

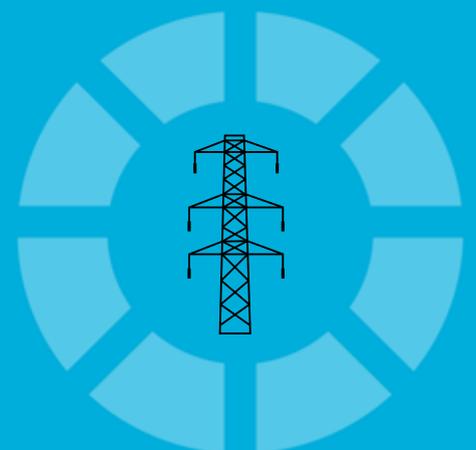
Q3 2015

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IRAN

INFRASTRUCTURE REPORT

INCLUDES 10-YEAR FORECASTS TO 2024



Iran Infrastructure Report Q3 2015

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Part of BMI's Industry Report & Forecasts Series

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BMI Industry View

***BMI View:** The Iranian construction sector stands to benefit from greater international interest, easier access to capital and more demand from the energy sector, should sanctions be lifted. As such, the signing of a framework agreement between Iran and the P5+1 countries on the nuclear issue presents a considerable upside risk to our construction industry forecasts. This framework is seen as the foundation for a final agreement on Iran's nuclear programme, which will see the gradual lifting of international sanctions.*

The Islamic Republic remains a country of pronounced risks, including political instability, economic challenges and social tensions, and we believe the current situation is unsustainable in the long term. US energy sanctions and the EU oil embargo have affected Iranian oil production and consequently the economy at large. With the oil and gas industry accounting for an estimated 70% of the country's total exports, the government has been forced to cut public spending, with a devastating impact on infrastructure development.

Key Trends And Developments

- We forecast 1.4% y-o-y real construction industry growth in Iran in 2015 and an average of 3.1% over the next five years.
- The steep fall in oil prices in the past few months has prompted our Oil & Gas team to revise down their already bearish price forecasts and they now forecast Brent to average USD53.0/bbl in 2015.
- After three years of stagnation and recession Iran's economy will return to growth in 2015 and our Country Risk team forecast 1% real GDP growth for the year.
- In the residential sector, we believe housing prices will remain elevated over the coming quarters, largely a result of a lack of appropriate housing units.
- Apart from Chinese and Russian companies, Arab, French, Turkish and South Korean construction firms have expressed an interest in returning to the Iranian infrastructure market. It has been reported that **GS Engineering & Construction** started surveying the Iranian market, looking for opportunities in gas infrastructure in particular.

SWOT

Infrastructure SWOT

SWOT Analysis

Strengths

- Demand is strong in new housing and transport infrastructure.
- Iran has a wealth of natural resources, which is of particular advantage to the construction sector. This wealth includes 9% of the world's confirmed oil reserves and 16% of its natural gas reserves. It also has plentiful reserves of iron ore, non-metallic minerals (including copper, zinc and bauxite) and decorative stones such as marble and granite.
- The country is investing in its refinery sector in an attempt to become more self-sufficient.

Weaknesses

- Not enough housing capacity is added annually, resulting in a huge backlog.
- The Iranian construction industry has been criticised for having poor building standards. Constructors are unwilling to invest money in modern technologies, building codes are widely disregarded, and municipal governments have failed to enforce them or to run a proper inspection system.
- There are persistent reports of widespread corruption, including the routine payment of bribes to officials by major construction companies.
- Exorbitant land prices account for a disproportionate percentage of construction costs.
- Government deficit impacts public spending on infrastructure projects, and already the authorities are placing greater reliance on private investment - of which there is little - most notably due to the US and EU energy sanctions.

Opportunities

- Conditions for foreign companies and contractors were eased as a result of the introduction of the Law for the Attraction and Protection of Foreign Investment (LAPFI), approved in 2002.

SWOT Analysis - Continued

- The Iranian government is now actively pursuing opportunities in Iraq, one of the major economies in the region and now politically moving closer to Iran.
- Changes to the government's food subsidy programme could release funds for investment in infrastructure.

Threats

- Falling oil prices are further limiting the capacity of the government to invest in infrastructure.
 - Iran is in a high seismic activity zone and earthquakes have cost the country millions of US dollars in reconstruction work. The long-term rebuilding costs for the quake-hit city of Bam are estimated at almost USD1bn.
 - Sanctions designed to halt Iran's nuclear programme have resulted in Western investors pulling out of the country and a US ban on foreign financial institution from transacting with Iran's Central Bank - the main conduit for the country's energy deals.
-

Industry Forecast

Construction And Infrastructure Forecast Scenario

Table: Construction And Infrastructure Industry Data (Iran 2013-2018)

	2013e	2014e	2015f	2016f	2017f	2018f
Construction industry value, IRRbn	414,904.00	516,790.47	643,106.14	776,009.73	909,654.41	1,044,074.07
Construction industry value, USDbn	23.1	20.0	20.7	21.6	23.9	26.1
Construction Industry Value, Real Growth, % y-o-y	-1.66	3.56	1.44	2.67	3.22	2.78
Construction Industry Value, % of GDP	4.6	4.1	5.1	5.0	5.1	5.2
Total capital investment, IRRbn	3,490,657.12	3,005,140.72	3,179,685.81	3,423,904.88	3,679,915.37	3,948,204.98
Total capital investment, USDbn	194.13	116.34	102.57	95.11	96.84	98.71
Total capital investment, % of GDP	38.47	24.07	25.05	22.21	20.70	19.56
Capital investment per capita, USD	2,506.62	1,482.58	1,290.58	1,182.06	1,189.35	1,198.46
Real capital investment growth, % y-o-y	-11.33	3.00	1.00	3.00	3.00	3.00
Construction sector employment, '000	2,736.3	2,806.5	2,835.9	2,891.2	2,959.7	3,020.7
Construction industry employment, % y-o-y	-1.20	2.56	1.05	1.95	2.37	2.06
Active population, total, '000	54,902.91	55,445.30	55,945.92	56,408.19	56,844.14	57,271.78
Construction industry employees as % of total labour force	4.98	5.06	5.07	5.13	5.21	5.27
Cement production (including imported clinker), tonnes	75,723,871	66,233,423	66,165,602	65,979,317	65,795,113	65,605,538
Cement production (including imported clinker), tonnes, % y-o-y	7.0	-12.5	-0.1	-0.3	-0.3	-0.3
Cement consumption, tonnes	76,425,971	66,918,015	66,849,309	66,673,758	66,508,318	66,338,137
Cement consumption, tonnes, % y-o-y	6.8	-12.4	-0.1	-0.3	-0.2	-0.3
Cement net exports, tonnes	-702,100	-684,592	-683,707	-694,441	-713,205	-732,598

Construction And Infrastructure Industry Data (Iran 2013-2018) - Continued

	2013e	2014e	2015f	2016f	2017f	2018f
Cement net exports, tonnes, % y-o-y	-9.7	-2.5	-0.1	1.6	2.7	2.7

e/f = BMI estimate/forecast. Source: National sources, BMI

Table: Construction And Infrastructure Industry Data (Iran 2019-2024)

	2019f	2020f	2021f	2022f	2023f	2024f
Construction industry value, IRRbn	1,198,917.91	1,327,723.05	1,498,592.96	1,693,305.01	1,847,631.59	2,092,108.50
Construction industry value, USDbn	28.5	30.2	32.6	36.0	38.1	41.8
Construction Industry Value, Real Growth, % y-o-y	2.83	3.74	2.87	2.99	3.11	3.23
Construction Industry Value, % of GDP	5.3	5.2	5.4	5.6	5.6	5.8
Total capital investment, IRRbn	4,229,280.05	4,611,504.41	5,021,378.00	5,460,710.20	5,931,422.17	6,435,553.56
Total capital investment, USDbn	100.70	104.81	109.16	116.19	122.30	128.71
Total capital investment, % of GDP	18.54	18.21	18.00	18.05	18.03	17.99
Capital investment per capita, USD	1,209.30	1,245.50	1,284.31	1,354.02	1,412.41	1,473.69
Real capital investment growth, % y-o-y	3.00	5.00	5.00	5.00	5.00	5.00
Construction sector employment, '000	3,084.6	3,171.4	3,240.5	3,314.6	3,394.1	3,479.1
Construction industry employment, % y-o-y	2.11	2.82	2.18	2.29	2.40	2.50
Active population, total, '000	57,713.18	58,184.09	58,690.55	59,228.83	59,791.86	60,367.69
Construction industry employees as % of total labour force	5.34	5.45	5.52	5.60	5.68	5.76
Cement production (including imported clinker), tonnes	65,410,437	65,064,176	64,700,428	64,313,599	63,907,146	63,480,080
Cement production (including imported clinker), tonnes, % y-o-y	-0.3	-0.5	-0.6	-0.6	-0.6	-0.7
Cement consumption, tonnes	66,163,085	65,837,554	65,495,244	65,125,801	64,737,165	64,328,359

Construction And Infrastructure Industry Data (Iran 2019-2024) - Continued						
	2019f	2020f	2021f	2022f	2023f	2024f
Cement consumption, tonnes, % y-o-y	-0.3	-0.5	-0.5	-0.6	-0.6	-0.6
Cement net exports, tonnes	-752,647	-773,377	-794,816	-812,202	-830,018	-848,279
Cement net exports, tonnes, % y-o-y	2.7	2.8	2.8	2.2	2.2	2.2

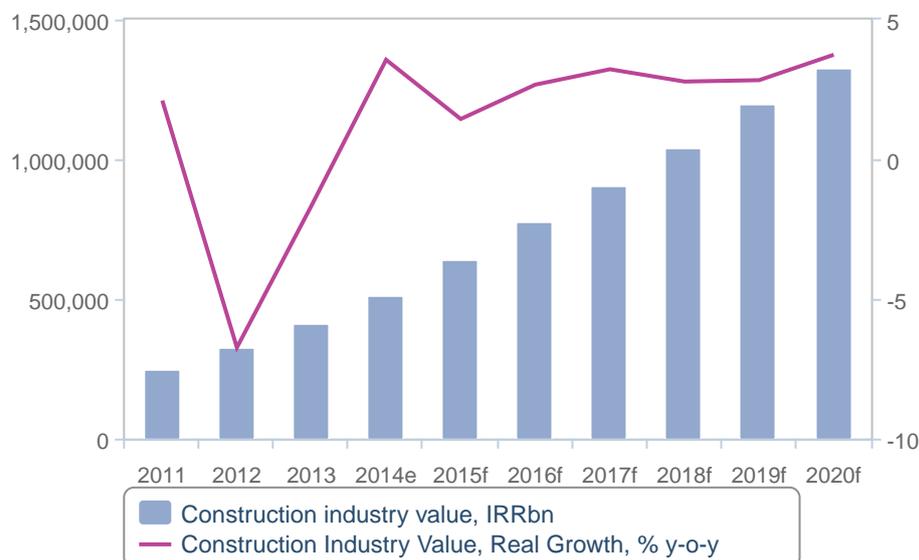
f = BMI forecast. Source: National sources, BMI

BMI View: *The Iranian construction sector stands to benefit from greater international interest, easier access to capital and more demand from the energy sector, should sanctions be lifted. As such, signing of a framework agreement between Iran and the P5+1 countries on the nuclear issue presents a considerable upside risk to our construction industry forecasts for Iran. This framework is seen as the foundation for a final agreement on Iran's nuclear programme, which will see the gradual lifting of international sanctions.*

Negotiations between Iran and the P5+1 countries (US, China, France, Russia, the UK, and Germany) over Iran's nuclear programme have made significant progress over the past few weeks. Iran and the P5+1 countries reached a framework agreement, which we believe lays the foundation for a final accord to be reached at the end of June 2015. The potential normalisation of relations with Iran presents a considerable upside risk to our construction industry forecasts from 2016 onwards as we expect considerable investment to be channelled into Iran's outdated infrastructure. We forecast 2.7% construction industry real growth for 2016 and an average of 3.1% over the next five years.

