

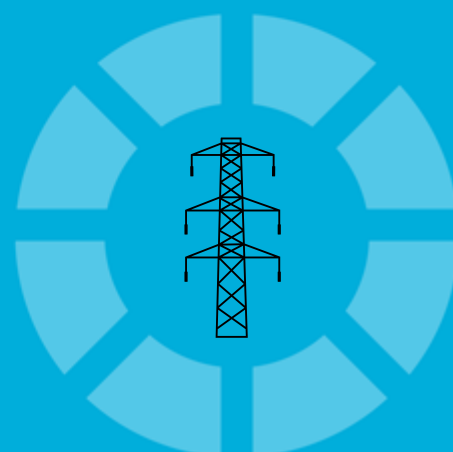
Q3 2016

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IRAN

INFRASTRUCTURE REPORT

INCLUDES 10-YEAR FORECASTS TO 2025



Iran Infrastructure Report Q3 2016

INCLUDES 10-YEAR FORECASTS TO 2025

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BMI Industry View

***BMI View:** As the majority of international sanctions have been lifted faster than expected and new historic data has been released, we have upwardly revised our construction industry growth forecast for Iran in 2016 from 3.2% to 4.5%. The lifting of sanctions is resulting in the gradual return of private investment as well as improving Iran's access to funding for projects. As such, we expect the country's risk profile - particularly in the financing stage of the project life cycle - to continue to improve.*

Latest Updates And Structural Trends

- We forecast 4.5% y-o-y real construction industry growth in Iran in 2016 and an average of 6.1% over the next five years as a result of the lifting of international sanctions and strong demand for infrastructure.
- Persistently low oil prices - our Oil & Gas Team forecasts Brent to average USD46.5/bbl in 2016 - will reduce government revenue, limiting public spending in infrastructure.
- As we expected, the lifting of sanctions is already having a positive impact on Iran's capability to finance infrastructure projects. Reflecting the reduced risk in the financing stage, Iran now scores 34 out of 100 in the Financing Risk pillar of our Project Risk Index (PRI), from a previous score of 18.8.
- Although we anticipate investment opportunities across all sectors, railway projects will attract considerable interest, as evidenced by the announcements that the **Islamic Republic of Iran Railways** (RAI) has signed a memorandum of understanding (MoU) with German **Siemens** for cooperation in the rail sector. The MoU includes projects such as Tehran-Mashhad railroad electrification and the construction of Tehran-Isfahan high-speed railway. In addition, state-owned **Russian Railways** (RZD) signed a USD1.28bn contract with RAI to electrify a 495km railway line. The contract is funded by a Russian government credit allocation to the government of Iran.
- Greater competitiveness in Iran's labour market will be required to support growth in the construction industry. Although Iran's labour force is highly educated by regional standards, high labour costs will continue to pose a structural barrier to investment.
- Despite an improving outlook for Iran's infrastructure sector, the country will continue to present challenges, including elevated political risk, macroeconomic weaknesses and corruption.

Table: Infrastructure - Construction Industry Forecasts (Iran 2015-2025)

	2016f	2017f	2018f	2019f	2020f	2021f	2022f	2023f	2024f	2025f
Const- ruction industry value, IRRbn	1,325,968	1,534,316	1,786,684	2,064,963	2,333,474	2,696,862	3,105,076	3,452,683	3,979,134	4,428,589
Const- ruction Industry Value, Real Growth, % y-o-y	4.45	5.71	6.45	6.58	6.00	5.57	5.14	5.19	5.25	5.30
Const- ruction Industry Value, % of GDP	9.5	9.6	9.8	10.1	10.2	10.6	11.2	11.4	12.1	12.3

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

Risk/Reward Index

- The lifting of international sanctions is having a positive impact on Iran's risks and rewards scores. Iran scores 42.3 out of 100 in our RRI for the Middle East this quarter, an improvement from last year's 37.5.
- Iran scores 35.0 out of 100 for Industry Risks, reflecting the high barriers to entry and lack of competition in the infrastructure market. We expect Iran's competitive landscape to diversify considerably as the lifting of international sanctions allows foreign players to return.
- Iran receives an improved score of 46.2 for Country Risks, but still below the regional average. The country suffers from endemic levels of corruption and although nominally independent, political interference in the judicial system is rife.

Table: Infrastructure Risk Reward Index (Iran 2016)

Risk/Reward Index	Rewards	Industry Rewards	Country Rewards	Risks	Industry Risks	Country Risks
42.3	42.6	42.5	42.7	41.7	35.0	46.2

Source: BMI

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. Mining and oil & gas sectors provide a wealth of opportunities.
- 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 big backlog.
- The Iranian construction industry has been criticised for having poor building standards. Construction firms have had limited access to modern technology due to international sanctions, building codes are widely disregarded and municipal governments have failed to enforce them or undertake proper inspections.
- Widespread corruption.
- Exorbitant land prices account for a disproportionate percentage of construction costs.
- Government deficit impacts public spending on infrastructure projects.

Opportunities

- Lifting of sanctions provide large opportunities in a range of construction and infrastructure sectors. Strong needs in energy, transport and construction sub-sectors after years of underinvestment due to sanctions.
- 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.
- Iranian companies are actively pursuing opportunities in Iraq, as the country rebuilds its infrastructure.

SWOT Analysis - Continued

Threats

- Weak 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 in reconstruction. The long-term rebuilding costs of the quake-hit city of Bam are estimated at almost USD1bn.
 - The agreement signed between Iran and the P5+1 countries could break or derail at any moment, particularly from 2017 onwards. If that happens, international sanctions will be reinstituted within 65 days.
-

Industry Forecast

Iran - Sanctions Removal To Unlock Funding For Infrastructure

Sanctions Removal To Unlock Funding For Infrastructure

BMI View: *As the majority of international sanctions have been lifted faster than expected and new historical data has been released, we have upwardly revised our construction industry growth forecast for Iran in 2016 from 3.2% to 4.5%. The lifting of sanctions will result in the gradual return of private investment as well as an improvement in Iran's access to funding for projects. We therefore expect Iran's risk profile - particularly in the financing stage of the project lifecycle - to continue to improve.*

Latest Updates

- Official data from the UN revealed 4.1% real construction industry growth in Iran in 2014 (latest available data), considerably higher than initially anticipated. In this context and after the majority of international sanctions on Iran have been lifted, we currently forecast the construction industry to grow by 4.5% in 2016 and by an average of 5.8% in real terms in the next five years.
- We had long anticipated the lifting of international sanctions would have a significant impact on Iran's capability to finance infrastructure projects. Reflecting the reduced risk in the financing stage, Iran now scores 34 out of 100 in the Financing Risk pillar of our Project Risk Index (PRI), from a previous score of 18.8. The process will be slow and some international banks are still reluctant to do business with Iran, particularly those who had to pay large penalties during the sanctions period. That said, there is already significant interest from European funds - particularly Italian - to explore financing mechanisms to support construction projects in Iran.
- Although we anticipate investment opportunities across all sectors, railway projects will attract considerable interest, as evidenced by the announcements that the **Islamic Republic of Iran Railways** (RAI) has signed a memorandum of understanding (MoU) with German **Siemens** for cooperation in the rail sector. The MoU includes projects such as Tehran-Mashhad railroad electrification and the construction of Tehran-Isfahan high-speed railway. In addition, state-owned **Russian Railways** (RZD) signed a USD1.28bn contract with RAI to electrify a 495km railway line. The contract is funded by a Russian government credit allocation to the government of Iran.

Structural weaknesses in the Iranian economy - particularly the lack of competitiveness in the labour market - will present risks to investors.

Table: Construction And Infrastructure Industry Data (Iran 2015-2025)

	2016f	2017f	2018f	2019f	2020f	2021f	2022f	2023f	2024f	2025f
Construction industry value, IRRbn	1,325,968	1,534,316	1,786,684	2,064,963	2,333,474	2,696,862	3,105,076	3,452,683	3,979,134	4,428,589
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Construction Industry Value, % of GDP	9.5	9.6	9.8	10.1	10.2	10.6	11.2	11.4	12.1	12.3

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

Structural Trends

2016-2025: Lifting of International Sanctions To Reduce Financing Risk

Lifting international sanctions on Iran will, in time, have a considerably positive effect on financing for infrastructure projects and attracting foreign investment into the sector. International sanctions have severely restricted access to funding for projects, reflected in Iran's average real construction industry growth of only 0.4% over the past five years.

Prior to the lifting of international sanctions Iran scored only 18.8 out of 100 in the Financing Risk pillar of our Project Risk Index (PRI). At present, Iran scores a much-improved score of 34 and we expect this positive trend to continue in the coming quarters. The country has considerably improved its score for the Cost of Financing component where we look at interest rates and access to development funding for infrastructure projects. Iran's weakest score is related to the availability of financing which is starting to improve but it will be a slow process for investors and banks to rebuild confidence in the market. In terms of the regional ranking, Iran has gained two positions, now standing on 11th place out of 14 countries in the Middle East and North Africa (MENA). Globally, the country ranks 72nd out of 84 countries - a significant improvement from its previous position at 81st.

Improving Risk Profile

Iran's Project Risk Index Scores



f = forecast. high score = low risk. Source: BMI

2016-2017: Ready To Capitalise On Foreign Interest?

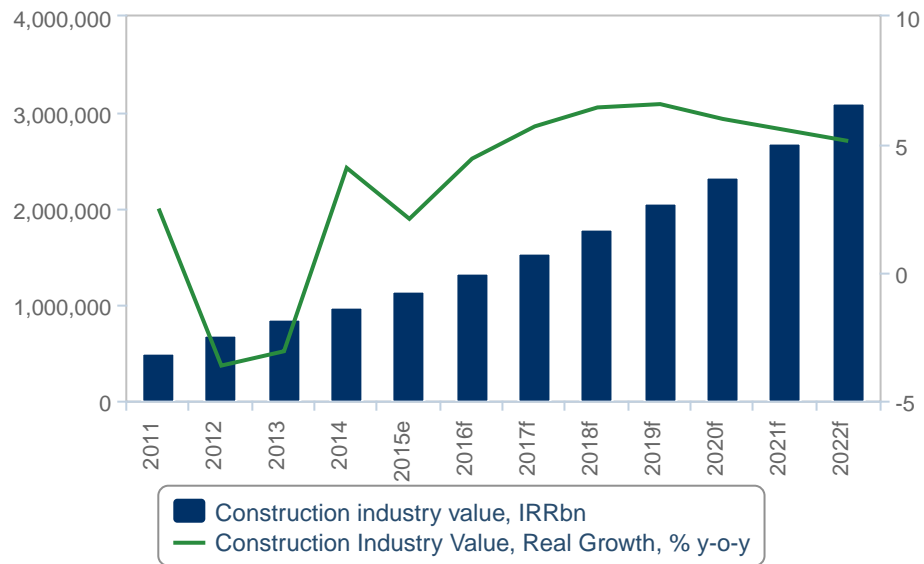
As we detail below, the lifting of international sanctions in Iran has sparked considerable interest from investors around the world. However, for Iran to capitalise on that foreign interest, suitably robust domestic legal and financial frameworks will have to be in place in a timely manner. We therefore believe the return of private investment to Iran's infrastructure sector will be gradual and the pace will largely be determined by how successful initial tenders are.

