail, more people by train, less dependence on trucks and cars.

Summary

The Gulf region is undergoing a transformation in its transport infrastructure. Railways, once modest or non-existent in large parts of the Arabian Peninsula, are now a strategic priority. While the pace and scale of implementation vary, projects such as the UAE's Etihad Rail, Saudi Arabia's high-speed and freight ambitions, and the regional Gulf Railway vision all point to a future where rail plays a central role in mobility, logistics and regional integration.

Yet significant hurdles remain: financing, technical and regulatory alignment, cross-border coordination, and very importantly the up-skilling of professionals in all of the GGC countries via world class training and professional development.

The success of this era of Gulf railway development will depend not only on tracks and trains, but on institutional cooperation, commercial viability, and integration with other modes and platforms.

For those interested in infrastructure, geopolitics, logistics or sustainable transport, the GCC railway story is one of the more dynamic and high-stakes development arenas in the world.