

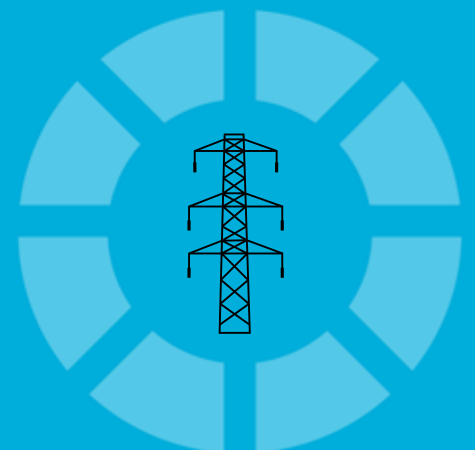
**Q4 2015**

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# **IRAN**

## **INFRASTRUCTURE REPORT**

INCLUDES 10-YEAR FORECASTS TO 2024



# Iran Infrastructure Report Q4 2015

INCLUDES 10-YEAR FORECASTS TO 2024

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## Part of BMI's Industry Report & Forecasts Series

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## BMI Industry View

***BMI View:** We have upwardly revised our construction industry forecasts for Iran on the back of the agreement reached with the P5+1 countries and the announcement that sanctions will be lifted faster than expected. Structural weaknesses in the Iranian economy - particularly the lack of competitiveness in the labour market - will present the main risks to investors willing to return to this market.*

### **Key Trends And Developments**

- We forecast 1.4% y-o-y real construction industry growth in Iran in 2015 and an average of 4.3% over the next five years as a result of the lifting of international sanctions.
- 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.
- The steep fall in oil prices in the past few months has prompted our Oil & Gas team to revise down their already bearish price forecasts and they now forecast Brent to average USD59.0/bbl in 2015. With the oil and gas industry accounting for an estimated 70% of the country's total exports, the government has been forced to cut public spending in infrastructure.
- With regards to economic growth, our Country Risk team forecasts Iran's economy to return to growth in 2015 with 0.6% real GDP growth. In the residential sector, we believe housing prices will remain elevated over the coming quarters, largely a result of a lack of appropriate housing units.
- Apart from Chinese and Russian companies, Arab, French, Turkish, Indian and South Korean construction firms have expressed an interest in returning to the Iranian infrastructure market. The lifting of international sanctions will considerably diversify Iran's competitive landscape.
- Despite an improving outlook for Iran's infrastructure sector, the country will continue to present significant challenges, including elevated political risk, macroeconomic weaknesses, social tensions and a lack of transparency.

# SWOT

## Infrastructure SWOT

### SWOT Analysis

#### Strengths

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

#### Weaknesses

- Not enough housing capacity is added annually, resulting in a 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.
- There are persistent reports of widespread corruption, including the routine payment of bribes to officials by major construction companies.
- Exorbitant land prices account for a disproportionate percentage of construction costs.
- Government deficit impact public spending on infrastructure projects.

#### Opportunities

- The lifting of international sanctions will increase opportunities in the construction industry.
- Conditions for foreign companies and contractors were eased as a result of the introduction of the Law for the Attraction and Protection of Foreign Investment (LAPFI), approved in 2002.

**SWOT Analysis - Continued**

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

**Threats**

- Falling oil prices are further limiting the capacity of the government to invest in infrastructure.
  - Iran is in a high seismic activity zone and earthquakes have cost the country millions of US dollars in reconstruction. 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 reinstated within 65 days.
-