This is particularly the case for Public-Private Partnerships (PPPs); although PPPs have been used in Iran for water and social infrastructure projects, the model needs to be adjusted and updated for more complex projects such as those in the transport sector. The Iranian government is reportedly preparing the legal and financial frameworks for these contracts - the timing of such an endeavour will be critical to securing investment in a post-sanction scenario. As with most emerging markets, implementing Iran's PPP framework will be a trial and error process and developing the institutional maturity and expertise will take

time. Naturally, we expect the most challenging and costly infrastructure projects to take longer to materialise.

Expecting Growth But No Boom

Iran Construction Industry Growth Forecasts



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

Growth, But Not A Boom

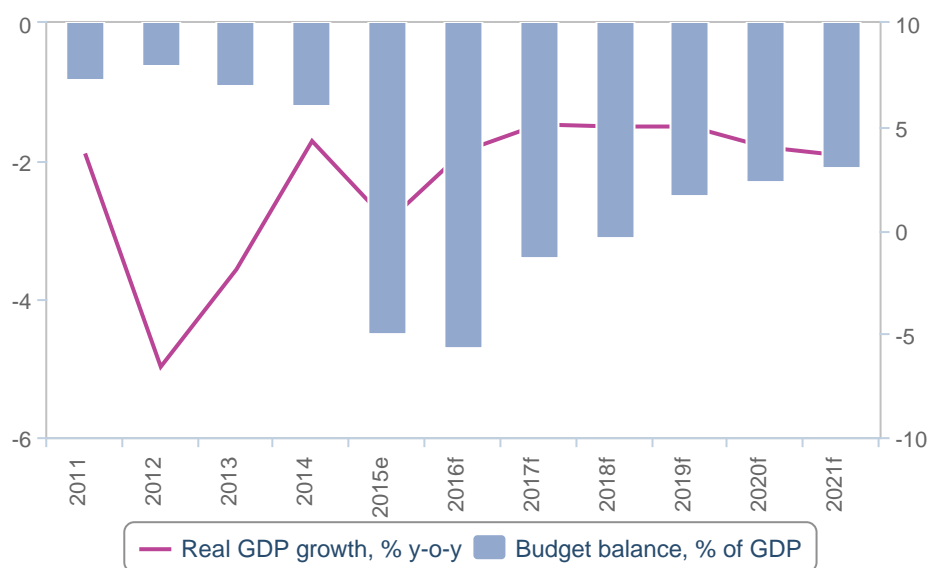
The lifting of sanctions will see the Iranian economy emerge from recession, but significant impediments to growth will remain. Our Country Risk team forecasts GDP will grow by 3.8% in real terms in 2016, notably higher than the 0.4% in 2015. Our positive but cautious forecasts take into consideration the structural weaknesses of the Iranian economy which will prevent consistent strong growth from being achieved in the short-to-medium term. Indeed, there are major impediments facing the Iranian economy - not least the rampant corruption in the country and the years of underinvestment across almost all sectors - which will prevent it from truly booming in the coming years. In addition, aside from rare exceptions (like Boeing) US companies will not be allowed to do business in Iran given the still-standing US primary sanctions which we do not expect to be removed for at least another two years.

Even with the relaxation of sanctions, operational and political hurdles will present obstacles to foreign investors. Specific to the construction industry, companies that are considering taking part in long-term infrastructure projects will be challenged by corruption, bureaucracy, lack of transparency, and Iran's weak institutional framework. As such, Iran's business environment will improve, but critical risks will remain. In addition, Iran's deteriorating fiscal position poses a downside risk to our construction industry growth forecasts as capital expenditure projects may be curtailed, with many of the large-scale infrastructure projects likely to experience severe delays to implementation.

Lower oil prices will also play a key role in limiting the impact of the unwinding of sanctions. We forecast oil prices (Brent crude) to average USD46.5/bbl in 2016 and USD57.00 in 2017 as a result of global oversupply. This will ensure that government spending and private consumption growth will be relatively low.

Fiscal Constraints To Limit Infrastructure Growth

Iran - Budget Balance As % Of GDP And GDP Growth %



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

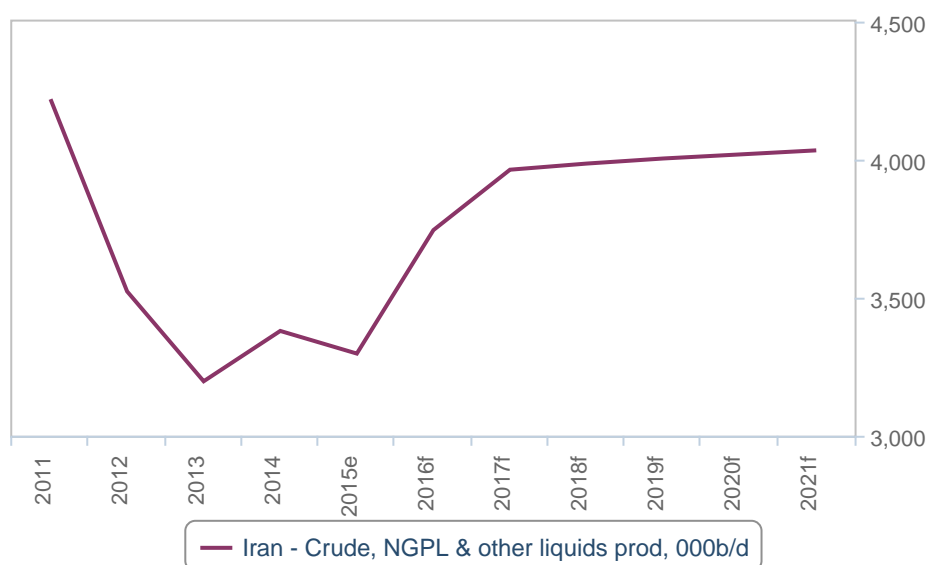
Key Infrastructure Sectors To Benefit From Lifting Of Sanctions

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 2015-2016, Iran ranks 78 out of 140 countries for the quality of port infrastructure.

Furthermore, removing oil sanctions will allow Iran to increase production, however a significant ramp-up from current estimated levels of about 2.8mn b/d to post-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

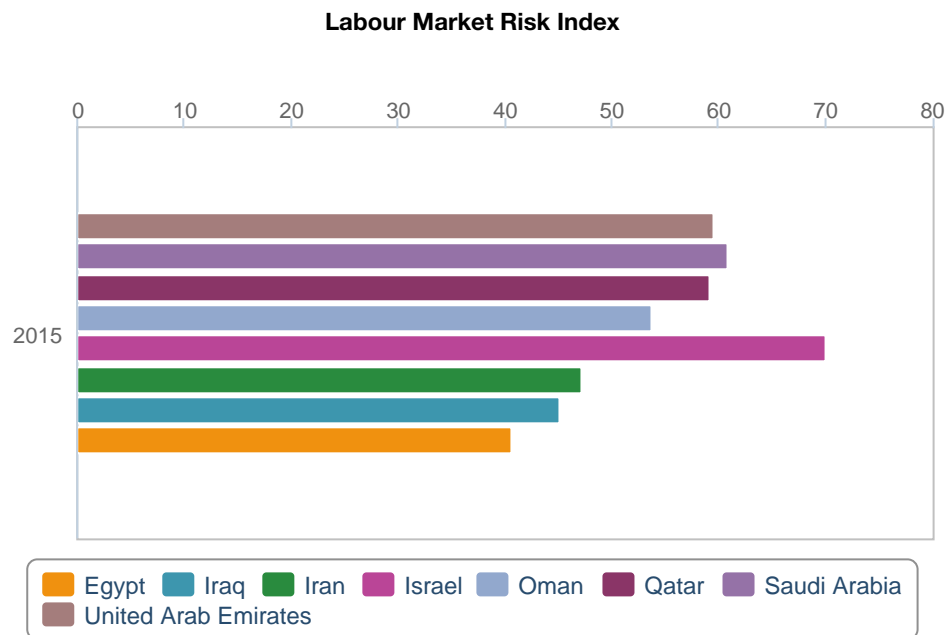
Labour Market Competitiveness Required To Support Growth

Greater competitiveness in Iran's labour market will be required to support growth in the construction industry. Although Iran's labour force is highly educated by regional standards (both in terms of general and tertiary education), high labour costs will continue to pose a structural barrier to investment. Iran is therefore placed in the middle of the pack regionally within our Labour Market Risks Index (*see chart*), with a score of 47.2 out of 100 placing it in 11th position out of 19 countries in the Middle East and North Africa (MENA) region.

The lack of employment opportunities on the back of a weak economy during sanctions meant that Iran suffered a large loss of its skilled labour to foreign countries - particularly experienced engineers who are in high demand in the Middle East. The removal of sanctions, coupled with a recovery in the economy, should see a reverse flow of high-skilled immigrants going back to Iran. In terms of the size of the labour force, the country has a youthful population. However, the main risk for employers in the construction industry is that although there is an abundance of workers, they lack experience and certain vocational skills, which will increase the training requirements and therefore the overall cost of a project.

Last but not least, Iran's labour costs are high, particularly due to stringent regulations governing the treatment and employability of Iranian citizens. In fact, Iran's minimum wage is one of the highest in the region and continues to rise, making the country a less attractive destination for investors in the construction industry which is highly labour intensive. In addition, the Iranian labour tax is also high, further increasing the cost of infrastructure projects. A mitigating factor for these risks is that unionisation in Iran is remarkably low, and protests and strikes are not tolerated by authorities.