Increasing Upside Risk To Forecasts

Iran Construction Industry Forecasts



e/f = BMI estimate/forecast. Source: UN, BMI

Shipping And Banking First, Oil To Follow

It is **BMI's** Country Risk team's view that shipping and financial sanctions will be gradually relaxed first, with restrictions on the oil sector suspended towards end-2015. The lifting of shipping sanctions will be instrumental in attracting the much-needed investment in Iran's ports sector; Iran has seen the quality of its ports deteriorate severely over the past decade. According to the Global Competitive Report of the World Economic Forum 2014-2015, Iran ranks 80 out of 144 countries for the quality of port infrastructure.

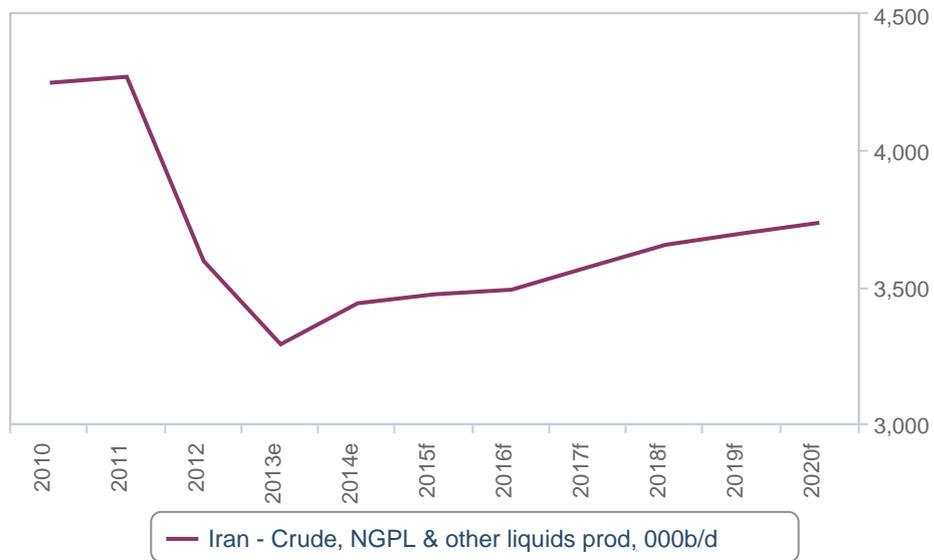
In turn, the easing of financial sanctions will facilitate project finance and attract foreign investment into the infrastructure sector. International sanctions have severely restricted access to funding for projects, reflected in Iran's average construction industry growth of only -0.1% over the past six years. In fact, in the Financing Risk pillar of our Project Risk Index (PRI), Iran scores only 18.8 out of 100, with a particularly weak score of only 5 out of 100 in the Cost of Financing subcomponent. Iran ranks 79 out of 82 countries globally in our PRI.

With regards to sanctions on the oil sector, our Oil & Gas team expects them to be suspended towards the end of 2015 - should an agreement be finalised in June 2015 - opening up numerous opportunities for investment in much-needed energy infrastructure. An easing of oil sanctions would allow Iran to increase production, however a significant ramp-up from current estimated levels of about 2.8mn b/d to pre-sanction levels of about 4mn b/d would take three-to-four years from when sanctions are lifted. Years of underinvestment in infrastructure, maturing oil fields and a lack of maintenance has damaged fields, destroying some of the country's production capacity.

The development of new fields will open opportunities for companies in the energy infrastructure sector and they will be instrumental for Iran to boost its crude oil production capacity, with substantial investments and modern technology, particularly in offshore fields.

Slow Growth As Sector Recovers

Iran - Oil Production



e/f = BMI estimate/forecast. Source: BMI, EIA

Robust Foreign Interest

Russian and Chinese companies have built a strong presence in Iran, particularly as a result of Western sanctions. However, we are starting to see growing interest from other international players in Iran,

including South Korean companies such as **GS Engineering & Construction** which has started surveying the Iranian market, looking for opportunities in gas infrastructure in particular. In addition, **Hyundai E&C** and **Daelim** have operating offices in Tehran. Furthermore, Arab, French, and Turkish companies are showing greater interest in returning to the Iranian construction market, with the awarding of the construction of the USD1.8bn Tabriz-Bazargan Highway to Turkish Bergiz Insaat in January 2015.

With regards to regional players, we anticipate Omani and Qatari companies will show an interest in Iran, as well as Dubai-based **Arabtec**. Should a long-term agreement over Iran's nuclear programme be reached, we will see the opening up of one of the biggest markets in the Middle East, presenting numerous opportunities for investors in the infrastructure sector.

In turn, the potential normalisation of relations with Iran will be beneficial for Iranian construction companies who will have easier access to project opportunities in neighbouring countries such as Oman and Iraq. We anticipate the opening up of the Iranian infrastructure market to have a positive effect for the wider region, incentivising investment flows as well as potentially developing cross-country projects such as railways and pipelines.

Positive, But Realistic Outlook

Although we expect an agreement on Iran's nuclear issue to be finally reached in June 2015, followed by the gradual lifting of sanctions, we recognise that there are some downside risks to this outlook. Political pressure from those who oppose an agreement in the US and Iran could derail the negotiations. In addition, even if an agreement is reached, it will take years for Iran to rebuild investor confidence. The country will need to address the structural weaknesses of its economy - particularly in a low oil price environment. In addition, corruption and lack of transparency will need to be tackled in order to provide an adequate framework for investors. In the infrastructure sector, a solid PPP framework will need to be developed and implemented to attract private investment.

Falling Oil Prices Reduce Investment In Energy Infrastructure

The outlook for the oil sector has been challenging, with an industry contraction in 2012 and 2013 followed by slow growth 2014. A combination of constrained public spending, a prohibitive business environment and a complex macroeconomic picture have all dragged on growth. Iran has amassed a hefty USD40bn backlog of incomplete projects as incentives to invest in new infrastructure to support Iran's oil industry have waned, with the number of markets prepared to accommodate Iranian output having dwindled (several

key customers have cut Iranian crude imports). This outlook has only worsened with the slump in oil prices from Q414.

Consequently, although Iran possesses 9% of the world's proven oil reserves, a lack of new developments and foreign expertise has left the country heavily reliant on existing and ageing infrastructure, with few opportunities for any international construction players to invest in necessary upgrades. Oil revenues account for a significant proportion of government income, estimated at 46% of total revenues in FY2013/2014. This percentage has fallen from 53% in FY2010/2011 as a result of international sanctions, having an adverse impact on public spending on infrastructure.

A Word Of Caution

We must, however, reiterate that estimated growth is based on our aforementioned core scenario, and we highlight that official data is not always timely and transparent. In addition, the volatile political landscape means a slight change to any variable could have far-reaching implications for our outlook for the country and its construction sector.

A breakdown over the nuclear talks could weigh heavily to the downside on our forecasts. Further hardship and isolation due to continued sanctions could eventually result in further depletion of foreign reserves, the effect of which would be an economic nosedive leading to the rationing of goods, and the country's construction sector grinding to a virtual halt.

Considerable upside potential comes in the form of political change. With Hassan Rouhani as the new leader, we expect macroeconomic management to continue improving under his presidency. Rouhani's more conciliatory approach has led to more open and constructive negotiations over the nuclear programme.

Transport Infrastructure – Outlook And Overview

Iran's transport sector is catering to the needs of a population of approximately 78mn and the business needs of an economy potentially worth USD477bn. We believe there are upside predictions for both of these numbers and this will place a strain on the country's transport infrastructure if it does not continue, or rather start, to expand and modernise. Despite government ambitions to attract investment in road, rail and air links to meet the needs of a rising population, there has been little activity in the past five years. The ambition has naturally been severely dampened by US and EU sanctions as a result of Iran's debated nuclear programme.

That said, a USD10bn investment plan in public transport for the next five years was announced by the municipality of Tehran in May 2014. According to Hojat Behrooz, Assistant to the Deputy Mayor for Transportation, more than 70% of the investment will be allocated to Tehran's existing metro to double its network coverage to 300km.

Flying In

Iran has a total of 319 airports, of which 140 have paved runways. The country has yet to develop a significant tourist sector, with airports mainly used by business travellers. With Iran being the second-largest OPEC oil producer and sitting on the world's second largest gas reserves, its airports cater to the needs of business associated within these two areas. Airports also serve the country's freight sector, although air transport makes only a small portion of total freight transported.

There are plans to expand Iran's main airports, with **Iranian Airports Holding Company** looking to attract in excess of USD1bn in investment into the aviation sector. A significant expansion project is the Imam Khomeini airport in Tehran, which is to be tripled in capacity to 20mn passengers a year, before hitting its peak capacity of 90mn passengers a year - a long-term target that appears highly ambitious in the current climate. Tehran has yet to secure financing commitments for its planned expansion of Qeshm International Airport. Funding problems will pose the biggest challenges to Iran's proposed air expansion strategy and transport infrastructure more widely.

Driving Up

BMI forecasts the number of cars on Iranian roads is set to grow in the long term, although gasoline rationing measures may place a downside risk on this forecast as it becomes more difficult for citizens to buy fuel. Rapidly increasing car sales are placing a strain on the country's road infrastructure and the roads

will need to be repaired more often, as they deal with greater loads and traffic. The country's roads must take the brunt of most of the freight transported within its borders. Roads made up 70% of freight transported in 2014 and this is set to grow to 74% in 2018.

Car Ownership Continues To Increase

Iran Vehicle Sales Units And % Growth y-o-y



e/f = BMI estimate/forecast. Source: Renault, BMI

Iran has a total of 198,866km of roads, of which 160,366km are paved, and the country boasts 1,948km of expressways. The country's road network links it with its neighbours: the 2,500km A1 highway runs from Bargazan on the Turkish border, across Iran, to the Afghan border in the east. The A2 links the Iraqi border in the west to Mirjaveh on the Pakistani frontier.

The construction of the Tabriz-Bazargan Highway was awarded to Turkish Bergiz Insaat in January 2015. The first phase of this USD1.8bn contract involves a subway connecting Tabriz Airport to the Southern Ring Road and it is worth USD850mn. The second phase includes the construction of a 255km highway between Tabriz and Bazargan, estimated to cost USD1bn.

Construction of the Shrine to Shrine Highway officially began in mid-October 2010 and was started by President Ahmadinejad. It is designed to connect the cities of Qom and Mashhad. The 1,100km highway,

which is to pass through the cities of Garmsar, Semnan and Sabzevar, will include an electric railway. The project is expected to cost around USD4bn but this number could increase as a result of severe delays.

US-imposed gasoline import sanctions inflict an additional financial burden on the Iranian government, damaging further its ambitious energy expansion plans and also handicapping areas such as freight transport. Despite holding the world's third-largest oil reserves, Iran has struggled to meet growing domestic fuel demand owing to the burden of subsidies and inadequate refining capacity.

Rolling In

Unlike a number of other Middle Eastern nations, Iran has already developed a railway system. The network carries not only passengers but also freight - although this is limited. Iran's railway network services approximately 25% of the total freight transported in the country. There is a total of 8,442km of railway track, of which the majority is standard gauge, but the country also has a broad-gauge system. Only 148km of the track is electrified. The network is based on lines centred in Tehran. Three run southwards: to Bandar Imam Khomeini on the Gulf (with a spur to Khorramshahr); to the Gulf port of Bandar Abbas near Qeshm; and, to Kerman (with a spur running to Isfahan and Shiraz).

For some time now, we have seen strong Chinese interest in investing in Iran's railway sector. In October 2011, the Chinese government made an offer to build a freight rail line, aimed at allowing continuous rail transport of goods from China, through the Middle East to Europe. The line is expected to cost USD2bn, starting in Tehran and running to Khosravi on the Iraqi border and will also offer a passenger service.