# Industry Forecast

## Construction And Infrastructure Forecast Scenario

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

	2013e	2014e	2015f	2016f	2017f	2018f
Construction industry value, IRRbn	414,904.00	516,790.47	643,106.14	779,225.26	920,279.90	1,072,971.99
Construction industry value, USDbn	23.1	20.0	20.7	21.6	24.2	26.8
Construction Industry Value, Real Growth, % y-o-y	-1.66	-3.61	1.44	3.17	4.10	4.59
Construction Industry Value, % of GDP	4.6	4.1	5.0	5.0	5.1	5.2
Total capital investment, IRRbn	3,490,657.12	3,005,140.72	3,179,685.81	3,423,904.88	3,715,642.71	4,063,945.56
Total capital investment, USDbn	194.13	116.34	102.57	95.11	97.78	101.60
Total capital investment, % of GDP	38.47	23.65	24.59	21.87	20.43	19.54
Capital investment per capita, USD	2,506.62	1,482.58	1,290.58	1,182.06	1,200.89	1,233.59
Real capital investment growth, % y-o-y	-11.33	3.00	1.00	3.00	4.00	5.00
Construction sector employment, '000	2,736.3	2,665.1	2,692.6	2,753.6	2,835.2	2,930.3
Construction industry employment, % y-o-y	-1.20	-2.60	1.03	2.27	2.96	3.35
Active population, total, '000	54,902.91	55,445.30	55,945.92	56,408.19	56,844.14	57,271.78
Construction industry employees as % of total labour force	4.98	4.81	4.81	4.88	4.99	5.12
Cement production (including imported clinker), tonnes	75,723,871	66,233,423	66,165,602	65,975,520	65,716,930	65,382,527
Cement production (including imported clinker), tonnes, % y-o-y	7.0	-12.5	-0.1	-0.3	-0.4	-0.5
Cement consumption, tonnes	70,726,413	63,744,490	61,781,724	61,531,170	61,217,409	60,833,400
Cement consumption, tonnes, % y-o-y	3.8	-9.9	-3.1	-0.4	-0.5	-0.6
Cement net exports, tonnes	4,997,458	2,488,933	4,383,877	4,444,350	4,499,521	4,549,127



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

	2013e	2014e	2015f	2016f	2017f	2018f
Cement net exports, tonnes, % y-o-y	88.0	-50.2	76.1	1.4	1.2	1.1

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

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

	2019f	2020f	2021f	2022f	2023f	2024f
Construction industry value, IRRbn	1,247,025.61	1,382,320.39	1,568,585.95	1,774,033.90	1,937,555.72	2,195,912.37
Construction industry value, USDbn	29.7	31.4	34.1	37.7	39.9	43.9
Construction Industry Value, Real Growth, % y-o-y	4.22	3.85	3.47	3.10	3.22	3.33
Construction Industry Value, % of GDP	5.3	5.3	5.4	5.7	5.7	5.9
Total capital investment, IRRbn	4,437,789.58	4,838,858.15	5,268,939.10	5,729,931.00	6,223,849.74	6,752,835.53
Total capital investment, USDbn	105.66	109.97	114.54	121.91	128.33	135.06
Total capital investment, % of GDP	18.78	18.42	18.21	18.26	18.25	18.20
Capital investment per capita, USD	1,268.92	1,306.90	1,347.63	1,420.77	1,482.04	1,546.35
Real capital investment growth, % y-o-y	5.00	5.00	5.00	5.00	5.00	5.00
Construction sector employment, '000	3,021.8	3,108.7	3,190.2	3,265.3	3,345.8	3,431.9
Construction industry employment, % y-o-y	3.12	2.88	2.62	2.36	2.46	2.57
Active population, total, '000	57,713.18	58,184.09	58,690.55	59,228.83	59,791.86	60,367.69
Construction industry employees as % of total labour force	5.24	5.34	5.44	5.51	5.60	5.69
Cement production (including imported clinker), tonnes	65,035,198	64,670,342	64,287,075	63,879,938	63,452,173	63,002,740
Cement production (including imported clinker), tonnes, % y-o-y	-0.5	-0.6	-0.6	-0.6	-0.7	-0.7
Cement consumption, tonnes	60,442,462	60,034,879	59,609,803	59,155,608	58,681,343	58,185,985

Construction And Infrastructure Industry Data (Iran 2019-2024) - Continued						
	2019f	2020f	2021f	2022f	2023f	2024f
Cement consumption, tonnes, % y-o-y	-0.6	-0.7	-0.7	-0.8	-0.8	-0.8
Cement net exports, tonnes	4,592,736	4,635,462	4,677,271	4,724,329	4,770,829	4,816,754
Cement net exports, tonnes, % y-o-y	1.0	0.9	0.9	1.0	1.0	1.0