Labour Market Below Regional Average



Source: BMI

Robust Foreign Interest

Russian and Chinese companies have built a strong presence in Iran, particularly as a result of Western sanctions. However, we expect the lifting of international sanctions to result in the diversification of Iran's competitive landscape. We have seen growing interest from a variety of 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, Indian, French, German, and Turkish companies are showing greater interest in returning to the Iranian construction market. A USD1.8bn highway project was awarded to Turkish **Bergiz Insaat** in January 2015.

With regards to regional players, Armenian, Omani and Qatari companies have also started to work on investment agreements and project opportunities in Iran, as well as Dubai-based **Arabtec**. The normalisation of relations with Iran will be beneficial for Iranian construction companies and they will look to form partnerships with international firms and leverage from their expertise. 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 the development of cross-country infrastructure projects such as railways and pipelines.

Transport Infrastructure – Outlook And Overview

***BMI View:** Strong demographics and years of underinvestment support Iran's high demand for transport infrastructure. With the lifting of sanctions, we highlight project opportunities across all sectors, particularly railways and airports, which will be key to Iran's economic growth.*

Latest Updates

- With the lifting of sanctions, we anticipate numerous project opportunities in the railways subsector, for public transport, but also for freight. Railways will be key to increase the competitiveness of Iran's exports and improve the connectivity between ports and industrial centres.
- Supporting this view, the Iranian government has reportedly drawn up plans to upgrade and expand its railway network through an estimated USD25bn worth of projects. Plans include expanding the country's rail network to a track length of 25,000km by 2025, from 15,000km currently.
- In addition, **Islamic Republic of Iran Railways (RAI)** has signed a memorandum of understanding (MoU) with German **Siemens** for cooperation in the rail sector. The MoU includes projects such as Tehran-Mashhad railroad electrification and the construction of Tehran-Isfahan high-speed railway. Under the terms of the deal, Siemens will form partnerships with local companies to facilitate technology transfer.
- Further strengthening the relationship with Russia, state-owned **Russian Railways (RZD)** signed a USD1.28bn contract with RAI to electrify a 495km railway line. The deal involves the line between Garmsar, on the Tehran-Mashhad main line, and Incheh Borun on the border with Turkmenistan through Sari and Bandar Torkaman. The contract is funded by a Russian government credit allocation to the government of Iran and it is expected to be completed in Q418.
- Considerable investment will also be required to update airport infrastructure in Iran to cater for both business travellers and tourists. As a result, the Iranian government is reportedly in talks with French firms **Bouygues** and **Aéroports de Paris** to develop Imam Khomeini International Airport in Tehran. The project, part of USD2.8bn expansion plan, is expected to be undertaken as a joint venture between the companies and will include building a second terminal. The terminal will increase its capacity to serve 20mn passengers annually and the expansion is expected to take five years.
- In the port sector, the Indian government signed an agreement in May 2016 to develop the Chabahar Port and related infrastructure in the Sistan-Baluchestan province, Iran. The port will allow India, which will operate the port for 10 years, to bypass Pakistan and directly access Afghanistan and Central Asian markets. The port will have two terminals and five berths. India has put aside about USD500mn for phase one of the project.

Structural Trends

2016-2020: Bridging The Transport Infrastructure Gap

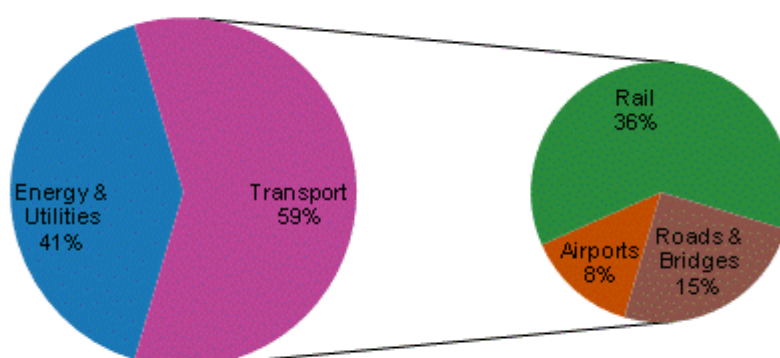
Iran's transport sector is catering to the needs of a population of 80mn and the business needs of an economy potentially worth USD417bn. This will place a strain on transport. Years of underinvestment

given Iran's relative isolation under international sanctions partly explain Iran's outdated transport infrastructure and poor connectivity links. We expect investment to target the sector - particularly railways - now that sanctions have been lifted.

Among the most significant developments, 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.

Investment Targets Rail Sector

Iran Key Infrastructure Projects By Subsector (USDbn)



Source: BMI Infrastructure Key Projects database

Flying In

Iran has a total of 319 airports, of which 140 have paved runways. The country has yet to develop a significant tourism 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 with 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 more likely in a post-sanctions scenario.

Interest in investing in the country's airport sector is starting to appear after sanctions release. Most notably, in February 2016 Iran Airports Company (IAC) has signed two memorandums of understanding (MoUs) with VINCI Airports and Bouygues Group to develop three airports in Iran. The first MoU signed between the Iranian Ministry of Roads and Urban Development, VINCI and IAC is for the concession of the Mashhad and Isfahan airports in the country. The concession will involve the renovation, extension and operation of the two airports, to be undertaken later in 2016. The second MoU signed by the Aéroports de Paris, Bouygues' subsidiary Bouygues Bâtiment International and IAC opens a three-month period of exclusive negotiations for the development of the Imam Khomeini International Airport in Tehran. The Tehran airport project will involve renovating the existing terminal as well as the design, construction and operation of new terminals. The project is expected to increase the capacity of the airport to up to 34mn passengers by 2020, from 6.5mn passengers currently.

Driving Up

Our Autos team forecasts the number of cars on Iranian roads to grow in the long term.

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. This trend will intensify as the autos sector - Iran's biggest non-oil industry - will benefit greatly from the lifting of international sanctions. Our Autos team forecasts a 20% growth in car sales in calendar year 2016 after a contraction of 7% in 2015, partly as a result of some imports recommencing. In addition, 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.

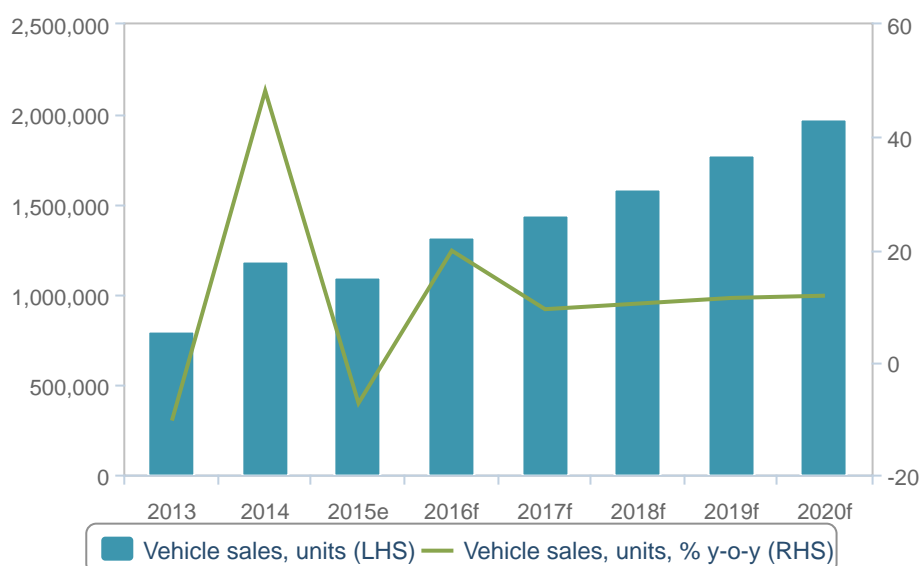
Iran has a total of 198,866km of roads, of which 160,366km are paved, and the country boasts 1,948km of expressways. Iran's road network links it with its neighbours: the 2,500km A1 highway runs from Bargazan

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.

Among the key road projects, 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.

Car Ownership Continues To Increase

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



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

Rail

Unlike a number of other Middle Eastern nations, Iran has already developed a railway system and we highlight this subsector as a key beneficiary of investment in future. The network carries not only passengers but also freight - although this is limited. Iran's railway network services account for 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 are 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). In the Shiraz municipality, the Shiraz Urban Railway Organisation issued a tender for a contract to provide engineering consultancy and design services for metro lines 4, 5 and 6 in August 2015.

For some time now, China has been showing strong interest in investing in Iran's railway sector. Evidencing this trend, **China Railway Engineering Corporation (CREC)**, in collaboration with Iran-based **Khatam-al Anbiya Construction**, started work on a 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.

Involving domestic companies, 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 80st out of 140 countries in the World Economic Forum Global Competitiveness Index 2015 - 2016 (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.

With the end of sanctions, we are starting to see heightened interest by Western companies in investing in the Iranian sector.

First, in January 2016, Islamic Republic of Iran Railways (RAI) has signed a memorandum of understanding (MoU) with German electronics and engineering company Siemens' Mobility Division for cooperation in the rail sector. The MoU pertains to issues such as Tehran-Mashhad railroad electrification, Tehran-Isfahan high-speed railway construction, providing 500 passenger coaches, rail systems modernisation and development, in addition to training and technology transfer. Under the terms of the deal, Siemens, in most of its schemes, will be obliged to collaborate with Iranian firms, with the aim of transferring expertise to the latter. Siemens will supply signalling equipment, electric locomotives and passenger train coaches, and provide the associated maintenance services for the railroad.

In February 2016 the Italian and Iranian governments signed a memorandum of understanding (MoU) for railway work worth about USD5.6bn. The work will be carried out by Italy's state-run Ferrovie dello Stato Italiane for Islamic Republic of Iran Railways. Following the MoU, the two companies will resume commercial relations, which had ended after the imposition of sanctions by the UN Security Council in 2006. The Italian firm is expected to work on a Tehran-Qom-Isfahan rail link, a high-speed line proposed under Iran's rail network plan. Ferrovie's certification subsidiary Italcertifer is working on the design of an infrastructure and rolling stock test centre, while its engineering unit Italferr will work on building a metro in Mashhad, for which it has been selected as the preferred bidder.