In line with this trend, **China Railway Engineering Corporation (CREC)**, in collaboration with Iran-based **Khatam-al Anbiya Construction**, started work on its EUR2.4bn (USD2.73bn) high-speed railway network in February 2015. The railway network will run around 400km from the capital Tehran to Isfahan and it is expected to be completed over the next four years.

Also, a new subway linking the capital Tehran with Imam Khomeini Airport will be financed with Chinese funds as announced in October 2013. As explained by the country's Roads and Urban Development Minister, Abbas Akhoundi, frozen oil revenues from Iran in China will be used to fund the 52km subway. The project also includes free trade zones at the airport which is expected to be completed in 2015.

In addition, a consortium comprising **Mapna, Mapna Rail Construction and Development, Mapna International, CMC** and **SuPower** secured financial approval for the 900km Tehran-Mashhad railway project in July 2014. Work under the engineering, procurement and construction (EPC) contract includes

the renovation of the existing structure as well as the construction of an electrified railway network for trains with speeds exceeding 250km per hour. As part of the financial agreement, the two Chinese companies - CMC and SuPower - will invest USD2bn in the project.

Chinese investment in transport infrastructure is welcomed by the country as the sector has not seen sustained investment in recent years. In terms of transport infrastructure, Iran ranks 81st out of 144 countries in the World Economic Forum Global Competitiveness Index 2014 - 2015 (previously 76th). Lack of investment in infrastructure is linked to a decline in gross fixed capital formation (GFCF), which is a good proxy for infrastructure.

In addition to Chinese investment, talks between New Delhi and Teheran were reported in June 2014 regarding a USD5bn investment from India into Iran's railway sector. Projects are intended to connect Iran's manufacturing and mining centres to the main ports in order to increase exports competitiveness by extending the railway network by 500km to 1,000km every year. This investment will allow the network to grow from 13,000km to 25,000km in 2025 and it involves building signalling systems, supplying and laying tracks, upgrading existing rail operations and performing electrical work. In order to finance this project, it has been reported that the Iranian government agreed to seek a line of credit from the Export-Import Bank of India.

Regional Integration

A number of railway infrastructure projects have been announced that will connect Iran to other countries, thus offering increased access for rail freight. Work is under way on a railway to connect Iran with Iraq (rail tracks have been laid on the Iran's side), and the country is developing its freight transport relations with the landlocked states of central Asia, with plans to launch a container train route between Almaty in Kazakhstan, Tashkent in Uzbekistan and Istanbul in Turkey.

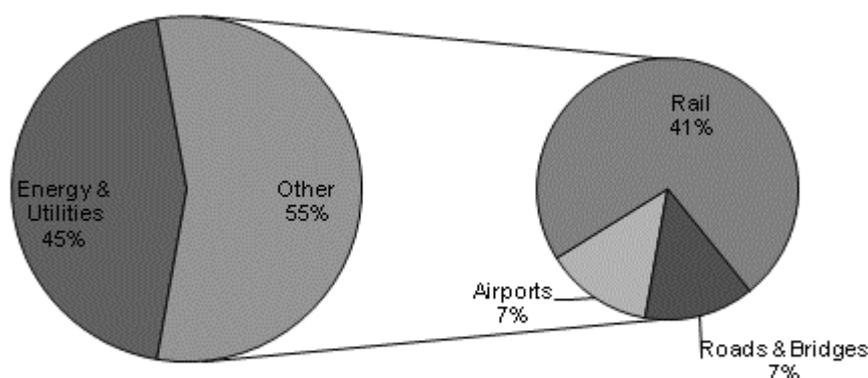
Some tangible progress was reported in June 2013 with the inauguration of a new railway line between Gorgan and Incheh Borun. The 80km line is part of the Kazakhstan-Turkmenistan-Iran transit corridor, which is currently being developed by the three countries. The section linking Turkmenistan and Iran is under construction.

Likewise, the North-South Rail Corridor, an ambitious project to create a freight-rail link from Europe, via Russia and Azerbaijan, through Iran and eventually linking to India and South East Asia, has also reported some progress. It is hoped the rail line will carry about 20mn tonnes of cargo a year and improve transport links across Eurasia. In September 2014, Iran's Minister of Roads and Urban Development, Abbas

Akhoundi, revealed the government is ready to make a trilateral investment with Azerbaijan and Russia to complete the Qazvin-Rasht-Anzali-Astara railway project. The Qazvin-Rasht-Astara railway is part of the North-South Transport Corridor. Also, in May 2014, the Russian government agreed to build the 167km long Rasht-Astara railway line in Iran's north-western region. The line forms part of the proposed Qazvin-Rasht-Astara railway which is expected to carry 5-7mn tonnes of cargo and 1.4mn passengers per year.

Rail Leads Transport Investment

Iran Key Infrastructure Projects By Subsector (USDbn)



Source: BMI Infrastructure Key Project Database

Sailing Through

Since the war with Iraq, Bandar Abbas has overtaken Khorramshahr as the country's major port, handling three quarters of the 20mn tonnes of cargo that pass through Iran's Gulf ports each year. Smaller ports at Bushehr, Bandar Lengeh and Chah Bahar have also assumed greater importance. In addition, the Caspian ports have benefited from Iran's attempts to develop its relations with the central Asian republics, while modernisation programmes have been implemented at Bandar-e Anzali and Chah Bahar. Iran has also developed a transport network on its waterways. The major system is 850km long and is based on the Karun River and Lake Urmia.

In terms of the Caspian ports, the Iranian Sea ports of Anzali and Amirabad, located in the north of the country, are to undergo major capacity upgrades to double their loading and unloading capabilities, according to the Head of the Iranian Ports and Maritime Organization (PMO), Ata'ollah Sadr. The port of Anzali will increase its cargo-handling capacity from 8mn tonnes per year to 16mn tonnes. Amirabad, which is already Iran's largest Caspian Sea port, will go from a 5mn tonnes capacity to 10mn. The expansion projects have been split into two phases. The first of these is under way and has seen investment of USD52.3mn, while the second and larger phase, will need USD130mn of investment. The PMO has approved finance worth USD110mn for construction of four berths as well as a dredging operation across the Amirabad port's basin.

Despite the various obstacles facing the Iranian construction sector, we do see scope for these projects to be realised. The Caspian Sea port upgrades come off the back of increased demand for imported grain, namely from Kazakhstan and Russia who have reported particularly strong harvests lately. Where other ports, in particular on Iran's Gulf Coast, will suffer from the drop in demand for consumer goods, food is not affected by the international sanctions leveraged on Iran. A major part of the expansion in capacity is focussed towards the import of grains, with the port's third silo set to have a total capacity of 54,000 tonnes. With the increase of the number of silos in Amirabad, it will turn into the grain hub of the northern Iran for the transit of the commodity from north to south. Iran, once a wheat exporter, has been importing vast amounts of the grain over recent months.

The country's ports are still limited in their capacity, as the majority is only able to service 100,000 tonne vessels. This has forced Tehran to ask ships to dock at the main UAE ports, such as Dubai's Jebel Ali, so that goods can be loaded onto smaller ships and then sent to Iran. In addition, the ongoing diplomatic struggle concerning the country's nuclear energy sector is likewise having an effect on the country's port infrastructure. Port operator Tidewater Middle East Co (Tidewater) was added to a US Treasury Department blacklist for sanctions in July 2011. The firm is the largest handler of container shipping at Iranian ports and is estimated to be responsible for more than 90% of the container operations in Iran.

Major Projects Table - Transport

Table: Major Projects Table - Transport						
Project Name	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Imam Khomeini International Airport Expansion Project Phase 2	2800	26.5	mn passengers/yr	Bonyad Taavon (Sponsor), Government of Iran (Sponsor)	-	At planning stage
Said Rajee Port Renovation Project	-	7600000	TEU	-	2014	Completed
Chabahar Port Development Project	-	10000	'000 tonnes	Government of Iran (Sponsor), Khatam al-Anbiya (KAA)	2015	Under construction
Imam Khomeini Airport - Parand City subway	--	52	km	Tehran Urban & Suburban Railway Operation Company (Construction)	-	At planning stage
Chabahar-Zahedan-Mashhad Railway	3400	1330	km	Iran Roads and Transportation Ministry (Operator)	2015	Under construction
North South Rail Corridor (Qazvin-Rasht-Astara)	-	-	-	Government of Azerbaijan (Sponsor), Government of Iran (Sponsor), Russian Railways (Construction)	2015	Under construction
North-South Transnational Corridor (Iran and the Persian Gulf)	-	70	km	Asian Development Bank (ADB) (Financier)	-	Under construction
Uzen, Kazakhstan to Gorgan, Iran railroad	404.9	700	km	-	-	Under construction
Silk Road Economic Belt Railway	-	-	-	-	2030	At planning stage
Tabriz Tramline Project, Tabriz	-	-	-	-	-	At planning stage
Tabriz-Bazargan Highway, Phase - I (Tabriz Airport - The Southern Ring Road Subway)	850	-	-	-	2017	Contract Awarded
Iran-Iraq Rail Line	-	-	-	Islamic Republic of Iran Railways (RAI) (Operator)	-	Under construction
Monorail System, Qom, Stage 1	120	6.2	km	Kayson Company (Construction), Mapna (Construction)	2015	Under construction
Chabahar-Sarakhs railway	2500	-	-	Khatam al-Anbiya (KAA)	-	Contract Awarded
Iran, Russia and Azerbaijan railway	-	-	-	-	-	At planning stage
Chabahar Port - Fahraj Railway	-	600	km	Indian Railways	-	Completed
Iran-Armenia Railway Link Project	-	165	km	Government of Iran (Sponsor), Government	2022	At planning stage

Major Projects Table - Transport - Continued

Project Name	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
				of Armenia (Sponsor), China Communications Construction Company (CCCC) (Construction), Rasia FZE (Consultant/ Project Management)		
Isfahan Underground line 1	-	12.5	km	Namad Mobtaker Company (Construction), Mapna (Construction)	2013	Completed
Tehran-Khosravi rail line	2000	570	km	-	-	Contract Awarded
Tehran-Mashhad Rail Line Electrification Project	2000	900	km	-	-	Under construction
Trans Asian (Kyrgyzstan- China-Uzbekistan) Rail Network	2000	270	km	Metra (Feasibility)	-	At planning stage
Inceburun-Gorgan railway	98	4	mn passengers/ yr	-	2013	Completed
Mehran four-lane highway to Iraq	-	-	-	-	2015	At planning stage
Tabriz-Bazargan Highway Project	1800	255	km	Bergiz Construction (Construction)	2017	Contract Awarded
Tabriz-Bazargan Highway, Phase - II	1000	255	km	-	2017	Contract Awarded
Tehran-Shomal Freeway (Phase 1)	-	32	km	Khatam al-Anbia (Construction)	-	Under construction
Persian Gulf bridge project	-	2.2	km	-	2012	Completed

*Where blank = not available. Source: BMI Key Projects Database

Energy And Utilities Infrastructure – Outlook And Overview

Data for Iran's electricity generation and consumption show a country capable of meeting its own power demands, but is distant from achieving its energy export ambitions. Our Power sector analysts estimate electricity generation in 2015 to be 231TWh, just exceeding the country's power consumption of 193TWh for the year. This looks set to continue over the medium-term, with consumption forecast to climb to 254TWh in 2024. This will then be met by supply, which is expected to increase to reach 295TWh.

Strong Russian Cooperation For Energy Infrastructure Development

To realise this expansion in generation capacity, Iran and Russia have signed several agreement on energy cooperation and are constructing shared power grids. In fact, Russia announced in April 2014 it will invest USD10bn in Iran's power sector, including hydropower and thermal power plants, as well as transmission and distribution (T&D) infrastructure.

Furthermore, Iran and Russia signed a cooperation agreement for the construction of thermal power plants in September 2014. 'The grounds for cooperation between Iran and Russia for constructing thermal power plants worth over USD10bn are provided and we have planned for partnership in building eight thermal power plants with capacity of 2,800MW,' according to Hamid Chitchian, Iran's Minister of Energy. The minister revealed that four units of the power plants will be built in the southern port city of Bandar Abbas, two units in the Sahand city, north-west Iran and two units in the Tabas city in the east. The minister also disclosed that environmental studies are still being carried out for the construction of two power plants in Tabriz city. Under the contract, the Russians will also renovate four more plants in Iran.