f = BMI forecast. Source: National sources, BMI

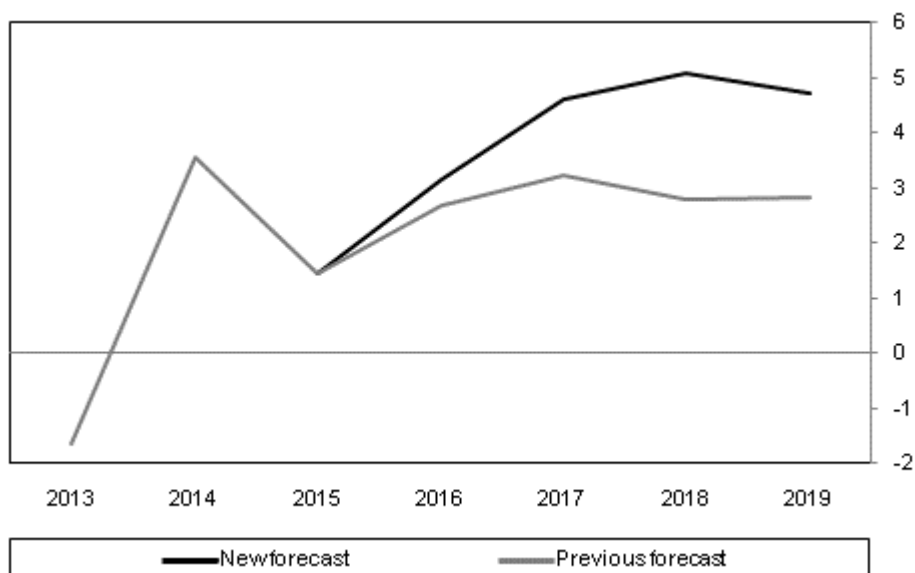
**BMI View:** We have upwardly revised our construction industry forecasts for Iran on the back of the agreement reached with the P5+1 countries and the announcement that sanctions will be lifted faster than expected. Structural weaknesses in the Iranian economy - particularly the lack of competitiveness in the labour market - will present the main risks to investors willing to return to this market.

We have upwardly revised our construction industry growth forecasts for Iran on the back of the landmark agreement signed with the P5+1 countries (the US, Russia, China, France, the UK and Germany) and subsequent lifting of sanctions. Although we had expected an agreement would be signed in July, sanctions will be lifted faster than expected. As such, we have revised up our construction industry real growth forecasts for 2016 from 1.4% to 3.2%, and we now forecast an average of 4.6% between 2017-2020.

The process of easing sanctions is far broader than previously understood and we expect a strong uptick in foreign investment as a result. In addition, the agreement sets the stage for a return of Iranian crude to the global oil market by 2016. This will significantly benefit construction companies willing to pursue opportunities in energy infrastructure.

## Growth To Speed Up

### Iran Construction Industry Forecasts



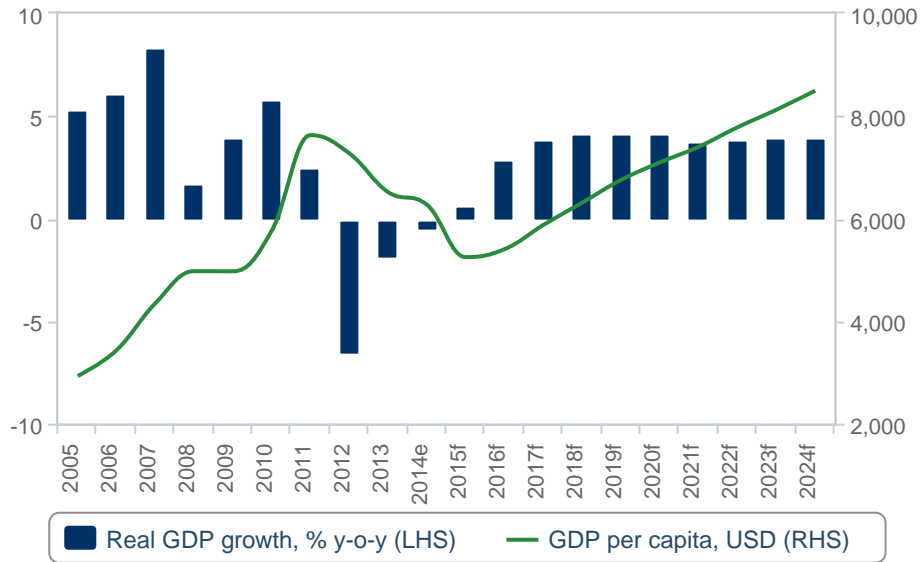
Note: 2015-2019 = BMI forecast. Source: BMI

If the Vienna agreement is approved by the US Congress and the Iranian Parliament, all economic sanctions on Iran will be lifted by the beginning of 2016 - if Iran complies with the International Atomic Energy Agency's (IAEA) requirements. Once the implementation of the deal is confirmed, Iran will gain immediate access to approximately USD100bn in frozen assets, 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.