In April 2016, the framework agreement to participate in the construction of the Tehran-Hamadan and Qom-Arak high-speed rail lines in Iran was signed. The deal, estimated to be worth EUR3bn (USD3.38bn), was signed on April 12 between FS CEO Renato Mazzoncin and Islamic Republic of Iran Railways (RAI)'s President Mohsen Pour Seyed Aghaei. Under the agreement, FS will act as a general contractor and provide services to RAI through the design, construction, testing and commissioning phases of the two projects. The deal will also require FS subsidiary Italcertifer to support the development of rolling stock and infrastructure test centres, and FS to provide training for RAI employees. The agreement has unlocked SACE-guaranteed Italian state export financing for the projects.

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.

In April 2016, work was also reportedly started on a dual-gauge rail bridge project to connect Iran and Azerbaijan. The 82m long three-span bridge, to be built across Astarachay River, will comprise a 1,520mm and a 1,435mm gauge rail track. The bridge will link **Azerbaijan Railways'** railhead at Astara with the similarly named Iranian city, where it will connect with the **Islamic Republic of Iran Railways** network. Construction of the Astarachay bridge will be completed by end-2016 (International Railway Journal). A line from Rasht to Astara is reportedly scheduled to be commissioned in 2017.

In turn, 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 progress. It is hoped that 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.

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. A major part of the expansion in capacity is focused 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 in recent quarters.

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. We expect Iran to start developing better and more autonomous port infrastructure on the back of the lifting of international sanctions.

Chabahar Port Plan A Major Boost For India-Iran-Afghanistan Triangle

The agreement between India and Iran to develop the latter's port of Chabahar is a major boost for both countries, as well as Afghanistan. In particular, growing co-operation between the three countries will counterbalance the China-Pakistan alliance in the geopolitics of South West Asia.

The governments of India, Iran, and Afghanistan have taken a significant step towards closer co-operation by signing an agreement on May 23 2016 to develop Iran's southern port of Chabahar. Once the port is developed, it will provide a major boost for Indo-Iranian trade, and also provide a new route for Afghanistan's exports, bypassing Pakistan. In particular, the new port at Chabahar is designed to compete with Pakistan's port of Gwadar, which is being developed with Chinese assistance as part of the China-Pakistan Economic Corridor (CPEC). CPEC in turn is part of a much bigger Chinese initiative known as

'One Belt One Road' (OBOR), which envisages new land and sea routes connecting China to Western Eurasia and East Africa.

Narendra Modi's visit to Iran was the first by an Indian prime minister to that country in 15 years. While there, he signed the port deal with Iranian President Hassan Rouhani and Afghan President Ashraf Ghani, and pledged USD500mn towards the development of Chabahar. The port development scheme was first proposed in 2003, but the tightening of international sanctions on Iran over its nuclear programme deterred international - including Indian - investment in it.

Now that most international sanctions on Iran are being eased, India has moved to revive the project. India's desire to develop a port in Iran is a direct response to China's development of the port of Gwadar in Pakistan over the past decade or so. Indian defence strategists have long perceived Beijing's role in the development of ports such as Kyaukphyu in Myanmar, Chittagong in Bangladesh, Hambantota in Sri Lanka, and Gwadar itself, as part of a Chinese masterplan to establish de facto naval bases along the main shipping routes in the Indian Ocean, with the aim of containing India (see 'Indian Ocean: The Growing Struggle For Dominance', March 6, 2010). In the early 2000s, this alleged scheme came to be known as the 'string of pearls' in US and Indian defence circles. In our view, the military dimensions of the 'string of pearls' are exaggerated, as none of the ports seems set to host a permanent Chinese naval presence, let alone allow Beijing to use them as bases in the event of war. Even so, India remains concerned about China's growing presence in the northern Indian Ocean and is responding accordingly.

Iran stands to benefit from Chabahar, as it will get an enhanced port from which to export more goods to India and the Asia-Pacific region, at a time when Iran is seeking to reintegrate itself into the global economy. Iran would also benefit from increased Indian investment. For their part, it seems that Indian firms are seeking to gain first-mover advantage in one of the world's biggest new emerging markets, at a time when Western companies are still hesitant about entering Iran.

India will strengthen its ties with Iran and thus its economic presence in the Gulf region. In addition, trade to and from Chabahar will allow India to increase its commercial influence in Afghanistan, physically bypassing Pakistan, whose generally hostile stance towards India impedes New Delhi's ability to develop ties with Kabul. India's interests in Afghanistan are mainly focused on challenging Pakistan's position, but India is also interested in tapping Afghanistan's natural resources (see 'India Eyes Expanded Involvement, Post-2014', January 31, 2012) and those of Central Asia.

Afghanistan will get a new trade outlet to the Gulf, Arabian Sea, and Indian Ocean, bypassing the port of Karachi in Pakistan. Afghan-Pakistan relations are complex and frequently strained, due to Islamabad's past

support for the Taliban insurgency in Afghanistan. The Taliban suffered a blow on May 20, 2016, when its leader Mullah Akhtar Mansour was killed in a US drone strike.

Table: Key Transport Infrastructure Projects

Project Name	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Chabahar-Zahedan-Mashhad Railway	3,400.00	1,330	km	Iran Roads and Transportation Ministry[Operator]{Iran}	2015	Under construction
Imam Khomeini International Airport Expansion Project Phase 2, Tehran	2,800.00	-	-	Bonyad Taavon[Sponsor]{Iran}, Government of Iran[Sponsor]{Iran}	-	At planning stage
Tehran-Isfahan High-speed Railway	2,730.00	400	km	China Export & Credit Insurance Corporation (Sinasure)[Financier]{China}, China Railway Engineering Corporation (CREC)[Construction]{China}	2019	Under construction
Tehran-Khosravi Rail Line	2,000.00	569	km	-	-	At planning stage
Tehran-Mashhad Rail Line Electrification Project	2,000.00	900	km	Mapna[Construction]{Iran}	-	Under construction

BMI Infrastructure Key Projects Database

Energy And Utilities Infrastructure – Outlook And Overview

BMI View: *The lifting of international sanctions will considerably benefit Iran's energy and utilities infrastructure. We expect significant investment to target the country's power and utilities infrastructure to support the extraction of hydrocarbons as well as improve Iran's insufficient electricity and water networks. Investor interest in Iran's power market will continue to rise, in line with the removal of the sanctions, the country's strong growth in power consumption and the government's ongoing commitment to boosting the role of renewable energy in the power mix.*

Latest Updates

- We expect Iran's power infrastructure sector to attract considerable investment to upgrade transmission networks and outdated generation facilities. In line with this view, Italian state-owned **Finmeccanica's** engineering unit **FATA** signed a EUR500mn (USD543mn) contract with Iranian firm **Ghadir Investment Company** to build a combined-cycle power plant in Iran. During the visit, the Italian government agreed to provide financing and insurance for construction, industrial and infrastructure projects worth at least EUR3bn (USD3.26bn) in Iran.
- Diversifying its energy mix has become a priority for Iran and as such, the country is looking to invest heavily in renewable energy. In fact, Iran expects to complete building its 50MW pilot geothermal power facility in Ardabil province over the next two years. The plant will be the Middle East's largest geothermal facility to date. The country also reportedly plans to build solar and wind power plants in order to generate 5GW from such sources by 2020.
- Iran and Germany have entered a contract to build a 100MW wind farm and two 20MW photovoltaic solar power plants in the Arvand Free Trade Zone. The project will be reportedly developed by a German investor and Iran's private sector.
- Falling government revenues as a result of low oil prices have increased Iran's reliance on multilateral funding. Following this trend, the country secured USD95mn in funding from the Islamic Development Bank (IDB) for a project to build Sarney dam near Minab, Hormozgan province. The funds will be used to develop a water transmission system and a treatment plant for Minab. The dam will have a reported annual storage capacity of 28mn cubic metres (cu m), of which 19mn cu m will be for drinking, while the rest will be allocated for irrigation purposes. The project is expected to go online in early 2019.
- Oman is also interested in investing in Iran's water infrastructure sector and announced **Sarooj Construction Company** intends to bid for Phase 2 of the Golgohar water pipeline project. The tender will reportedly be issued for a 300km, 2m wide water pipeline rising from the sea to an elevation of 1,700m. According to local media, the company will bid for the contract with its Iranian partners.

Structural Trends

2016-2020: Strong Demand To Attract Investment

The relaxation of nearly all international sanctions placed on Iran, strong growth in power demand and the government's supportive policies towards renewable energy will drive investment into Iran's power market

over the coming decade. We expect power consumption to increase by an annual average of 4.1% between 2016 and 2025, supported by a buoyant economy - and this will necessitate an expansion of power capacity in the country.

Strong Russian Cooperation For Energy Infrastructure Development

In the post-sanctions context, we expect Russia to continue to play a predominant role, particularly in Iran's nuclear energy sector. To realise the above mentioned expansion in power generation capacity, Iran and Russia have signed several agreement on energy cooperation and are constructing shared power grids. In fact, Iran and Russia entered into a preliminary agreement to build at least two nuclear power plants in March 2014, according to Iranian Atomic Energy Organisation spokesperson, Behrouz Kamalvandi. The two new 1,000MW stations will be built alongside the existing 1,000MW power plant in Bushehr.

In addition, Russia announced in April 2014 that it will invest USD10bn in Iran's power sector, including hydropower and thermal power plants, as well as transmission and distribution (T&D) infrastructure. It has been suggested 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. Under the contract, the Russians will reportedly 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 some of 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 70% of the country's total power generation by 2018, increasing to more than 73% by 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.

With regards to some of the key energy infrastructure projects, 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 as the country's ability to meet export obligations is in doubt given its own domestic gas shortfalls. That said, local news reported in August 2015 that Russian firm **Rostekhn**

Corporation plans to build the Pakistani section of the pipeline in 2017 at an estimated cost of USD2.5bn. The 1,094.35km section will reportedly be funded by Russian and foreign financiers.