Filling Up On Gas

Although Iran has the installed capacity to meet demand, the country's undiversified power sector is susceptible to blackouts. Iran has the world's second-largest gas reserves and has built a power sector that is overwhelmingly reliant on this indigenous fuel. Gas is expected to account for over 70% of the country's total power generation by 2018, increasing to more than 74% by the end of our forecast period in 2024. Gas-fired projects include two 1.04GW combined cycle plants in the south of the country, a 1.3GW combined cycle plant at Arak, a 1GW facility in Bandar Abbas, and a 1GW combined-cycle plant being built by the **Tehran Regional Electricity Company** in Qom.

The USD7bn gas pipeline connecting Iran and Pakistan has experienced severe delays. The project, dubbed the peace pipeline, was slated to connect Iran's giant South Pars gas field to India through Pakistan (IPI

Pipeline). However, chances of any quick gas deliveries from Iran are slim. Pakistan will face difficulty financing its half of the pipeline so long as western sanctions on Iran block foreign funds from the project. Furthermore, Iran's ability to meet export obligations is also in doubt given its own domestic gas shortfalls. In addition, the US has been opposing the involvement of India and Pakistan, claiming that the project could violate sanctions imposed on Iran for carrying out nuclear activities to develop a weapons capability. For now, the project has been forfeited by India, citing costs and security issues, following a nuclear deal with the US.

We are also seeing tangible progress on the USD450mn Iran to Iraq gas transmission pipeline which is 95% complete (as the latest reports by the Iraqi government indicate). Although the pipeline was expected to be completed already, the section in Iraq was delayed as a result of unstable security and land ownership issues. Despite political pressure from the US and the current sanctions imposed on Iran, the project is expected to start operating in H115.

There are also plans to build a USD1bn natural gas pipeline between Oman and Iran, as announced in April 2014. However, we believe this announcement is politically motivated as Iran attempts to form alliances in the region and we do not expect this project to be realised in the near future. Furthermore, we question Iran's capacity to export gas as part of the agreement, given its internal supply shortages and a previous commitment to export gas to Iraq. The natural gas pipeline was one of many deals signed by Iran's President Hassan Rouhani in his visit to Oman in March 2014, his first official trip to an Arab state.

Last but not least, South Korean **GS Engineering & Construction** has started surveying the Iranian market, looking for opportunities in gas infrastructure in particular. This does not come as a surprise since Iran has an estimated 18% of total global natural gas reserves. In addition, Iran was the fifth largest market for South Korean companies before the sanctions, according to South Korean local newspapers.

Developing Nuclear No Matter What

The country is in the process of developing a highly controversial nuclear power sector. Russia has helped Iran to complete the construction of the Bushehr nuclear power station and has started delivering fuel to the facility. The programme is viewed with suspicion by members of the international community, who fear that Iran may go on to develop a nuclear bomb. **BMI** believes that the nuclear facility could contribute 2.4% of Iran's energy in 2015. In September 2013, the Russian government handed over operational control of the first unit of Bushehr to the Iranians according to head of Iran's Atomic Energy Organization, Ali Akbar Salehi. Russian experts would be responsible for looking after the facility throughout the two-year warranty period. Additionally, Russia would supply fuel to the facility for 10 years. Meanwhile, the two governments are

discussing the construction of new nuclear power plants and the second unit at Bushehr is already under consideration with the engagement of Rosatom.

In fact, Iran and Russia entered into a preliminary agreement to build at least two new nuclear power plants in March 2014, according to Iranian Atomic Energy Organisation spokesperson, Behrouz Kamalvandi (IRNA). The two new 1,000MW stations will be built alongside the existing 1,000MW power plant in Bushehr. Further discussions on the technical and financial aspects of the project are scheduled to take place, but a final agreement is expected to be signed soon. Iran is likely to finance the new Bushehr project on a barter basis. Construction is scheduled to start in 2015 in order to reach completion in five to seven years.

Iran's nuclear programme is of primary concern to the West. However, moderate cleric Hassan Rouhani - the President of Iran elected in June 2013 - has shown signs of a more conciliatory approach towards the nuclear talks and the latest developments point to a notable improvement in relations between Iran and the West. While there are significant obstacles to a major improvement in Washington-Tehran relations, US President Barack Obama is seeking to take advantage of Rouhani's more cooperative approach to pursue a strategy of rapprochement with the Islamic Republic, which can be a valuable legacy for its second term in office. As such, we are optimistic an agreement will be reached in the negotiation round scheduled for June 2015.

Uncontroversial Power

In moves, which are unlikely to rouse similar levels of protest, the governments of Iran and Turkey are planning to build several power plants, said Iranian deputy energy minister Mohammad Behzad, following a visit by an Iranian delegation headed by Energy Minister Majid Namjou to Turkey. He added the two countries discussed plans for constructing thermal and renewable power plants with generation capacities of 6-10GW, as well as hydropower plants with capacities of 10GW.

Electricity cooperation with other countries is increasingly a focus of the government, with news that Iran's Energy Minister has been quoted by the state's news agency saying that the construction of a third electricity transmission line from Iran to Armenia, with capacity of 800-900MW, was due to begin in June 2011. However, construction has not started yet due to multiple obstacles. The minister said the project is expected to cost up to USD110mn and is to be followed by a further joint Iranian-Armenian project, a hydroelectric power plant based on the Aras River, subject to negotiation.

Iran is also exploring renewable energy sources and has launched commercial operations at its biggest solar power plant in Mashhad. The plant, likely to generate 72,000kWh of electricity annually, will produce enough power to meet the requirements of Razavi Khorasan province, according to the plant's CEO, Gholam Reza Karamian. The plant, which has 216 solar panels, has been designed and constructed by native experts. Moreover, the plant has been fitted with solar trackers to improve efficiency.

Also, the first 20MW phase of a 100MW wind park in the province of Qazvin officially started operating in August 2014. The plant includes eight 2.5MW turbines and **Iran Power Plant Projects Management Company** is responsible for the construction activities. The first phase of the project reportedly involved an investment of EUR30mn (USD40.13mn). The entire 40-turbine wind park in Kahak village is scheduled to be completed in two years and is estimated to cost about EUR150mn (USD200.64mn).

Progress On The Waterfont

In March 2015, the government of Iran opened the fifth and sixth units of a wastewater treatment plant in southern Tehran. The plant will cover more than 1mn people and produce 16,000MW of electricity annually. The project is part of a wider project, Tehran Sewerage Project, covering more than 11mn people in Tehran. The government has also allocated IRR20trn (USD713.6mn) to implement six other sewage treatment projects across Tehran, according to President Hassan Rouhani.

Iran's challenging environment for investment has increased the country's dependency on multilateral agencies funding for infrastructure projects. In fact, the Islamic Development Bank (IDB) approved a EUR144mn (USD197.61mn) loan for the development of water and wastewater projects in the Iranian province of Fars in February 2014. The fund will be utilised by Iran's **Water & Wastewater Company** to construct wastewater facilities in Abadeh, Fasa, Darab, Sepidan, Neiriz and Firouzabad, according to Water & Wastewater Company's MD, Hamid Reza Janbaz. In addition, the IDB also earmarked EUR200mn (USD250.17mn) for building rural wastewater networks in Iran in November 2014.

Furthermore, the Iranian Ministry of Energy signed an agreement in September 2014 with local water and sewage utility company **ABFA** to develop seven water and wastewater management projects in the country. About IRR9.5trn (USD310mn) will be invested in the projects, including a project to facilitate water supply in Khash and building desalination plants in Bandar Torkman, Gomishan and Kerman. Under the agreement, the company will also upgrade wastewater treatment plants in Zavareh and Tehran. In the topic of desalination plants, the government started pilot testing of a solar-powered desalination facility in Hormozgan Province and the test results will be used to commercialise the project.

In April 2013, the Iranian government announced that it will invest IRR52trn (USD4.1bn) in the development of 20 water supply projects across the country. The projects are intended to ameliorate a water shortage within the Islamic republic. One of the projects is the construction of a 762km water pipeline that will provide drinking water to more than 1.5mn people. The pipeline, which will be the longest water supply pipeline in Iran, is aimed at serving the potable water demands of five large cities and eleven small cities along the Persian Gulf coasts. The Iranian government has invested IRR1.8trn (about USD146mn) so far in the project, which is estimated to entail a total investment of IRR3trn (USD\$243.3mn).

Major Projects Table - Energy & Utilities

Table: Major Projects - Energy And Utilities

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Anbar-Akkas Gas Pipeline Project	Oil & Gas Pipelines	449	550	km	Iraqi Ministry of Oil (Sponsor), STX Group (Construction), Korea Gas (Kogas) (Operator)	2017	Contract Awarded
Iran-Iraq-Syria Natural Gas Pipeline (Friendship Pipeline)	Oil & Gas Pipelines	-	225	km	Iranian Gas Engineering Development Company (Operator)	2015	Under construction
Iran-Pakistan-India Pipeline (Peace Pipeline) Project	Oil & Gas Pipelines	3200	-	-	Pakistan Interstate Gas Company (ISGC) (Construction), Tadbir Energy (Construction), GAIL India (Consultant/ Project Management), ILF Consulting Engineers Polska (Feasibility), Government of Iran (Sponsor), Government of China (Sponsor)	-	At planning stage
Kuwait-Iran Pipeline	Oil & Gas Pipelines	-	590	km	Kuwait Petroleum Corporation (Sponsor), National Iranian Gas Exports Company (NIGEC) (Sponsor)	2014	At planning stage
Karachilare Hydropower Plant, Aras River	Power Plants & transmission grids	400	130	MW	European Bank for Reconstruction and Development (EBRD) (Financier), Farab Company Iran (Construction)	2016	Under construction
Aras River hydropower plant (Meghri Plant and Gharachilar/ Karachinar plant)	Power Plants & transmission grids	-	260	MW		2016	Under construction
Kish Island Gas Electric Power Plant	Power Plants & transmission grids	-	-		Kish Free Zone Organization (Operator)	2014	Completed

Major Projects - Energy And Utilities - Continued

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Simareh Dam project, Ilam	Power Plants & transmission grids	-	850	MW	-	-	At planning stage
Second power station on Kish Island	Power Plants & transmission grids	58	20234.3	square metres	-	-	Under construction
Qazvin wind park, Kahak village	Power Plants & transmission grids	200.64	100	MW	Iran Power Plant Investment Company (Construction)	2016	Under construction
Two New Nuclear Power Plants, Bushehr	Power Plants & transmission grids	-	1000	MW	Atomic Energy Organisation of Iran (Sponsor)	2022	At planning stage
Manjil wind farm Expansion, Gilan	Power Plants & transmission grids	-	100	MW	Renewable Energy Organisation of Iran (Sponsor)	2014	Under construction
Tabas Coal Fired Power station, Khorasan	Power Plants & transmission grids	-	650	MW	Tavanir (Sponsor), Iran Power Plant Investment Company (Operator), Mapna (Equipment)	-	Under construction
Gas-fired power plant	Power Plants & transmission grids	10000	6000	MW	Power Grid Corporation of India Ltd (PGCIL), National Thermal Power Corporation (NTPC)	-	At planning stage
Bakhtiari Hydropower Plant CDM Project, Zagros Mountains, Lorestan Province	Power Plants & transmission grids	1500	1500	MW	Iran Water & Power Resources Development Co (Operator), Rahbord Energy Design & Development Eng. Co. (REDECo) (Consultant/Project Management), Khatam al-Anbiya (KAA)	-	Under construction
Third Iran-Armenia electric power line	Power Plants & transmission grids	95.38	-	-	Export Development Bank of Iran (Financier), Sanir (Construction)	2018	At planning stage
Jarandaq wind power plant, Qazvin	Power Plants & transmission grids	-	60	MW	-	-	Feasibility studies/EIA underway
Persian Gulf coast water supply pipeline	Water	243.3	762	km	-	-	Announced
New Solar-Powered Desalination Plant, Hormozgan Province	Water	-	-	-	National Water and Wastewater Engineering Company (Sponsor)	2014	Completed
Caspian Sea-Semnan Water	Water	1000	200	mn m3 per year	-	-	Under construction

Major Projects - Energy And Utilities - Continued

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Pipeline And Desalination Plant							

*Where blank = not available. Source: BMI Key Projects Database

Residential/Non-Residential Building – Outlook And Overview

The residential and non-residential sector in Iran has underperformed over the past few years due to the shrinking domestic purchasing power and the rising costs of building materials in the context of a depreciating currency. We are, however, more optimistic from 2016 onwards as we forecast an average annual growth rate in the construction industry of over 3.1% in the next five years. We highlight the potential of the residential and non-residential sector to play a key role in driving growth, given the country's housing deficit, but we remain aware of the challenges.