Construction firms will be some of the main beneficiaries of this agreement. Lifting international sanctions will have a significant impact on investor sentiment and major international companies will start pursuing project opportunities in the Iranian market. Apart from foreign companies - particularly those already in the region - coming to take advantage of project opportunities in Iran, we also expect domestic firms to benefit from partnerships with international construction majors.

## A Boost, But Problems Remain

Iran - Growth Forecasts



*ef = BMI estimate/forecasts. Source: UN, BMI*

### Growth Yes, 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 2.9% in real terms in 2016, which will be much higher than the 0.6% in 2015. Our optimistic, but cautious forecasts take into consideration the structural weaknesses of the Iranian economy which will prevent consistent strong growth from being achieved. 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.

### **Infrastructure Development To Benefit From Lifting Shipping And Banking Sanctions**

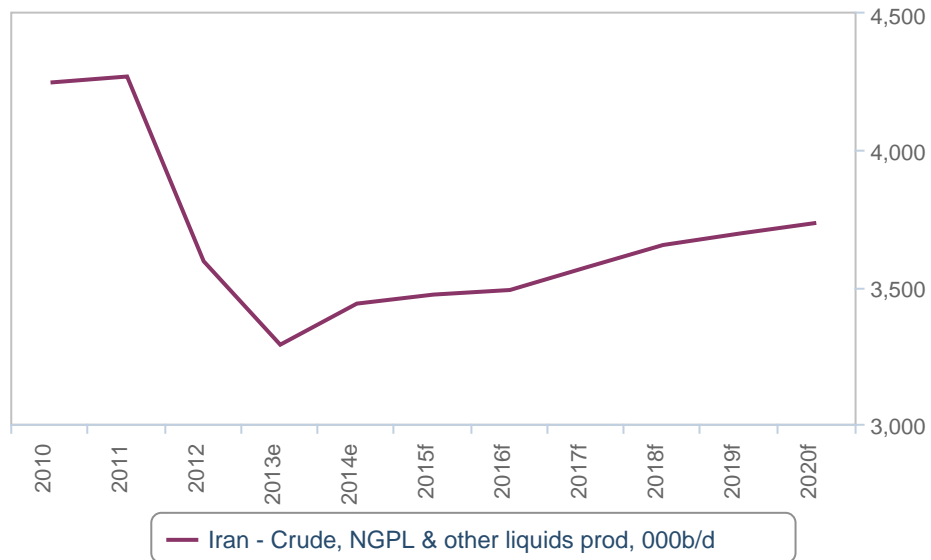
The lifting of shipping sanctions will be instrumental in attracting the much-needed investment in Iran's ports sector; Iran has seen the quality of its ports deteriorate severely over the past decade. According to the Global Competitive Report of the World Economic Forum 2014-2015, Iran ranks 80 out of 144 countries for the quality of port infrastructure.

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

An easing of oil sanctions would allow Iran to increase production, however a significant ramp-up from current estimated levels of about 2.8mn b/d to pre-sanction levels of about 4mn b/d would take three-to-four years from when sanctions are lifted. Years of underinvestment in infrastructure, maturing oil fields and a lack of maintenance has damaged fields, destroying some of the country's production capacity. The development of new fields will open opportunities for companies in the energy infrastructure sector and they will be instrumental for Iran to boost its crude oil production capacity, with substantial investments and modern technology, particularly in offshore fields.