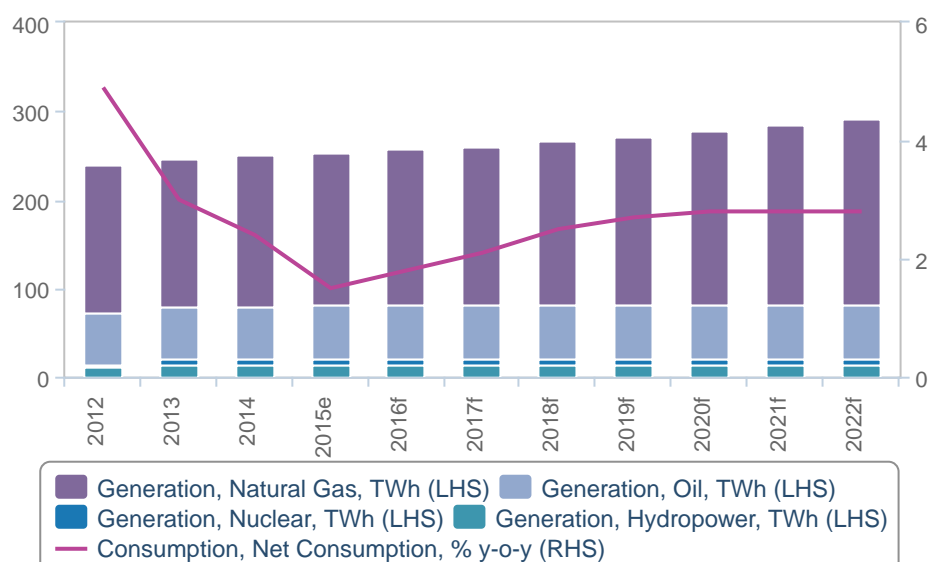
There are also plans to build a USD1bn natural gas pipeline between Oman and Iran, as announced in April 2014. However, we believe this announcement is politically motivated as Iran attempts to form alliances in the region and we do not expect this project to be realised in the near future. Furthermore, we question Iran's capacity to export gas as part of the agreement, given its internal supply shortages and multiple commitments to export gas to Iraq and Pakistan. 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. Post-sanctions, Expert and commercial studies on a project to develop an undersea gas pipeline from Iran to Oman will be completed in six months, according to Oman's Minister of Foreign Affairs Yusuf bin Alawi bin Abdullah as announced in February 2016. The pipeline will transfer 20mn cubic metres of Iranian gas per day to Oman for 25 years.

Last but not least, South Korean **GS Engineering & Construction** has been 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 media.

In March 2016, the governments of Iran and South Korea have signed three deals, worth about USD1.6bn. One of the deals involves construction of a 60 megalitre-a-day desalination plant in Iran. The desalination facility will be built in the Chabahar Free Trade-Industrial Zone (CFZ) by South Korean steel-making company POSCO and Korea Electric Power Corporation, reports the Tehran Times. A second deal involves a memorandum of agreement signed between POSCO and Iranian steelmaker Pars Kohan Diar Parsian Steel (PKP) to jointly build a steel mill, also in CFZ. POSCO's subsidiary POSCO Energy signed the third memorandum of understanding with PKP to build a 500MW gas-fired power plant, which will use gas from the planned steel mill.

Highly Reliant On Gas

Iran Power Generation Mix And Electricity Consumption Real Growth % y-o-y



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

Strong Renewables Interest

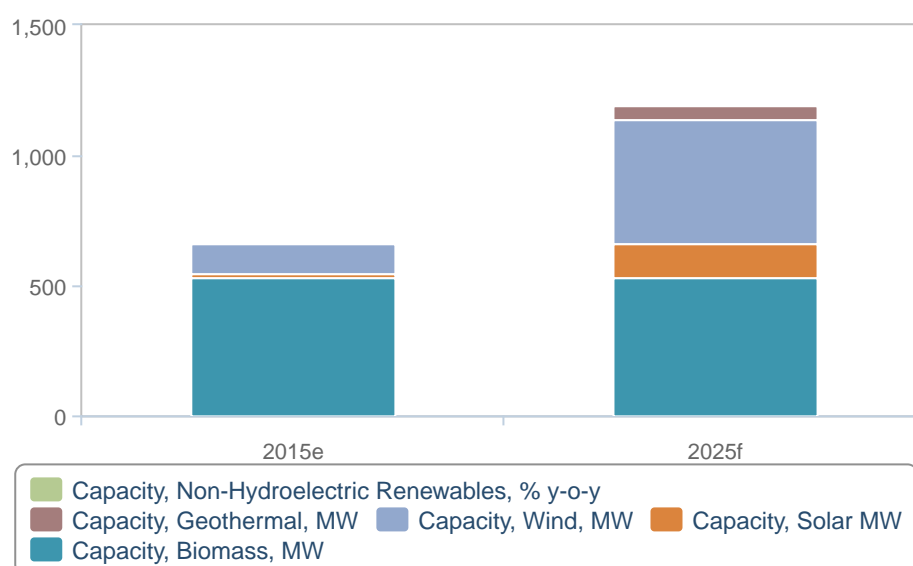
According to our Power Team analysts, investor interest has notably increased over the last few months and the project pipeline for both renewable energy and conventional power projects has strengthened - in line with our view (*see Sanctions Removal To Rejuvenate Power Project Pipeline, January 19*). We have seen investment pledges from numerous international companies, particularly Italian firms, but also German, UK, Turkish and South Korean companies.

Our Power analysts expect gas to remain the dominant fuel for electricity generation, actually increasing its share to 75% (from a current level of around 70%) of the country's total power mix over our 10-year forecast period. By increasing its dependence on domestic gas resources, Iran will be able to reduce the amount of oil used in power generation and preserve it for export. They expect oil-fired power generation to grow by just 1.2% between 2016 and 2025, reducing its share in the power mix from 22% to 17%. Conversely, natural gas will increase by 46.3% during the same time period, as new gas-fired power plants are gradually commissioned and the existing fleet of gas power plants are upgraded or replaced with more

efficient combined cycle gas turbines. Average efficiency rates across Iran thermal power plant fleet are currently reported to be 37%.

Renewables On The Rise, But Below Expectations

Iran - Non Hydro Renewables Capacity By Type



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

While we acknowledge that the project pipeline is strengthening and interest in Iran's power market will continue to rise, we remain cautious with regards to how much of the planned project pipeline will be commissioned. This is due to the sizeable risks associated with doing business in the country - ranging from limited access to financing, corruption and bureaucratic hurdles and government economic interventionism.

This is particularly evident in the renewables sector, which has seen a significant influx of international players enter the market via the signing of MoUs with Iran for the development of renewable energy projects (see *'Renewables Investor Interest Growing, Operational Risks Still High'*, April 29). The government aims to install 5,000MW of renewables capacity by 2018 and has increased its feed-in-tariffs in order to reach this target. However, we do not expect the government to succeed in meeting these targets, owing to the aforementioned risks and the underdeveloped nature of the renewables sector at present (renewable electricity generation contributes less than 1% to the total, as of 2016). Although we expect

robust growth in wind and solar capacity, installed non-hydro renewables capacity will stand at just over 1GW by 2018.

Uncontroversial Power

In moves, which are unlikely to rouse similar levels of protest as the development of nuclear energy, the governments of Iran and Turkey plan to build several power plants, according to Iranian deputy energy minister Mohammad Behzad, following a visit by an Iranian delegation 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 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 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

Given the country's frequent water shortages - particularly in times of drought - we have seen increasing investment target the water infrastructure sector. For example, the government of Iran opened the fifth and sixth units of a wastewater treatment plant in southern Tehran in March 2015. 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 addition to the above mentioned project for the Sarney Dam, the Islamic Development Bank (IDB) also 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.

Table: Key Projects: Energy & Utilities

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Bushehr Nuclear Power Plants - Phase II	Power Plants & transmission grids	10,000.00	2,000	MW	Atomic Energy Organisation of Iran[Sponsor]{Iran}	-	At planning stage
Bakhtiari Hydropower Plant CDM Project, Zagros Mountains, Lorestan	Power Plants & transmission grids	1,500.00	1,500	MW	Iran Water & Power Resources Development Co[Operator]{Iran}, Rahbord Energy Design & Development Eng. Co. (REDECo) [Consultant/Project Management]{Iran}	-	Under construction
Caspian Sea-Semnan Water Pipeline And Desalination Plant	Water	1,000.00	200	mn m3 per year		-	Under construction
Tabas Coal Fired Power Station, Khorasan	Power Plants & transmission grids	880.00	650	MW	Tavanir[Sponsor]{Iran}, Iran Power Plant Investment Company[Operator]{Iran}, Mapna[Equipment]{Iran}	-	Under construction
Persian Gulf coast water supply pipeline	Water	243.30	762	km		-	Announced
Qazvin Wind Park, Kahak	Power Plants & transmission grids	200.64	100	MW	Mapna[Sponsor]{Iran}	2016	Under construction

BMI Infrastructure Key Projects Database

Residential/Non-Residential Building – Outlook And Overview

BMI View: *After years of underperformance in Iran's residential and non-residential building sector, we now expect growth to return to the sector from 2016 onwards, in line with the wider construction industry and economy. We anticipate demand for offices, social and industrial infrastructure to increase, as well as affordable housing projects, given the country's large deficit in this segment.*

Latest Updates

- Iran's residential and non-residential sector has underperformed over the past few years due to shrinking domestic purchasing power and the rising costs of building materials in the context of a depreciating currency. Although some of these challenges will remain - in addition to high levels of corruption and bureaucracy - we believe the sector will play a key role in driving construction industry growth in the coming quarters.
- Our Country Risk Team expects housing inflation to remain elevated in 2016, largely a result of the inadequate supply of housing units. Over the next five years, we see inflation in this component declining, as a gradually improving macroeconomic environment and the government's efforts to promote private sector involvement in the residential construction sector result in an uptick in housing supply.
- Stimulating the housing sector has become a priority for the government, given the ripple effect it has on the steel and cement industries. In addition, the construction sector is estimated to generate 15% of Iran's jobs, according to government estimates.
- Local media announced that Oman's **Sarooj Construction Company (SCC)** will spend USD120mn developing its 50% owned Sarooj Pars Complex in Kerman in Iran. The complex will have a built-up area of about 60,000sq m, including a hotel, office block, mall and entertainment facilities. The first phase of the development is expected to take up to three years to be completed.
- We have also highlighted India's strong interest to invest in Iran's infrastructure. This view has started to materialise with the announcement that **National Aluminium Company Limited (NALCO)** plans to build an aluminium smelter and captive power plant worth USD2.6bn in Iran. The Indian firm's plan to build the 1mn tonne capacity plant in Iran is reportedly driven by power shortages in the Asian country, given power makes up 40% of smelting costs.
- Investments in hospital structures are also to see an increase in interest. Confirming our expectation, the first half of 2016 saw Italian firm Pessina Costruzioni sign a memorandum of understanding (MoU) with Iran's Ministry of Health to build five hospitals in Iran. Three 1,000-bed hospitals will be built in Tehran, reports the Iran Project. Two 500-bed units will reportedly be built in the cities of Rasht and Nayshabur. South Korean construction companies have agreed to build hospitals with 6,000 beds in Iran at a total cost of USD2bn, according to the country's Ministry of Health and Welfare.