Back On The Right Track

Iran Construction Industry Forecasts



e/f = BMI estimate/forecast. Source: UN, BMI

Demand for housing stock has traditionally been a key driver for the construction sector in Iran, but now, on the back of international sanctions in response to the country's nuclear programme, the sector has fallen behind. In January 2011, the country was facing a housing deficit of 1.5mn housing units, which has continued. However, despite the economic outlook, state media continues to announce newer and grander projects (similar announcements seen in all construction sub-sectors).

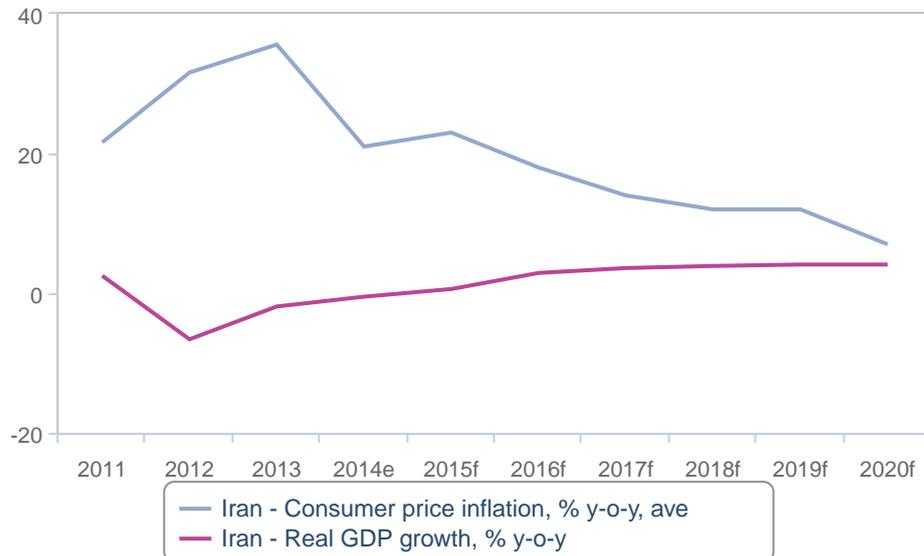
A potent example is the statement by then Minister of Housing and Urban Development, Ali Nikzad, (who has now become the Minister of Transportation and Housing) who claimed a total of 1.7mn units were in the pipeline or under construction, with two Turkey-based firms carrying out a project to build 25,000 units. We have been unable to confirm this data. Yet questions should be raised as to how this flagship development is being financed. As a result we have not incorporated this into our overall construction forecast that remains weighed down by heavy sanctions.

The interplay of elevated price pressures and a weak currency will ensure unemployment levels remain high in 2015. Iranians' purchasing power has been eroding steadily over the past several quarters, with inflation making it difficult to purchase basic goods. With the cost of building materials continuing to rise and demand for housing weakened by the challenging conditions facing Iranian households, residential construction activity is likely to be heavily constrained.

In the years before Ahmadinejad, private capital supplied most of the funding for the housing sector as this used to be a profitable business. However, external banking sanctions, the government's failure to deliver on housing programmes, subsidy reforms that have made construction materials more expensive, depreciation of the Iranian *rial*, in addition to political and legal uncertainties have led to a crisis in Iran's housing market. As a result, there is a shortage of urban housing that affects particularly the middle class.

Improving Macroeconomics?

Iran Inflation And Unemployment Rates



e/f = BMI estimate/forecast. Source: National sources, BMI

In March 2012, former President Ahmadinejad inaugurated a housing complex in Andimeshk containing 4,000 units. Similarly, Iran's north-east Razavi Khorasan Province reportedly saw the delivery of 3,030 residential units in 2010/11, while a total of 440,000 units were delivered nationwide over the 12-month period. The Iranian government seemingly continues to ramp up residential construction to narrow the country's housing deficit, with 800,000 units planned to be built in rural villages. Yet despite the ambitious announcements, the Mehr housing project continues to be the largest in the residential sector.

However, so far the government has failed to deliver much of what it had promised while absorbing some of the private capital that would normally have gone into constructing new units. The current administration led by President Hassan Rouhani has put a stop to the Mehr plan, a move which will likely encourage private sector companies to step in and contribute to a gradual decline in housing costs. We believe that housing prices will remain relatively elevated over the coming quarters, largely a result of a lack of appropriate housing units. Although we are confident that the current administration will succeed in encouraging private sector companies to increase the offer of housing, contributing to a gradual decline in costs, the effects of such policies will be felt only after a few years.

Industrial Construction

Although we have not detected strong activity in this sector, two China-based firms, **Metallurgical Corporation of China** and **Zhongye Changtian International Engineering**, reportedly secured a contract to construct a USD297mn pellet plant in the Iranian province of Yazd in February 2014. Both firms will develop the plant under an engineering, procurement, construction and financing contract. Once completed, the plant will be capable of producing 5mn tons of pellets annually. The plant is scheduled to start operating by July 2016.

Industry Risk Reward Ratings

Iran - Infrastructure Risk/Reward Index

The potential for growth in Iran's overall infrastructure market is one of the country's redeeming features, with a combination of its dilapidated infrastructure and the government's reported spending pledge. However, for Iran, political risk is the greatest ongoing threat, which is also accompanied by sanctions against the country, preventing many of the largest construction companies from entering the market. Sanctions have also hit the government's finances to the extent that public infrastructure investment is being significantly reduced. That said, we are increasingly positive on an agreement being reached between Iran and the P5+1 countries in June 2015, which will result in sanctions being lifted. In this context, the country scores 37.5 out of 100 in our RRI for the Middle East.

Rewards

Industry Rewards

Iran scores a weak 32.5 for Industry Rewards, well below the regional average. Although we do not expect the construction sector to recover to pre-crisis growth levels soon due to moderate economic growth, rising inflation and the pressure of international sanctions, we are turning more positive on Iran. In terms of value, the Iranian construction industry is relatively sizeable, and with a large and growing population, there is strong demand for infrastructure development.

Country Rewards

Iran is well below the regional average with its country rewards score of 42.7. The need to strengthen the capital ratios and improve non-performing loan ratios in the country's banking sector weighed on Iran's country structure score. Iran also scores modestly in terms of its labour market. It has been observed that stringent local labour laws have prompted its labour population to seek employment abroad. This exodus has been a major problem for the construction sector, resulting in delayed projects. The country also suffers from a poorly structured financial system, which creates hurdles when attempting to access capital.

Risks

Industry Risks

Iran continues to receive a score of 35.0 for Industry Risks which reflects the high barriers to entry and lack of competition in the country's infrastructure markets. This weak score places it well below the regional average as a result of international pressure due to the country's controversial nuclear programme. The business environment in Iran is also constrained by the government's reluctance to allow substantial foreign investment. The Foreign Investment Promotion and Protection Action (FIPPA) has improved regulations surrounding foreign investment. However, the level of investment still remains capped in most instances and Iranian companies still need to hold the majority stake in most ventures. The amount of foreign direct investment is small and will have to grow significantly if Iran is to make headway with privatisation plans.

Country Risks

Iran receives a score of 45.8 for the Country Risks sub-category - again, well below the regional average, but slightly better than previous quarters. Foreign firms still find the legal/regulatory aspect of doing business in Iran laborious and prohibitive. The country's score is deflated by a lack of separation between the executive and judicial branches, as well as the risk of political and economic isolation from Western-led sanctions. The country suffers from endemic levels of corruption, while a complicated and poorly enforced commercial legal code undermines the effectiveness of the Iranian judicial system. Although nominally independent, political interference in the judicial system is rife. This further damages the business environment for foreign firms.

Note: Individual country scores are subject to change based on latest data available.

Security Risks In MENA Coming To The Fore

BMI View: *Opportunities in the MENA infrastructure markets remain robust in the face of lower oil prices, although the GCC is far better placed than elsewhere. Security is the major theme across the region this quarter, given the spread of Islamic State, the collapse of Yemen and the re-election of Benjamin Netanyahu in Israel.*

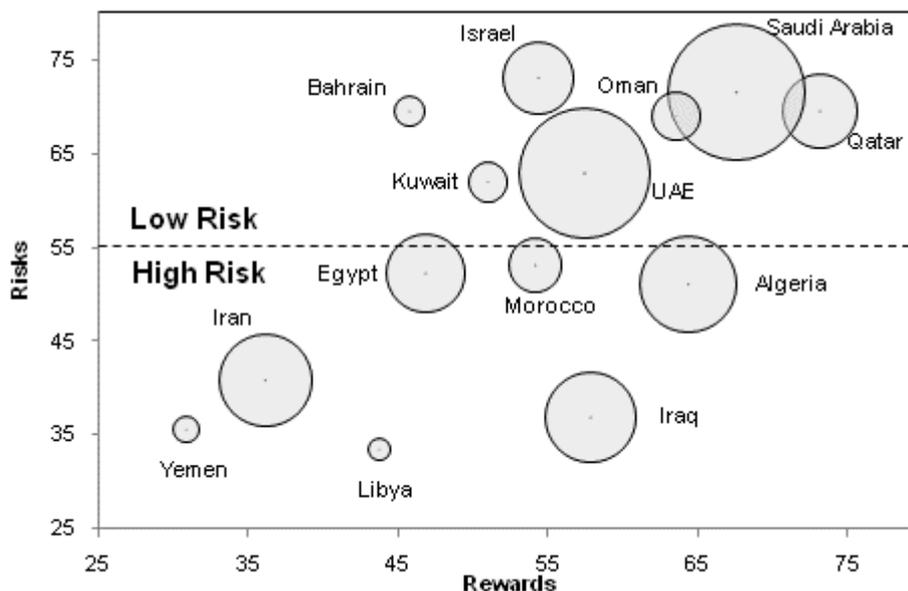
Across the Middle East and North Africa (MENA) region's infrastructure and construction markets there remains a great deal of rewards on offer, as governments in both North Africa and the GCC plough money into their infrastructure sectors. However, this quarter the overriding theme is that scores in our Country Risk indicator have fallen, as instability and security risks spread across the region. Despite this insecurity, as well as lower oil prices putting pressure on fiscal and economic positions, we expect that construction industry real growth across MENA will remain robust, averaging 4.6% compared to a global average of 3.3% over the coming five years.

Key Trends in our Risk Reward Index (RRI) scores this quarter:

- Saudi Arabia and Oman remain as our top performing markets, offering ample opportunity in a relatively low risk environment.
- The GCC markets and Israel occupy the top half of the regional table. In contrast, Iraq, Yemen and North Africa are suffering from elevated risks and not having the substantial spending capacity to fund infrastructure in the face of economic pressures like the GCC.
- Oil prices will have a minimal impact on GCC markets, although Iran and Libya will see increasing pressures on their budgetary provisions in a low oil price environment.
- The Islamic State group and efforts to deal with the threat they pose has increased already elevated political risk across the region.

