Saudi Railway Projects & Delivery Infrastructure

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Chairman/ MD, Saudi Railway Co. (SAR)

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Riyadh - KSA
Saudi Rail Network
# Saudi Rail Network

<table>
<thead>
<tr>
<th>Rail Line Project</th>
<th>Length (km)</th>
<th>Passenger</th>
<th>Freight</th>
<th>Heavy Haul</th>
</tr>
</thead>
<tbody>
<tr>
<td>North-South Rail Line, NSR</td>
<td>2,750</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>The Land Bridge (double track)</td>
<td>2,500</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Riyadh – Dammam (by SRO)</td>
<td>1,400</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Jubail Internal Rail Network</td>
<td>70</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Jubail– Dammam</td>
<td>100</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Wad Alshamal, WAS</td>
<td>70</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>
Saudi Railway Company (SAR) established in May 2006
The Company is a fully funded and owned by the Public Investment Fund (PIF)

Achieve the highest satisfaction of our railway stakeholders represented by the government, customers, employees, society, and partners.

Establish and sustain a superior national railway for development of underdeveloped areas with top Saudization ultimately reducing local oil consumption and accident rates; this is enabled by timely infrastructure development & safe operations.
Internal Rail Network of Jubail Industrial City
Benefits of using rail

Direct
- Improve the passenger transportation services through providing new safe and comfortable alternative
- Support the movement of goods between different areas in the kingdom
- Support mineral, chemical and petrochemical mega industries by delivering huge capacity, secure, reliable and cost effective transportation services.
- Diversify the national sources of income through utilizing the kingdom strategic location and ports in both of Red Sea and Arab Gulf
- Create new job opportunities for Saudi youth

Indirect
- Reduce fuel consumption
- Secure Environment by reducing emission
- Enhance Safety & Security
- Reduced impact from congested roads & maintenance cost
- Improve the employment level
- Attract new international investors
  - To participate in localizing rail industry programs
  - To start new businesses utilizing the railway transportation service
- So many Other
Infrastructure – Civil & Track Construction

Alignment Length | 2750 Km
Bridges          | More than 200
Concrete Culverts | More than 3000
Earthworks       | 509 million m³
Sleepers         | More than 4,600,000 units
Rail             | More than 300,000 tonnes
Infrastructure – Civil & Track Construction
Infrastructure – Civil & Track Construction
Operational Excellence in a Harsh Environment

• Massive network size of (> 5,000 km)

• **World-class** engineering companies under contract

• Solidifying the kingdom’s strategy of linking ports to facilitate international trade

• Ensuring **technology transfer** by utilizing the knowhow of world class international operator (5 years contract)

• Assisting **major Saudi corporations** (e.g. ARAMCO, SABIC and Ma’aden) by critical rail infrastructure.
Passenger Line - Stations
Passenger Line – Trains

6 Passenger trains’ sets:
• 4 Day-trains
• 2 Night-trains
Mineral Line

• Started operation May, 2011 through strategic partnership with Ma’aden.

• Heavy haul railway line – 32.4 ton axle loads

• Train capacity exceeds 15,000 tons.

• Speeds:
  o Mineral trains run at 80kph
  o Intermodal container trains will run at 120kph

• SIL4 Safety Integrity Level ETCS2 Train Control System

• Fully automated loading and unloading operations
Mineral Line - Phosphate

Operations started May, 2011 from HAJ to RAK (distance of 1,400 km)

<table>
<thead>
<tr>
<th>Year</th>
<th>Phosphate (Ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>215,270.00</td>
</tr>
<tr>
<td>2012</td>
<td>1,725,523.00</td>
</tr>
<tr>
<td>2013</td>
<td>1,565,543.00</td>
</tr>
<tr>
<td>2014</td>
<td>2,964,488.34</td>
</tr>
<tr>
<td>2015 till September</td>
<td>2,302,209.13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,773,033.47</strong></td>
</tr>
</tbody>
</table>

Quantities transported (by tons): 8.8 M tons
Mineral Line - Bauxite

Operations started June, 2014 from Baitha to RAK (distance of 700 km)

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantities transported</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>350,384.40</td>
</tr>
<tr>
<td>2015 till September</td>
<td>1,545,900.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,896,284.40</strong></td>
</tr>
</tbody>
</table>

Quantities transported (by tons)

[Chart showing 1.9 M tons]
Infrastructure:

- Connect WAS City in the North with Ras Al Khair Industrial port, Saudi Aramco Barri Gas Plant (BGP) and Wasit gas Plant (WGP).
- Construction is ongoing for:
  - the Northern Railway section (total length of ≈ 140 km).
  - The eastern side, Ras Al Khair, BGP and WGP with a total length of ≈ 60 km.

Rolling Stock:

- Contracts to procure 1,349 Rail Cars were awarded (tanks wagons and flatbeds) the delivery will start from mid of 2016.
- Contracts to procure 36 – diesel Locomotives were awarded. Delivery will start from mid of 2016.

Planned Operations:

<table>
<thead>
<tr>
<th>Transported Materials</th>
<th>Quantities (million tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molten Sulphur</td>
<td>1.78</td>
</tr>
<tr>
<td>Merchant Grade Acid</td>
<td>2.21</td>
</tr>
<tr>
<td>Phosphoric Acid</td>
<td>0.08</td>
</tr>
<tr>
<td>Solids</td>
<td>0.34</td>
</tr>
<tr>
<td>Totals</td>
<td>4.42</td>
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Partners
.. Of the advantages

**Improve reliability:**

<p>| | |</p>
<table>
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<tr>
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<tbody>
<tr>
<td>Truck capacity per fleet</td>
<td>25 tons</td>
</tr>
<tr>
<td>Train capacity per fleet</td>
<td>15,000 tons</td>
</tr>
</tbody>
</table>

1 Train = 600 Trucks
.. Of the advantages

**Reduce fuel consumption:**

<table>
<thead>
<tr>
<th>Primary Energy Consumption</th>
<th>Energy resources consumption [Mega joule]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Road</td>
</tr>
<tr>
<td>Truck</td>
<td>5.659.525</td>
</tr>
<tr>
<td>Train</td>
<td>0</td>
</tr>
<tr>
<td>Sum</td>
<td>5.659.525</td>
</tr>
</tbody>
</table>

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![Energy Consumption Graph](image)

Amount of Diesel Fuel Conserved Since starting Operations

750,000 BARRELS
.. Of the advantages

Reduce emissions

Other emissions 50%

CO₂ 75%
Create promising job opportunities for Saudis