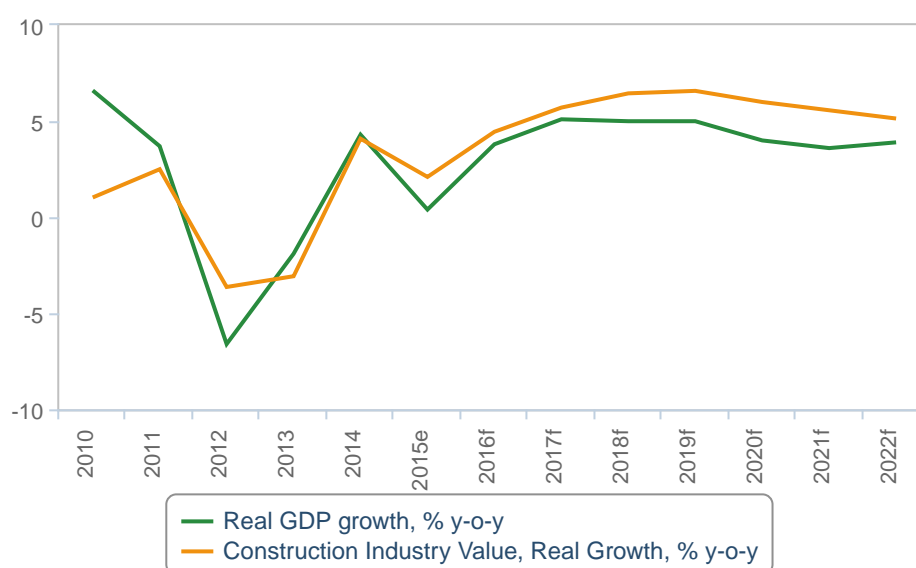
Structural Trends

2016-2020: High Demand For Housing

Demand for housing stock has traditionally been a key driver for the construction sector in Iran, but during sanctions over the country's nuclear programme the sector fell behind. In the years before President Mahmoud 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 led to a crisis in the housing market. As a result, there is a shortage of urban housing, affecting the middle class.

Back On The Right Track

Iran GDP And Construction Industry Forecasts



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

The interplay of elevated price pressures and a weak currency maintained high unemployment in Iran in recent years. Iranians' purchasing power eroded steadily over the past several quarters, with inflation

making it difficult to purchase basic goods. That said, we expect activity in the housing market to recover from 2016, on the back of government policy to support the sector and improving macroeconomic conditions - particularly unemployment - which will result once sanctions are lifted.

In an effort to reduce the country's housing deficit, the Iranian government has made ambitious project announcements over the last five years. For instance, there are 800,000 units planned to be built in rural villages. That said, 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 housing prices will remain relatively elevated, 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.

Improving Macroeconomics

Iran Inflation And Unemployment Rates



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

Industrial Construction Gaining Steam

We have started to notice increasing activity in Iran's industrial construction sector. For instance, the government reportedly plans to build eight condensate refineries in the South Pars region in Bushehr province, as announced in June 2015. According to Iran's Oil Ministry, the private sector will be heavily involved in the implementation of this project. The refineries will have production capacity of 24,800 barrels per day (b/d) of liquefied gas, 148,000b/d of heavy naphtha, 128,000b/d of light naphtha, 149,600b/d of diesel and 29,600b/d of jet fuel. Expanding its refining capacity is critical for the long-term growth of the country.

In May 2016, it was reported that South Korea-based Daewoo Engineering & Construction (Daewoo E&C) has signed a memorandum of understanding (MoU) with Iran-based Bahman Geno Company to jointly build an oil refinery in Iran. The project, worth about USD10bn, involves building a refinery with capacity of 300,000 barrels per day in Bandar-e Jask. South Korean construction firm Hyundai Engineering & Construction and several local companies will also work on the project.

Furthermore, the **Steel Authority of India Limited (SAIL)** plans to build a steel manufacturing plant in Bandar Abbas. The USD1.62bn project comprises construction of processing units, warehouses, production units, distribution units and related infrastructure. The project is scheduled to be completed in Q119. This followed the announcement that two China-based firms, **Metallurgical Corporation of China** and **Zhongye Changtian International Engineering**, reportedly secured a contract to build; 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 complete, the plant will be capable of producing 5mn tons of pellets annually. The plant is scheduled to start operating by July 2016.

Investments in hospital structures are also to see an increase in interest. Confirming our expectation, the first half of 2016 saw Italian firm Pessina Costruzioni sign a memorandum of understanding (MoU) with Iran's Ministry of Health to build five hospitals in Iran. Three 1,000-bed hospitals will be built in Tehran, reports the Iran Project. Two 500-bed units will reportedly be built in the cities of Rasht and Nayshabur. Separately, the Export-Import Bank of Korea signed an MoU with an Iranian entity to develop 10 hospitals and pharmaceutical centres in the country.

In addition, in May 2016 South Korean construction companies have agreed to build hospitals with 6,000 beds in Iran at a total cost of USD2bn, according to the country's Ministry of Health and Welfare. More than 50 memorandums of understanding (MoUs) have been signed for the healthcare projects as well as

projects from other sectors, following South Korean President Park Geun-hye's visit in Iran earlier in May. According to the MoUs, Samsung C&T will build two hospitals in Tehran and Mazandaran, while Hyundai and POSCO Daewoo Corporation will build another hospital in Fars. Healthcare facilities will also be built by Daelim Industrial, GS Engineering & Construction, Hanwha Corporation and Korea Medical Holdings.

Table: Key Projects: Construction & Social Infrastructure

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Bandar-e Jask Oil Refinery, Hormozgan	Industrial Construction	10,000.00	300,000	b/d	Hyundai Engineering & Construction[Construction]{South Korea}, Bahman Geno Company[Operator]{Iran}, Daewoo Engineering & Construction Company[Construction]{South Korea}	-	At planning stage
NALCO Aluminium Complex	Industrial Construction	2,600.00	1,000	'000 tonnes	National Aluminium Company Limited (NALCO)[Sponsor]{India}	-	At planning stage
Bandar Abbas Steel Plant, Hormozgan	Industrial Construction	1,620.00	2,000	'000 tonnes	Steel Authority of India Limited (SAIL) [Operator]{India}	2019	Announced
Bafq Pellet Plant, Yazd	Industrial Construction	300.00	5,000	'000 tonnes	Bafgh Mineral Complex Iron and Steel Industry Company - B-MISCO[Sponsor]{Iran}, China Metallurgical Group Corporation[Construction]{China}, Zhongye Changtian International Engineering Company[Construction]{China}, Outotec[Consultant/Project Management]{Finland}	2016	At planning stage
Sarooj Pars Complex, Kerman	Commercial Construction	120.00	60,000	square metres	WJ Towell[Operator](50){Oman}, Sarooj Construction Company[Operator](50){Oman}	-	Under construction

BMI Infrastructure Key Projects Database

Industry Risk Reward Ratings

Iran - Infrastructure Risk/Reward Index

For Iran, political risk is the greatest ongoing threat, which was also accompanied by sanctions, preventing many of the largest construction companies from entering the market. Sanctions also hit the government's finances to the extent that public infrastructure investment was significantly reduced. However, the lifting of sanctions in early 2016 is having a positive impact on the country's Risks and Rewards scores.

Evidencing this trend, Iran scores 42.3 out of 100 in our RRI for the Middle East this quarter, a continued improvement from last year's 37.5.

Rewards

Industry Rewards

Iran scores a weak but improving 42.5 for Industry Rewards, from 32.5 last year prior to sanctions relief. Although we do not expect the construction sector to recover to pre-crisis growth levels soon due to structural weaknesses in the economy, we are turning more positive on Iran following the lift in sanctions. In terms of value, the Iranian construction industry is sizeable, and with a large and growing population, there is strong demand for infrastructure development.

Country Rewards

Iran is 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 scores 35.0 for Industry Risks, reflecting the high barriers to entry and lack of competition in the country's infrastructure market. 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 an improved score of 46.2 for the Country Risks sub-category - also, below the regional average. 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 renewed political and economic isolation should sanctions be reinstated. 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 the latest data available.

MENA Infrastructure RRI: Oil Prices And Security Remain Key Risks

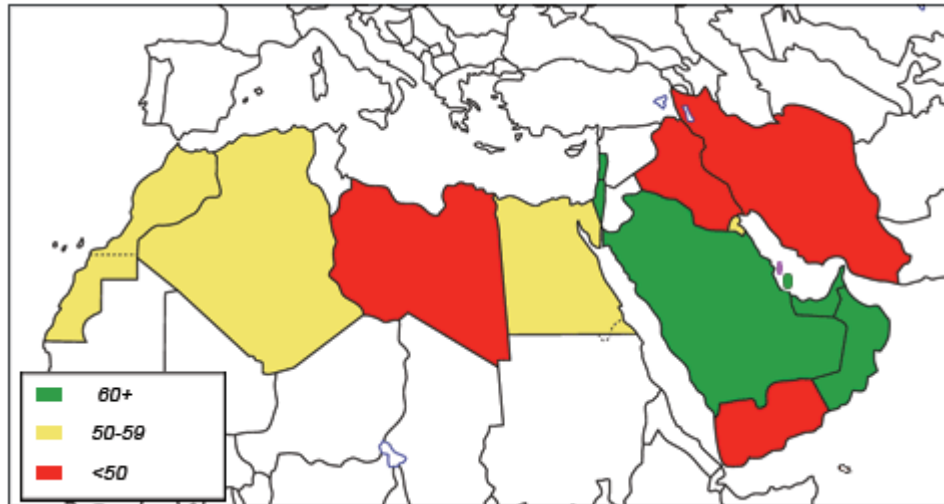
BMI View: *The GCC infrastructure markets remain regional outperformers in our Infrastructure MENA RRI this quarter, despite pressure mounting on capital expenditure in the face of sustained lower oil prices. In line with our view that Qatar is best insulated from low energy prices, it has taken the top spot in the table. There is a strong prospect of Iran moving up the table over coming quarters following the lifting of sanctions, but in the meantime Egypt and Morocco are the more attractive higher-risk markets in the region.*

The Gulf Cooperation Council (GCC) members on the whole remain the most attractive market in the MENA region, according to our Infrastructure Risk Reward Index (RRI). Qatar has reclaimed its position at the top of our regional RRI table. Saudi Arabia, Oman and the UAE occupy the next three spots after Qatar respectively. Kuwait and Bahrain outperform regional averages in three of the four pillars of the RRI, but lower Industry Rewards scores - largely on account of limited market size and slower growth - mean they do not accompany their GCC counterparts at the top of the table. Overall the GCC's relative economic openness, infrastructure-focused governments and keenness to attract international investors to position themselves as global business hubs, means they will remain choice markets for construction, engineering and services companies looking to expand their global footprint.