GCC Dominates Top Performing Markets

MENA - Risk Reward Index Matrix



Notes: Scores 0-100, with higher scores preferable. Bubble size=2015f Market Nominal Value (USDbn)

Mixed Oil Impact On Infrastructure Rewards

We do not expect the fall in oil prices to have a significant impact on the rewards on offer in the GCC markets and hence their Industry Rewards scores in our RRI remain steady. Our Oil & Gas team forecast an average annual price of USD55/bbl for Brent in 2015; while this poses some downside risk to GCC spending plans over the long term, numerous governments have now stated that they intend to continue financing their infrastructure projects owing to their political and economic importance (*see 'Lower Oil Prices Not an Immediate Threat To Infrastructure', 12 November 2014*). Within the GCC, only Oman and Bahrain present any cause for concern. Both countries are reliant on a small and declining oil production base and have limited fiscal buffers to weather lower oil prices over the coming years.

For other markets in the region, the outlook is much less positive. Both Iraq and Iran face extreme budgetary pressures in the face of lower oil prices. Iraq's financing of infrastructure will come under particular pressure over 2015 and beyond given the country's near-total reliance on oil for exports and fiscal revenues. For Iran, lower oil prices will see gross fixed capital formation (GFCF) slow to 1.0% in 2015

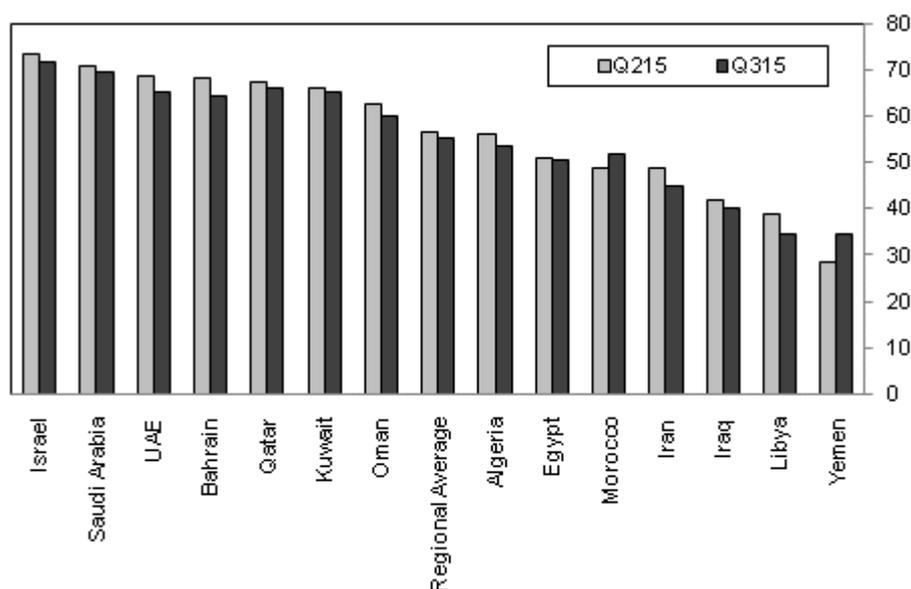
from an estimated 3.0% in 2014. A lack of foreign investment in the sector and lower government expenditure will see construction industry real growth - which we have revised downwards to 1.6% for 2015 from 2.8% previously.

In North Africa the picture is more nuanced. In Algeria, we forecast hydrocarbon revenue to gradually decline over the rest of the decade, as a result of stagnant output and lower oil prices. This will see investment into infrastructure fall off notably in the coming years, given that in 2015 the government announced an expansionary budget with infrastructure investment a key beneficiary. In Libya also, we expect the government's ability to finance any infrastructure projects to be severely hit by lower oil revenues - the government's ability to undertake investment is limited by a lack of territorial control anyway.

Egypt has a brighter outlook and the investment conference held in mid-March offers substantial upside risk to the market's Industry Rewards score in the coming quarters. In total, deals worth USD38.2bn and memorandums of understanding for potential deals worth USD92bn were signed, according to Minister of Investment Ashraf Salman. While the actual sums of investments and grants are likely to fall some way short of the amount pledged, private sector investment like **Siemens** signing a power plant deal worth USD10bn and **BP** signing an agreement to invest USD12bn in Egypt with the aim of producing 3bn barrels of oil equivalent over the next four years, are significant for the infrastructure sector.

Islamic State's Presence Felt

MENA - Country Risk Scores, Q215/Q315



Source: BMI

Security To The Fore

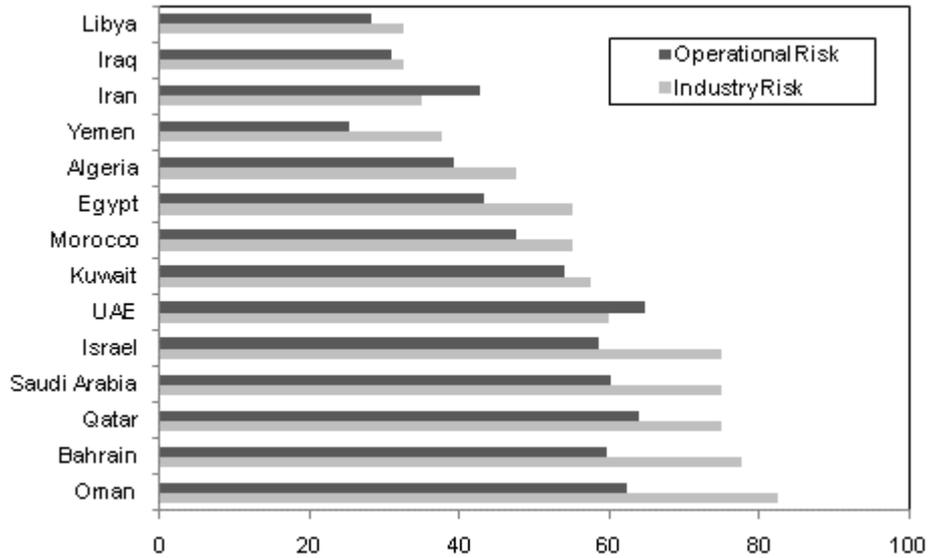
Across the region, we are following an uptick in political risk which is dragging down scores within our RRI (see chart above). There are a number of ongoing causes for concern:

- Islamic State has spread its presence from Syria and Iraq to North Africa. The United Nations (UN) will face growing pressure to intervene in Libya, where civil war-like conditions have allowed the Islamic State (also known as ISIS or ISIL) to gain a foothold on the Mediterranean coast, thus threatening neighbouring states. IS has also claimed responsibility for an attack on tourist in neighbouring Tunisia. While the threat of IS is most keenly felt in countries in which it has a presence, the group's rise has seen members of the GCC and Egypt launch airstrikes against the group, increasing the likelihood of retaliatory attacks in these countries.
- Furthermore, the situation in Yemen has deteriorated, which could see Saudi Arabia intervene and instability in the region furthered. Yemen is facing a perfect storm of widespread political and social instability, weaker oil prices and declining hydrocarbon output - factors which leave it at the bottom of our regional RRI table. We expect a fragile federalised state to emerge over the coming quarters and for security risks to remain elevated.
- Finally, the issue of Iran and its relationship with Israel and the West will remain prevalent. Israel's foreign policy will remain belligerent towards Iran following the re-election of Prime Minister Benjamin Netanyahu and his Likud Party. On the one hand Netanyahu's success highlights the security concerns

facing Israel, but also increases the likelihood of further Israeli military operations targeting the Gaza Strip, the West Bank, or even Lebanon or Syria, during the next four years (see 'Strong Likud Showing Highlights Public Concerns On Security', 18 March).

Safer, Stronger Markets

MENA - Industry Risk and Operational Risk Index Scores



Notes: Scores 0-100, with higher scores preferable. Source: BMI

GCC Remains Safe Haven

The Gulf Cooperation Council (GCC) contains our choice infrastructure markets across the Middle East and North Africa (MENA) region. Not only are the GCC countries investing more in projects (in order to diversify their economies) than their North Africa counterparts, but they also offer a much stronger business environments for those operating on the ground. Openness to international involvement, developed financing frameworks and more transparent tendering processes make the GCC markets more accessible than its peers in the region.

Looking at the chart above, Oman, Bahrain and Qatar are the outperformers not only in terms of attractive, low risk infrastructure sectors (Industry Risk), but also in terms of how easy it is for a company to be present on the ground (Operational Risk). Even if the opportunities on offer in the GCC were not vastly

greater than elsewhere in MENA, those opportunities would be easier, more profitable, and safer to undertake in the GCC.

Table: MENA Infrastructure Risk/Reward Index

	Rewards			Risks			Infrastructure Risk Rewards Index	Regional Ranking
	Industry Rewards	Country Rewards	Rewards	Industry Risks	Country Risk	Risks		
Qatar	72.5	74.2	73.1	75.0	66.0	69.6	72.0	1
Saudi Arabia	72.5	58.3	67.5	75.0	69.4	71.6	68.8	2
Oman	65.0	60.7	63.5	82.5	60.1	69.1	65.2	3
Algeria	75.0	44.7	64.4	47.5	53.6	51.2	60.4	4
Israel	40.0	80.9	54.3	75.0	71.7	73.0	59.9	5
UAE	57.5	57.3	57.4	60.0	65.1	63.1	59.1	6
Kuwait	40.0	71.3	51.0	57.5	65.0	62.0	54.3	7
Morocco	50.0	61.8	54.1	55.0	52.0	53.2	53.8	8
Bahrain	35.0	65.8	45.8	77.5	64.2	69.5	52.9	9
Iraq	67.5	39.7	57.8	32.5	40.0	37.0	51.5	10
Egypt	42.5	54.8	46.8	55.0	50.6	52.4	48.5	11
Libya	47.5	36.7	43.7	32.5	34.4	33.6	40.7	12
Iran	32.5	42.7	36.1	35.0	44.8	40.9	37.5	13
Yemen	37.5	18.3	30.8	37.5	34.7	35.8	32.3	14
<i>Regional Average</i>	52.5	54.8	53.3	57.0	55.1	55.9	54.1	

Source: BMI. Note: Individual country scores are subject to change, based on the latest data available.

Market Overview

Competitive Landscape

Iran's business environment remains opaque and difficult to penetrate for any outside investors. China and Russia are, by and large, the only two countries with a continued international presence. Both countries have vested interests in Iran, in terms of geopolitics and commodities trade, and therefore have contributed heavily to fund major infrastructure projects.

Most projects have so far been geared towards Iran's relatively well developed transport system. There are 8,442km of railways, most of which are single-track, and 198,866km of roads, 80% of which are paved. There are many airports in the country, although the majority have unpaved runways.

Furthermore, Iran has a number of ports, though many areas of the Caspian Sea and Persian Gulf are politically sensitive. The waters around the islands of Abu Musa and the Tunbs in the southern Persian Gulf are particularly sensitive and are militarised. Normalising international relations would allow Iran to attract investment into its ports and benefit significantly from international trade.

In terms of the domestic construction industry, it has been criticised for having poor building standards. Construction firms are unwilling to invest money in modern technologies, building codes are widely disregarded and municipal governments have failed to enforce them or to run a proper inspection system.