## Slow Growth As Sector Recovers

### Iran - Oil Production



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

### Labour Market Competitiveness Required To Support Growth

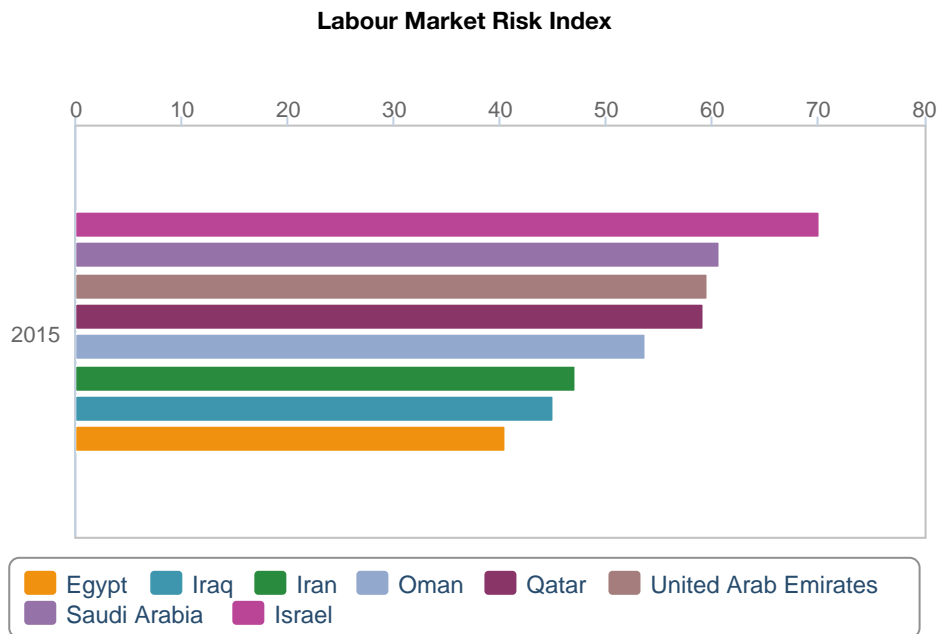
Greater competitiveness in Iran's labour market will be required to support growth in the construction industry. Although Iran's labour force is highly educated by regional standards (both in terms of general and tertiary education), high labour costs will continue to pose a structural barrier to investment. 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 engineers who are in high demand in the Middle East. A sanctions-free country 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 are starting to see growing interest from other international players in Iran, including South Korean companies such as **GS Engineering & Construction** which has started surveying

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

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

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



## Transport Infrastructure – Outlook And Overview

Iran's transport sector is catering to the needs of a population of 80mn and the business needs of an economy potentially worth USD417bn. We believe there are upside predictions for both these numbers and this will place a strain on transport infrastructure if it does not continue, or rather start, to expand and modernise. Despite government ambitions to attract investment in road, rail and air links to meet the needs of a rising population, there has been little activity in the past five years. We expect investment to target the sector - particularly railways - in the post-sanctions era.

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.

### **Flying In**

Iran has a total of 319 airports, of which 140 have paved runways. The country has yet to develop a significant tourist sector, with airports mainly used by business travellers. With Iran being the second-largest OPEC oil producer and sitting on the world's second largest gas reserves, its airports cater to the needs of business associated 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.