We expect these structural advantages to see the long-standing outperformance of regional average scores by the GCC to continue over our forecast period, but over 2016 and 2017 it will weaken as the impact of lower energy prices truly takes hold of economic growth, government revenues and overall sentiment. We have seen Saudi Arabia and the UAE record lower scores for Industry Rewards this quarter.

Rewarding Markets Clear

MENA Regional RRI Scores



Notes: Scores 0-100, Higher score=lower risk. Source: BMI

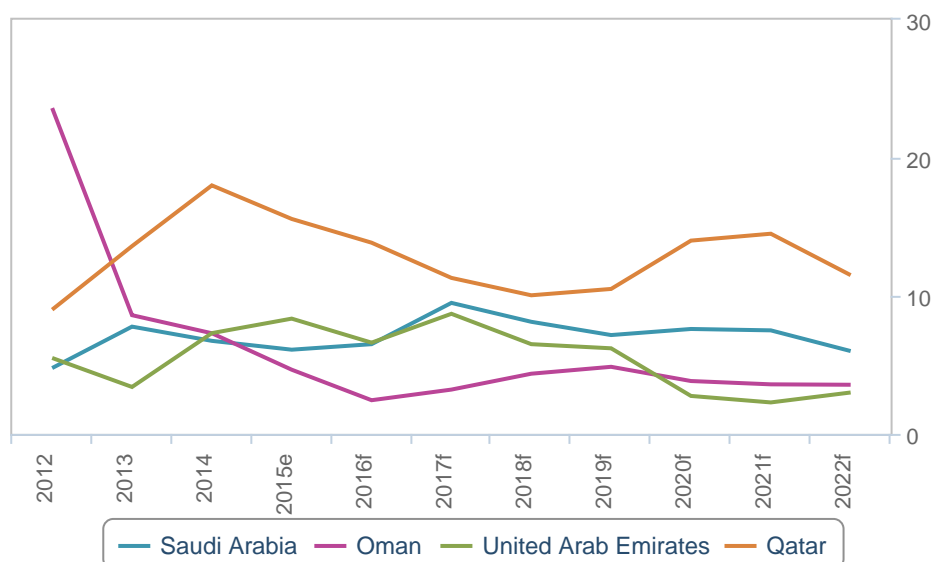
Low Oil Prices To Sustain Pressure In Infra Spending

While our expectation is for governments on the whole to remain supportive for infrastructure spending, given the severity of the reduction in oil revenues facing Saudi Arabia, Oman and Bahrain in particular, there will be delays to implementing projects of secondary importance. The most severe impact from the fall in oil prices will be on private sector investment. Corporate sectors across the region are facing a much more challenging environment, amid waning fiscal support to the economy; rising financing costs due to tightening liquidity conditions; higher fuel and utility costs; and the new strains on consumers' purchasing power. By no means do we expect any of the region's construction sectors to fall in recession as a result of this, but growth will slow after half a decade of rapid expansion.

Our Oil and Gas team forecasts Brent to average USD40.0/bbl in 2016. H216 will mark the beginning of a sustained rebalancing of the global crude oil market, paving the way for a 32.5% y-o-y rise in the average annual price of Brent to USD53.0/bbl in 2017. Many GCC governments have begun to adjust their budgets in response to low prices over 2015. However, we expect continued pressure in the private sector in terms of investment in construction projects while oil prices remain subdued, which will impact on rewards in the grouping.

Weakening Infrastructure Forecasts

Construction Industry Value Real Growth Forecasts



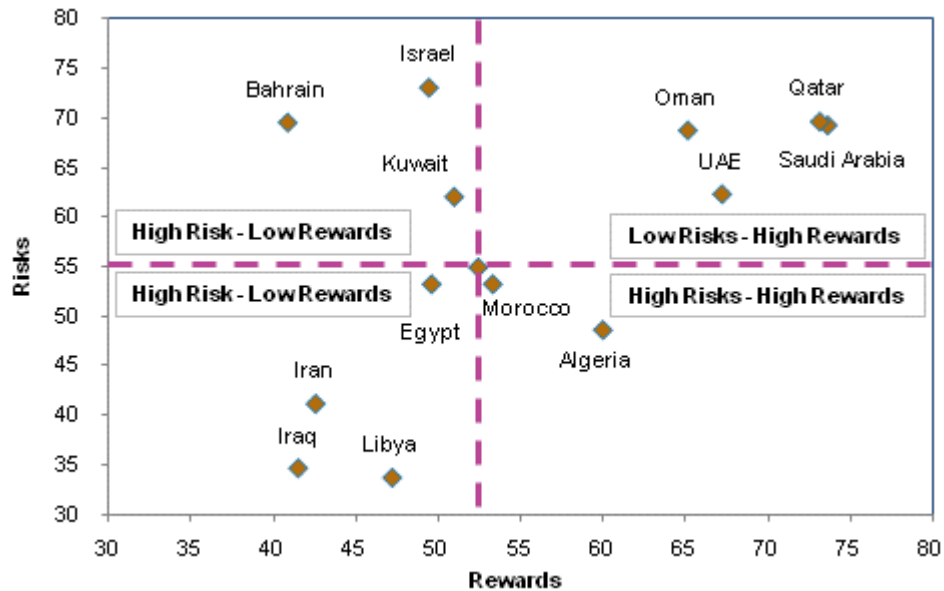
e/f = BMI estimate/forecasts. Source: National sources, BMI

The impact of lower oil prices has materialised in the GCC's largest market, Saudi Arabia, where private sector investment in construction projects has weakened significantly. Government financing - the main driver of growth in the country's construction sector - will remain robust in 2016, but from 2017 onwards we expect the government to face growing pressure on its fiscal position, which will result in the rationalisation of the project pipeline. Furthermore, Saudi domestic construction giant **Saudi Binladin Group's** unconfirmed plan to cut 15,000 staff out of the group's total workforce of 200,000 is an indication of the pressures companies in the construction sector are facing.

In Qatar, which has moved to the top of our RRI regional table this quarter, we continue to see strength in the construction sector even in the face of lower energy prices. The Qatari economy has been well shielded from the effects of subdued oil prices, owing to prudent government fiscal policies and the fact that liquefied natural gas (LNG) - Qatar's main export - is less affected by price volatility than oil. Qatar also has a sizeable sovereign wealth fund and is able to tap into international debt markets. While the government has spoken of the need to control spending, we do not expect a major shift in government expenditures or an effect on consumer confidence over the coming quarters.

Rewards Falling, Risks Rising

MENA - Risk/Reward Index Matrix*



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

Egypt and Morocco Top Higher Risk Markets

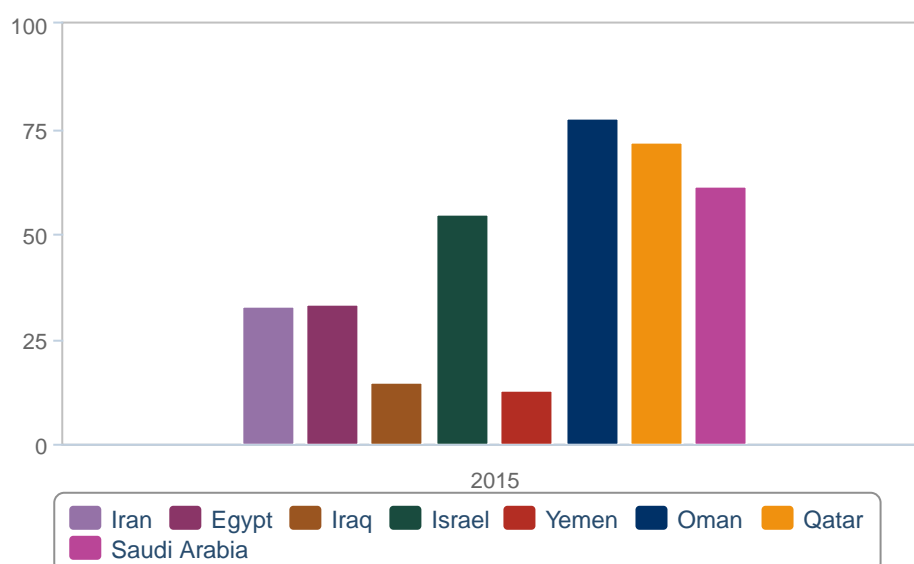
We see little prospect for a full resolution to the volatility in Iraq, Yemen and Libya; as such, these market's risk/reward profile remains heavily weighted towards risks. Together these markets are the lowest scoring in our RRI for the MENA region and while there is substantial reward potential to come from reconstruction efforts (as we have previously seen in Libya and Iraq), they remain a distant prospect at present.

Despite further gains to come against Islamic State (IS), Iraq's political stability will not improve over the coming months. There is little hope for sectarian tensions and the political crisis in Baghdad to wane rapidly, while IS could fuel instability by carrying out terror attacks throughout the country in response to military defeats on the front line. In Libya, while we expect the formation of a unity government between the Tripoli and Tobruk sides to occur in 2016, we believe Western military intervention against IS in Libya, in the form of airstrikes, is likely over the coming months as the group continues to expand its presence in the country. Finally, in Yemen, gradual progress towards a peace deal offers some respite, but we do not

expect a lasting agreement to be put in place for months. Even an end to the conflict would provide only slight relief to the problems facing the economy.

Varying Security Enviroments

MENA - Crime & Security Risk Index*



*high score = low risk. Source: BMI Operational Risk Index

Of the higher risk markets, we note Morocco and Egypt offer comparatively safer operating environments and significantly higher rewards. In both cases, governments are in place which are extremely supportive of infrastructure investment and furthermore, are utilising the private sector to help realise ambitious project pipelines.