Table: Iran EQS Data

Name	Latest FY Earnings	Market Cap (USD)	Revenue (USD)	Net income (USD)	Total Debt/ EBITDA	Interest Coverage Ratio	PE Ratio
Bilfinger SE	Dec-14	2,909.937	10,225.64	-94.8541	1.186813	3.759674	N/A
China Gezhouba Group Co LT-A	Dec-14	8,642.071	11,309.48	371.2016	5.982992	3.31632	22.26018
China National Chemical-A	Dec-13	8,789.203	9,858.729	546.2827	0.388645	83.93265	15.73034
China Railway Group Ltd-H	Dec-14	50,358.68	95,789.83	1,681.531	N/A	2.787366	18.85313
Daelim Industrial Co Ltd	Dec-14	2,469.976	8,831.007	-431.343	N/A	-3.33127	N/A
Maire Tecnimont SPA	Dec-14	909.7008	2,053.023	66.81897	4.188727	N/A	17.0303
Saipem SPA	Dec-14	5,739.575	17,101.63	-305.552	5.028053	2.386935	N/A
Power Construction Corp Of-A	Dec-13	17,552.96	22,920.97	741.0872	6.473452	2.453019	24.14894
Vinci SA	Dec-14	35,465.3	51,416.48	3,302.621	3.676852	N/A	12.67785

N/A = not available. Source: Bloomberg

Company Profile

Iran Power Plant Projects Management Co. (Mapna)

- Strengths**
- Mapna is one of the largest contractors of power and industrial projects in Iran, with 29 subsidiary companies.
 - Iran's government is reportedly planning heavy investment in the electricity sector.
 - Well diversified by sector.
- Weaknesses**
- High exposure to the home market.
 - Sanctions, coupled with the global economic downturn and high inflation helped to create a dire fiscal situation in Iran, which restricts public investment in infrastructure.
- Opportunities**
- With Iranian electricity demand rising rapidly, there is scope for building new power plants and Mapna is at the forefront of this.
- Threats**
- International pressure on Iran regarding its nuclear ambitions could derail the economy and restrict Mapna's international expansion.
-

Company Overview Mapna, formed in 1993, is a major state-owned Iranian industrial conglomerate with 29 subsidiaries operating in the power, oil, railway and infrastructure sectors. In terms of infrastructure, the company specialises in power, oil and gas, and petrochemicals projects, as well as railway transportation projects. The company has expanded into operational and maintenance services to secure more international projects.

Strategy Mapna's strategy appears to be one of international expansion. As well as power plants in Sri Lanka and India, the company has also been awarded the contract for the 324MW Najaf power plant, as well as the 324MW Al-Emarah Power plant, both of which are in Iraq. **BMI** believes the reconstruction of Iraq could be a strong area of growth for Mapna, as the country looks to repair its shattered infrastructure.

However, Mapna's biggest projects remain in Iran. These include the Khuzestan Steel Complex Combined Cycle Power Plant, with a capacity of 968MW. The company is also negotiating a major deal to construct a massive combined-cycle power plant with a

capacity of 2,100MW. With the country's growing demand for electricity, we believe Mapna's main focus will be domestic over the forecast period.

**Recent
Developments**

Iran's government has prioritised the construction of coal-fired power plants in the country, as announced by Mostafa Ali-Rabbani, an official at Iran Power Development Company in November 2014. Rabbani claimed that after conducting feasibility studies at Tabas in South Khorasan province, more than 1bn tonnes of coal reserves have been found. According to Rabbani, two 325MW power plants are under construction in Tabas. Mapna Group is responsible for supplying the main equipment for the plant, which has progressed 25%.

In addition, Mapna was awarded the construction of a new gas refinery in Qeshm Island in July 2013. The refinery will have capacity of 80mcf of gas per day and the company is expected to invest USD200mn in the project.

Also, in June 2013, Mapna offered to start supplying Pakistan with electricity in order to prevent an energy crisis. According to the Daily Times, Pakistan's currently shortfall is 7,000MW and Mapna has the capacity to produce up to 10,000MW for the neighbouring country. This could be the beginning of a series of investments of Mapna in Pakistan's infrastructure.

In the last few years, Mapna has financed 10 independent power projects (IPPs), including the South Isfahan (954MW), Tous (954MW) and Asalouyeh (954MW) plants. It is also in the process of developing the Mobin Gas Utility Power Plant (1,944MW), as well as power plants in Sri Lanka and Syria. In addition, in September 2008, Mapna agreed a deal with Iran National Petrochemical (NPC) to construct the first phase of the EUR1.2bn Damavand Petrochemical Complex. NPC is to provide 80% of the funding, with Mapna supplying the remainder.

Abbas Aliabadi, the managing director of the group, said to Zawya in July 2013 that the group owns power plants that produce 8,000MW of electricity of which 2,000 MW pertain to Parand and Sanandaj power plants. Since 1993, the company has undertaken projects worth EUR17bn, in terms of power projects, and has been responsible for building 86% of Iran's total grid capacity, representing 52,000MW. Turnover is about EUR4bn per year.

Outside of Iran, Mapna is also pursuing opportunities in the power sector. In August 2014, the company submitted a statement of qualification to build two power plants in Oman. The winner will be granted a licence to develop, design, finance, engineer, build, own, operate and maintain two independent power projects with a total capacity of 2,650MW at two locations in northern Oman.

In the transport sector, a consortium comprising Mapna, Mapna Rail Construction and Development, Mapna International, CMC and SuPower secured financial approval for the 900km Tehran-Mashhad railway project in July 2014. The two Chinese companies - CMC and SuPower - will invest USD2bn in the project. Work under the engineering, procurement and construction (EPC) contract includes the renovation of the existing

structure as well as the construction of an electrified railway network for trains with speeds exceeding 250km per hour.

Mapna has also been active in the rail sector for 15 years and is currently completing a project involving the construction of 200 locomotive units, through a partnership with Germany's Siemens. Mapna is also contracted to produce three locomotives per month for the Iran Railway Company.

Global Industry Overview

Project Risk Index: Robust Financing Establishes Outperformer Status

BMI View: *The UK, Germany, North America and selected countries in Asia are the most attractive infrastructure markets throughout the lifecycle of a project for investors, according to the Project Risk Index. Those markets in Sub-Saharan Africa with the most robust financial sectors are more attractive infrastructure markets, while those in Asia with stronger bureaucracies mitigate construction risk the best. The more stable an economy, the more attractive the operation of infrastructure assets is to investors - with Canada and Australia outperforming.*

BMI's newly re-launched **Project Risk Index (PRI)** enables users to quantify the risks associated with the development of infrastructure projects - from raising finance, through the construction phase, to the operation of a completed asset. This index, split into three pillars covering the entire lifecycle of the project, has been designed to be applicable to all types of infrastructure projects - from airports and toll roads, to oil and gas pipelines and social infrastructure.

On a global level, the top 10 markets within the PRI are European, North American and also include some key Asian economies. These markets benefit from having sophisticated financial markets and financing frameworks, as well as dynamic economies and developed construction industries. Singapore is our top-rated market with a PRI score of 78.8, followed by the United Kingdom in second, with a score of 78.

Well developed pre-construction phases, deep and well structured financing mechanisms and strong legal frameworks mean that Singapore and the UK have safe-haven status in terms of global infrastructure investment. This title comes with a cost, however, which is the premium investors must pay to gain access to attractive assets. The PRI, therefore, is a useful tool which can be used to analyse risk exposure in markets for which the investment premium is lower.

Table: Project Risk Index - Top 10 Markets

Country	Project Risk Index	Financing	Construction	Operation
Singapore	78.8	80.8	89.0	66.6
United Kingdom	78.0	79.2	83.0	71.9
Malaysia	76.5	83.9	76.9	68.7
United States	76.1	83.9	73.9	70.4
Australia	75.7	68.0	83.4	75.6

Project Risk Index - Top 10 Markets - Continued				
Country	Project Risk Index	Financing	Construction	Operation
Hong Kong	75.6	77.1	79.4	70.2
Japan	75.1	85.7	80.3	59.3
Canada	74.1	77.4	67.2	77.6
Estonia	72.6	72.8	67.0	78.1
South Korea	72.1	76.8	82.0	57.6

Notes: Scores out of 100, higher score = lower risk. Source: BMI

Financing Risk

Ultimately the most important element in a project's lifecycle, securing financing, is often the biggest task facing developers. Given the high upfront capital costs of infrastructure projects and the long lifespan of investments, project financing is a major risk for investors. Within the *PRI's Financing Risk* pillar, we consider the sophistication, availability and cost of capital.

Looking at Financing Risk in the Sub-Saharan African markets within the PRI (which have a huge infrastructure financing deficit and at the same time are making efforts to leverage greater private capital into projects), South Africa is the outperformer with a score of 70.2. South Africa's finance industry gives a major boost to the market's overall score, while other markets which perform well include those which have access to support from multilateral and international donors, such as the World Bank or China. Those markets with shallow and underdeveloped banking sectors, unable to offer the long-term credit needed to finance infrastructure, such as Tanzania or Zimbabwe, are the underperformers in the region.

Table: Project Risk Index - Financing Risk, SSA Top 5				
Country	Financing	Financing - Sophistication	Financing - Availability	Financing - Cost
South Africa	70.2	66.3	88.9	55.5
Namibia	51.6	37.8	48.5	68.5
Nigeria	48.0	47.0	29.1	68.0
Cote d'Ivoire	43.6	37.5	22.7	70.5
Botswana	41.7	48.4	39.2	37.5

Notes: Scores out of 100, higher score = lower risk. Source: BMI

Construction Risk

A country's operating environment is the crucial factor to consider during the construction phase of a project; having deployed capital, investors need to be confident in its efficient use. Project delays, labour and contract disputes as well as bureaucratic bottlenecks will increase immediate costs, but also extend the period of time between investment in an asset and its commencement of operation and returns generated. With this in mind, **BMI's** Operational Risk Index is used within the **Construction Risk** pillar of the PRI to quantify the ease of doing business in markets, along with other industry metrics such as strength of arbitration, ease of acquiring permits and building materials cost.

Many of Asia's developing economies are growing at such a pace that the timely realisation of infrastructure projects has become a major political issue. The PRI reflects the concerns many have about the construction of infrastructure across Asia; while the top five markets include the likes of Singapore, South Korea and Hong Kong, the poor performing markets include India, China and Indonesia. These are all among the worst performing markets in Asia for Construction Risk, with scores for timeliness and contracts being serious weak spots. Insufficient bureaucratic capacity, poor legislation, laborious land acquisition and environmental permit issuance, and often vocal local opposition to projects, affect some of Asia's largest construction industries badly.

Table: Project Risk Index - Construction Risk, Asia-Pacific Top 5

Country	Construction	Construction - Costs	Construction - Contracts	Construction - Timeliness
Singapore	89.0	74.2	95.0	97.9
South Korea	82.0	63.4	95.0	87.5
Hong Kong	79.4	71.8	75.0	91.3
Malaysia	76.9	60.7	85.0	85.0
Thailand	73.1	60.9	75.0	83.6

Notes: Scores out of 100, higher score = lower risk. Source: BMI

Operation Risk

The often lengthy nature of infrastructure contracts exposes operators to a whole range of potential headwinds, which could impact expected levels of revenue. Within the **Operation Risk** pillar of the PRI, we consider explicit risks such as crime and security (the asset could be a target or a country may become

embroiled in conflict) and other more subtle risks, for example foreign currency volatility and economic growth (a proxy for demand).

Given the long-term exposure, the private operation of infrastructure assets is most prevalent in North America, Europe and Australia. Within that grouping, Canada and Australia are the outperforming markets thanks to solid scores for revenue generation and policy continuity - although recent politicisation of the infrastructure sector in Australia has put its score under threat. Lacklustre economic growth and structural problems in the traditional power market makes investment in greenfield projects less attractive in Germany than its peers, while along with the UK, the US benefits from having a currency largely shielded from major volatility.

Table: Project Risk Index - Operation Risk, Developed Markets Top 5

	Operation	Operation - FX	Operation - Revenues	Operation - Risk
Canada	77.6	95.0	55.0	82.9
Australia	75.6	90.0	60.0	76.8
UK	71.9	100.0	40.0	75.8
US	70.4	100.0	40.0	71.3
Germany	67.4	100.0	25.0	77.1

Notes: Scores out of 100, higher score = lower risk. Source: BMI

Methodology

Industry Forecast Methodology

BMI's Industry forecasts are generated using the best-practice techniques of time-series modelling and causal/econometric modelling. The precise form of model we use varies from industry to industry, in each case being determined, as per standard practice, by the prevailing features of the industry data being examined.

Common to our analysis of every industry, is the use of vector autoregressions. Vector autoregressions allow us to forecast a variable using more than the variable's own history as explanatory information. For example, when forecasting oil prices, we can include information about oil consumption, supply and capacity.