Morocco's construction industry will register annual average growth of 3.5% in real terms over our 10-year-forecast period as government expenditure, as well as foreign investment continues to flow into the transport, energy and residential sectors. The draft 2016 budget is targeting 17,000 housing units and increasing capital expenditure spending by close to 8% to MAD61.4bn. Similarly, we expect Morocco to remain a leading destination for FDI over 2016, benefiting from strong political support for economic diversification, and relative security compared to the rest of the Middle East and Africa. Morocco's share of African FDI increased from 3.6% in 2009 to 6.6% in 2014, according to data from the UNCTAD's 2015

World Investment Report. This compares to a continuous decline in all other North African countries, with Algeria, Tunisia and Egypt's cumulative share falling from 20.5% of total African FDI in 2009 to 13.6% in 2014.

We expect Morocco's RRI performance to remain one of the more stable in the regional grouping. The market benefits from relative security, its favourable geographic location and the government's pro-investment stance, which will support the country's transition towards higher-value manufacturing. Rabat is providing financial and trade incentives to companies setting up business in Morocco, as well as developing an extensive network of free trade zones around the country. We expect the current coalition government to be re-elected in the September 2016 parliamentary elections, allowing for policy continuity until 2021.

Egypt's significant infrastructure project pipeline continues to garner the interest of international investors, but we note this quarter the security and economic situation in the country has deteriorated significantly and we expect the situation to worsen before it stabilises. The government's ability to finance projects is under threat as sovereign bond yields have shot up since November 2015, following the bombing of a Russian airplane in the Sinai Peninsula, which is devastating the tourism industry - a crucial foreign exchange earner. At the same time, the budget deficit has swelled (we forecast 10.0% of GDP in 2016) and will decline only slowly despite subsidy reform and lower oil prices. In addition, yields on Egypt's bonds will inevitably rise over the coming quarters, given the further hikes in US interest rates in H216 and our expectation for a 10% devaluation in the Egyptian pound against the US dollar. That said, the robust government support for public-private partnerships (PPPs) and a growing infrastructure project pipeline will see the construction industry grow strongly in coming quarters. Egypt will tender 12 PPPs across all sectors in the next 15 months for an estimated value of USD4bn.

With regards to Iran, we maintain a positive outlook for 2016 as we expect international sanctions to be lifted. Pent-up demand, a youthful population, a skilled workforce, and a strong hydrocarbon and consumer story all make Iran one of the most positive and relatively well balanced economic growth stories in the Middle East over the next decade. Following the lifting of sanctions, Iran gains immediate access to frozen assets for an approximate value of USD30-50bn, which will free up resources for public spending on infrastructure. In addition, Iran will regain access to SWIFT and the international banking system, which will considerably improve project financing for infrastructure. This will result in the gradual return of private investment into the country, which will considerably benefit the infrastructure sector. That said, we believe Iran's business environment will continue to present severe challenges including elevated political risk, macroeconomic weaknesses, a comparatively uncompetitive labour market, and widespread corruption.

Table: MENA RRI

	Rewards			Risks			Infrastructure Risk/Rewards Index Score	Regional Ranking
	Industry Rewards	Country Rewards	Rewards	Industry Risks	Country Risk	Risks		
Qatar	75.0	74.2	74.7	75.0	67.8	70.7	73.5	1
Saudi Arabia	77.5	61.6	71.9	75.0	66.1	69.7	71.3	2
Oman	67.5	60.7	65.1	82.5	60.0	69.0	66.3	3
UAE	70.0	57.3	65.6	60.0	66.3	63.8	65.0	4
Israel	40.0	80.9	54.3	75.0	76.0	75.6	60.7	5
Kuwait	52.5	71.3	59.1	57.5	64.0	61.4	59.8	6
Algeria	65.0	41.3	56.7	47.5	52.1	50.3	54.8	7
Morocco	50.0	59.4	53.3	55.0	57.5	56.5	54.3	8
Egypt	47.5	58.1	51.2	55.0	52.4	53.5	51.9	9
Bahrain	25.0	65.8	39.3	77.5	65.0	70.0	48.5	10
Iran	42.5	42.7	42.6	35.0	46.2	41.7	42.3	11
Iraq	45.0	39.7	43.1	32.5	38.6	36.2	41.1	12
Libya	47.5	33.3	42.5	32.5	34.4	33.6	39.9	13
Yemen	17.5	18.3	17.8	37.5	26.0	30.6	21.6	14
<i>Regional Average</i>	51.6	54.6	52.7	57.0	55.2	55.9	53.6	-

Source: BMI

Market Overview

Competitive Landscape

Since the Iranian revolution the construction industry has been dominated by domestic companies, and we expect them to continue to play a protagonist role in the development of the country's infrastructure.

However, with the lifting of sanctions, we expect to see a widespread return of foreign investors, which is already beginning to materialise. We do note that a different set of sanctions for American companies continue, meaning a return of American companies will remain limited over the coming quarters.

Although European construction companies used to have a strong presence in Iran prior to the revolution, the majority of foreign players in the country have come from China or Russia during the last 30 years, targeting the transport and energy infrastructure sectors, respectively. Both countries have vested interests in Iran, in terms of geopolitics and commodities trade, and therefore have contributed heavily to fund major infrastructure projects. This trend was exacerbated by the 2011/2012 international sanctions imposed on Iran on the back of its nuclear programme. More recently, Sino-Iranian relations have strengthened with Iran having been approved as a founding member of the China-backed Asian Infrastructure Investment Bank (AIIB) in April 2015. In addition, Iran is highly supportive of China's Silk Road Economic Belt initiative as it would improve connectivity between Asia and the Middle East.

With the lifting of sanctions, we are seeing other companies from the Middle East, Asia and Europe preparing their return to Iran, with deals beginning to be signed as of Q216-Q316. For example, the **Islamic Republic of Iran Railways (RAI)** has signed a memorandum of understanding (MoU) with German **Siemens** for cooperation in the rail sector. The MoU includes projects such as Tehran-Mashhad railroad electrification and the construction of Tehran-Isfahan high-speed railway. Under the terms of the deal, Siemens will form partnerships with local companies to facilitate technology transfer. Another example includes the deal signed between the Italian and Iranian governments in February 2016 who signed a memorandum of understanding (MoU) for railway work worth about USD5.6bn. The work will be carried out by Italy's state-run Ferrovie dello Stato Italiane for Islamic Republic of Iran Railways.

India has also announced plans to build a port in the south-east of Iran in 2015. The governments of India, Iran, and Afghanistan have taken a significant step towards closer co-operation by signing an agreement on May 23 2016 to develop Iran's southern port of Chabahar. Once the port is developed, it will provide a major boost for Indo-Iranian trade, and also provide a new route for Afghanistan's exports, bypassing Pakistan. In particular, the new port at Chabahar is designed to compete with Pakistan's port of Gwadar, which is being developed with Chinese assistance as part of the China-Pakistan Economic Corridor (CPEC).

CPEC in turn is part of a much bigger Chinese initiative known as 'One Belt One Road' (OBOR), which envisages new land and sea routes connecting China to Western Eurasia and East Africa.

Further to this, local media reported the visit of an Indian delegation to Iran to explore opportunities in trade, energy, and infrastructure, with the aim to secure a first-mover advantage. India's **Larsen & Tuobro** (L&T) is studying projects in Iran's oil and gas sectors while **Tata Power**, **Adani Enterprises**, and **National Aluminium Co** are reportedly considering a power project, port and a smelter complex, respectively. Even US-based energy firms are reportedly surveying the Iranian market. In the region, we highlight **Orascom**, **Galfar**, and **Arab Contractors** as having the greatest potential to tackle projects in Iran. We therefore expect cement producers, equipment providers, and engineering companies to see demand for their products and services rise sharply.

Despite our more positive outlook on Iran's infrastructure now that sanctions have been lifted, we highlight risks that will continue to limit growth in the market. Some of the main challenges in increasing the use of public-private partnerships (PPPs) is the lack of transparency when tendering projects, questions over judicial independence, lack of established mechanisms to resolve contract disputes and corruption. At present, Iran's institutional framework does not provide significant investor protection nor address these issues. This is in addition to weaknesses in the labour market, high transaction costs and lengthy lead time for infrastructure projects.

Domestically, Iran's construction industry has been criticised for having poor building standards. Given Iran's high degree of isolation, construction firms have struggled to access modern technologies. In addition, 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	12/2014	1,936.728	10,225.64	-94.8541	1.186813	3.759674	na
China Gezhouba Group Co LT-A	12/2014	7,269.023	11,309.48	371.2016	5.982992	3.31632	19.82377
China National Chemical-A	12/2014	7,207.086	11,067.27	513.8812	1.136973	16.26681	14.68498
China Railway Group Ltd-H	12/2014	50,681.45	95,789.83	1681.531	7.156757	1.604153	12.48964
Daelim Industrial Co0 Ltd	12/2014	2,480.957	8,831.007	-431.343	na	-3.33127	na
Maire Technimont SPA	12/2014	1,050.975	2,053.023	66.81897	4.150313	19.43998	16.43407
Saipem SPA	12/2014	4,066.022	17,101.63	-305.552	7.694444	0.276382	na
Power Construction CorpOf-A	12/2014	24,460.17	26,408.73	776.8698	7.432638	2.072325	22.142
Vinci SA	12/2014	36,932.58	51,868.16	3302.621	3.301532	5.614247	12.57047

na = 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.
- Structural weaknesses in the Iranian economy and reduced government revenue as a result of low oil prices will limit 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.
- The agreement between Iran and the P5+1 countries paves the way for the removal of sanctions in 2016, which would facilitate project finance and attract foreign investment.

Threats

- Iran's business environment will continue to suffer from entrenched corruption, bureaucracy and a lack of transparency when tendering projects.
- The uncompetitive labour market threatens to increase the cost of infrastructure projects.
- The nuclear agreement signed in July 2015 could be derailed or abandoned at any point, particularly from 2017 onwards.

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. After evidencing this trend, the company started work on a USD2.5bn natural gas-fired power plant project in the Rumaila area of Basra in August 2015. Work on this plant - which will add 3GW of electricity to the Iraqi national power grid - has started after 18 months of negotiations with the Iraqi government. According to Executive Director Abbas Ali Abadi, 'the project is scheduled to be completed in four years, while the first unit will join the national network in early 2017'.

That said, Mapna's biggest projects remain in Iran. These include the Khouzestan 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 and Mapna Group is responsible for supplying the main equipment.

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.

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.

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 y-o-y. 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 percentage 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) provides 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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