When forecasting for some of our industry sub-component variables, however, using a variable's own history is often the most desirable method of analysis. Such single-variable analysis is called univariate modelling. We use the most common and versatile form of univariate models: the autoregressive moving average model (ARMA).

In some cases, ARMA techniques are inappropriate because there is insufficient historic data or data quality is poor. In such cases, we use either traditional decomposition methods or smoothing methods as a basis for analysis and forecasting.

We mainly use OLS estimators and in order to avoid relying on subjective views and encourage the use of objective views, we use a 'general-to-specific' method. **BMI** mainly uses a linear model, but simple non-linear models, such as the log-linear model, are used when necessary. During periods of 'industry shock', for example poor weather conditions impeding agricultural output, dummy variables are used to determine the level of impact.

Effective forecasting depends on appropriately selected regression models. We select the best model according to various different criteria and tests, including but not exclusive to:

- R^2 tests explanatory power; adjusted R^2 takes degree of freedom into account
- Testing the directional movement and magnitude of coefficients
- Hypothesis testing to ensure coefficients are significant (normally t-test and/or P-value)
- All results are assessed to alleviate issues related to auto-correlation and multi-collinearity

BMI uses the selected best model to perform forecasting.

It must be remembered that human intervention plays a necessary and desirable role in all of our industry forecasting. Experience, expertise and knowledge of industry data and trends ensure that analysts spot structural breaks, anomalous data, turning points and seasonal features where a purely mechanical forecasting process would not.

Sector-Specific Methodology

Construction Industry

Construction Industry Value

Our data is derived from GDP by output figures from each country's national statistics office (or equivalent). Specifically, it measures the output of the construction industry over the reported 12-month period in nominal values (ie domestic currency terms). As it is derived from GDP data, it is a measure of value added within the industry (ie the additional contribution of the construction industry over other industries, such as cement production). Consequently, it does not measure the nominal value of all inputs used in the construction industry, which, for most states would increase the overall figure by 50-60%. Furthermore, it is important to note that the data does not provide an indication of the total value of a country's buildings, only the construction sector's output in a given year.

This data is used because it is reported by virtually all countries and can therefore be used for comparative purposes.

Construction Industry Value Real Growth

Our data and forecasts for real construction measures the real increase in output (rather than nominal growth, which would also incorporate inflationary increases). In short, it is an inflation-adjusted value of the output of the construction industry year-on-year. Consequently, real growth will be lower than the nominal growth of our 'construction value' indicator, except in instances where deflation is present in the industry.

Data for this is sourced from the constant values for construction value added, using the same sources noted above. We use officially calculated data to accurately account for inflation specific to the construction industry.

Construction Industry, % Of GDP/Construction Value (USD)

These are derived indicators. We use BMI's Country Risk team's GDP and exchange rate forecasts to calculate these indicators.

Capital Investment

Total Capital Investment

Our data is derived from GDP by expenditure data from each country's national statistics office (or equivalent). It is a measure of total capital formation (excluding stock build) over the reported 12-month period. Total capital formation is a measure of the net additions to a country's capital stock, so takes into account depreciation as well as new capital. In this context, capital refers to structures, equipment, vehicles etc. As such, it is a broader definition than construction or infrastructure, but is used by **BMI** as a proxy for a country's commitment to development.

Capital Investment (USD), % Of GDP, Per Capita

These are derived indicators. We use our Country Risk team's population, GDP and exchange rate forecasts to calculate them. As a rule of thumb, we believe an appropriate level of capital expenditure is 20% of GDP, although in rapidly developing emerging markets it may, and arguably should, account for up to 30%.

Government Capital Expenditure

This is obtained from government budgetary data and covers all non-current spending (ie spending on transfers, salaries to government employees, etc). Due to the absence of global standards for reporting budgetary expenditure, this measure is not as comparable as construction/capital investment.

Government Capital Expenditure, USDbn, % Of Total Spending

These are derived indicators.

Construction Sector Employment

Total Construction Employment

This data is sourced from either the national statistics office or the International Labor Organization (ILO). It includes all those employed within the sector.

Construction Employment, % y-o-y; % Of Total Labour Force

These are derived indicators.

Average Wage In Construction Sector

This data is sourced from either the national statistics office or the ILO.

Infrastructure Data Sub-Sectors

BMI's Infrastructure data examines the industry from the top down and bottom up in order to calculate the industry value of infrastructure and its sub-sectors. We use a combination of historic data as reported by the central banks, national statistics agencies and other official data sources, and **BMI's** Infrastructure Key Projects Database tool.

Where possible we source historic data for the relative portion of either infrastructure spend or value generated by the various sub-sectors we classify as infrastructure. We seek to segment official infrastructure data into pre-set categories classified by us, across all countries, in order to optimise the ability to compare industry value across the sub-sectors of infrastructure. We then apply ratios to the infrastructure subsector value in order to derive the value. Real growth is calculated using the official construction inflation rate.

In those instances where historic data is not available, we use a top down and bottom up approach incorporating full use of **BMI's** Infrastructure Key Projects Database, in most cases dating back to 2005. This allows us to calculate historical ratios between general infrastructure industry value and its sub-sectors,

which we then use for forecasting. Our Key Projects Database is not exhaustive, but it is comprehensive enough to provide a solid starting point for our calculations.

The top down approach uses data proxies. We have separated countries into three tiers. Each tier comprises a group of countries on a similar economic development trajectory and with similar patterns in terms of infrastructure spending, levels of infrastructure development and sector maturity. This enables us to confirm and overcome any deficiencies of infrastructure-specific data by applying an average group ratio (calculated from the countries for which official data exists) to the countries for which data is limited.

- Tier I - Developed States. Common characteristics include:
 - Mature infrastructure markets;
 - Investments typically target maintenance of existing assets or highly advanced projects at the top of the value chain;
 - Infrastructure as percent of total construction averages around 30%.
 - Tier I countries: Canada, Germany, Greece, UK, US, France, Hong Kong, Taiwan, Singapore, Israel, Japan, Australia.
- Tier II - Core Emerging Markets. Common characteristics include
 - The most rapidly growing emerging markets, where infrastructure investments are a government priority;
 - Significant scope for new infrastructure facilities from very basic levels (eg highways, heavy rail) to more high value projects (renewables, urban transport);
 - Infrastructure as percent of total construction averages around 45% and above.
 - Tier II countries: Colombia, Malaysia, Mexico, South Korea, Peru, Philippines, Turkey, Vietnam, Poland, Hungary, South Africa, Nigeria, Russia, China, India, Brazil, Indonesia.
- Tier III- Emerging Europe. Common characteristics include:
 - Regional socioeconomic trajectories;
 - Development defined by recent or pending accession to European structures such as the EU. Infrastructure development to a large degree dictated by EU development goals and financed through vehicles such as the PHARE and ISPA programmes, and institutions such as the EBRD and EIB;
 - Infrastructure as percent of total construction averages between 30% and 40%.
 - Tier III countries: Czech Republic, Romania, Bulgaria, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Croatia, Ukraine.

This methodology has enabled us to calculate infrastructure industry values for states where this was not previously possible. Furthermore, it has enabled us to create comparable indicators.

The top down hypothesis-led approach has been used solely to calculate the infrastructure industry value as a percentage of total construction. For all sub-sector calculations we apply the bottom-up approach, ie calculating the ratios from our Key Projects Database where data was not otherwise available.

Risk/Reward Index Methodology

BMI's Risk/Reward Index (RRI) provide a comparative regional ranking system evaluating the ease of doing business and the industry-specific opportunities and limitations for potential investors in a given market.

The RRI system divides into two distinct areas:

Rewards: Evaluation of sector's size and growth potential in each state, and also broader industry/state characteristics that may inhibit its development. This is further broken down into two sub categories:

- Industry Rewards (this is an industry-specific category taking into account current industry size and growth forecasts, the openness of market to new entrants and foreign investors, to provide an overall score for potential returns for investors).
- Country Rewards (this is a country-specific category, and the score factors in favourable political and economic conditions for the industry).

Risks: Evaluation of industry-specific dangers and those emanating from the state's political/economic profile that call into question the likelihood of anticipated returns being realised over the assessed time period. This is further broken down into two sub categories:

- Industry Risks (this is an industry-specific category whose score covers potential operational risks to investors, regulatory issues inhibiting the industry, and the relative maturity of a market).
- Country Risks (this is a country-specific category in which political and economic instability, unfavourable legislation and a poor overall business environment are evaluated to provide an overall score).

We take a weighted average, combining industry and country risks, or industry and country rewards. These two results in turn provide an overall Risk/Reward Index, which is used to create our regional ranking system for the risks and rewards of involvement in a specific industry in a particular country.

For each category and sub-category, each state is scored out of 100 (100 being the best), with the overall Risk/Reward Index a weighted average of the total score. Importantly, as most of the countries and territories evaluated are considered by us to be 'emerging markets', our score is revised on a quarterly basis. This ensures that the score draws on the latest information and data across our broad range of sources, and

the expertise of our analysts. Our approach in assessing the Risk/Reward balance for infrastructure industry investors globally is fourfold:

- First, we identify factors (in terms of current industry/country trends and forecast industry/country growth) that represent opportunities to would-be investors.
- Second, we identify country and industry-specific traits that pose or could pose operational risks to would-be investors.
- Third, we attempt, where possible, to identify objective indicators that may serve as proxies for issues/trends to avoid subjectivity.
- Finally, we use **BMI**'s proprietary Country Risk Index (CRI) in a nuanced manner to ensure that only the aspects most relevant to the infrastructure industry are incorporated. Overall, the system offers an industry-leading, comparative insight into the opportunities/risks for companies across the globe.

Sector-Specific Methodology

In constructing these indices, the following indicators have been used. Almost all indicators are objectively based.

Indicators

Table: Infrastructure Risk/Reward Index Indicators

	Rationale
Rewards	
Industry rewards	
Construction expenditure, USDbn	Objective measure of size of sector. The larger the sector, the greater the opportunities available.
Sector growth, % y-o-y	Objective measure of growth potential. Rapid growth results in increased opportunities.
Capital investment, % of GDP	Proxy for the extent the economy is already oriented towards the sector.
Government spending, % of GDP	Proxy for extent to which structure of economy is favourable to infrastructure/
Country rewards	
Labour market infrastructure	From BMI's Country Risk Index (CRI). Denotes availability/cost of labour. High costs/low quality will hinder company operations.
Financial infrastructure	From CRI. Denotes ease of obtaining investment finance. Poor availability of finance will hinder company operations across the economy.
Access to electricity	From CRI. Low electricity coverage is proxy for pre-existing limits to infrastructure coverage.
Risks	
Industry risks	

Infrastructure Risk/Reward Index Indicators - Continued

	Rationale
No. of companies	Subjective evaluation against BMI-defined criteria. This indicator evaluates barriers to entry.
Transparency of tendering process	Subjective evaluation against BMI-defined criteria. This indicator evaluates predictability of operating environment.
Country risks	
Structure of economy	From CRI. Denotes health of underlying economic structure, including seven indicators such as volatility of growth; reliance on commodity imports, reliance on single sector for exports.
External risk	From CRI. Denotes vulnerability to external shock - principal cause of economic crises.
Policy continuity	Subjective score from CRI. Denote predictability of policy over successive governments.
Legal framework	From CRI. Denotes strength of legal institutions in each state. Security of investment can be a key risk in some emerging markets.
Corruption	From CRI. Denotes risk of additional illegal costs/possibility of opacity in tendering/business operations affecting companies' ability to compete.

Source: BMI

Weighting

Given the number of indicators/datasets used, it would be inappropriate to give all sub-components equal weight. Consequently, the following weighting has been adopted:

Table: Weighting Of Indicators

Component	Weighting, %
Rewards	70, of which
- Industry rewards	65
- Country rewards	35
Risks	30, of which
- Industry risks	40
- Country risks	60

Source: BMI

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