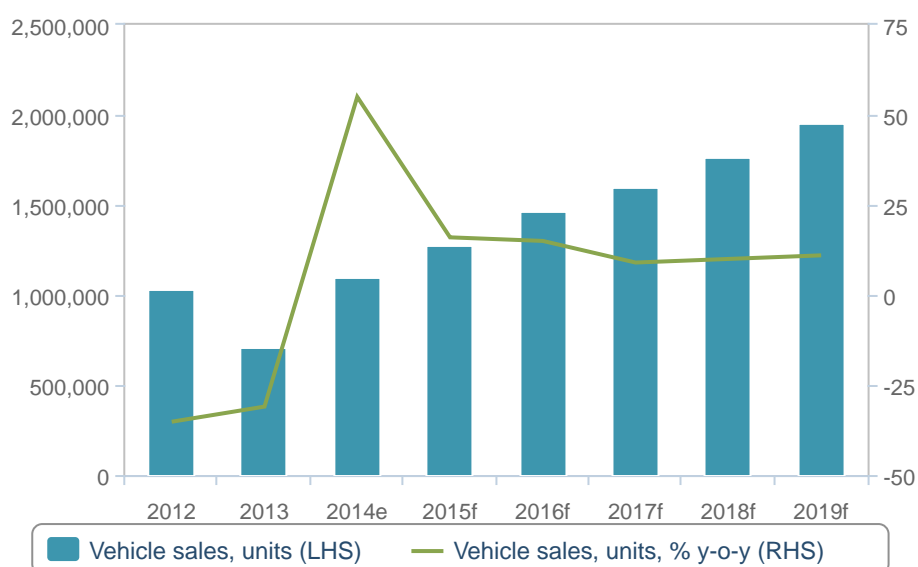
### **Driving Up**

**BMI** forecasts the number of cars on Iranian roads to grow in the long term, although gasoline rationing measures may place a downside risk on this forecast as it becomes more difficult for citizens to buy fuel. Despite holding the world's third-largest oil reserves, Iran has struggled to meet growing domestic fuel demand owing to the burden of subsidies and inadequate refining capacity.

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 35% growth in car sales in calendar year 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.

## Car Ownership Continues To Increase

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



elf = BMI estimate/forecast. Source: Renault, BMI

Iran has a total of 198,866km of roads, of which 160,366km are paved, and the country boasts 1,948km of expressways. 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 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.

### **Rolling In**

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 approximately 25% of the total freight transported in the country. There is a total of 8,442km of railway track, of which the majority is standard gauge, but the country also has a broad-gauge system. Only 148km of the track is electrified. The network is based on lines centred in Tehran. Three run southwards: to Bandar Imam Khomeini on the Gulf (with a spur to Khorramshahr); to the Gulf port of Bandar Abbas near Qeshm; and, to Kerman (with a spur running to Isfahan and Shiraz).

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

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

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

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 81st out of 144 countries in the World Economic Forum Global Competitiveness Index 2014 - 2015 (previously 76<sup>th</sup>). Lack of investment in infrastructure is linked to a decline in gross fixed capital formation (GFCF), which is a good proxy for infrastructure.

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

### **Regional Integration**

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

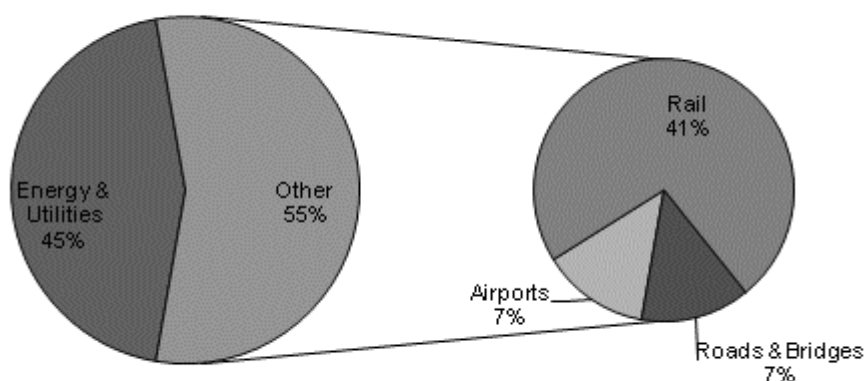
Some tangible progress was reported in June 2013 with the inauguration of a new railway line between Gorgan and Incheh Borun. The 80km line is part of the Kazakhstan-Turkmenistan-Iran transit corridor, which is currently being developed by the three countries. The section linking Turkmenistan and Iran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

Likewise, the North-South Rail Corridor, an ambitious project to create a freight-rail link from Europe, via Russia and Azerbaijan, through Iran and eventually linking to India and South East Asia, has also reported progress. It is hoped the rail line will carry about 20mn tonnes of cargo a year and improve transport links across Eurasia. In September 2014, Iran's Minister of Roads and Urban Development, Abbas Akhoundi, revealed the government is ready to make a trilateral investment with Azerbaijan and Russia to complete the Qazvin-Rasht-Anzali-Astara railway project. The Qazvin-Rasht-Astara railway is part of the North-South Transport Corridor. Also, in May 2014, the Russian government agreed to build the 167km long Rasht-

Astara railway line in Iran's north-western region. The line forms part of the proposed Qazvin-Rasht-Astara railway which is expected to carry 5-7mn tonnes of cargo and 1.4mn passengers per year.

## Rail Leads Transport Investment

Iran Key Infrastructure Projects By Subsector (USDbn)



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Source: BMI Infrastructure Key Project Database

## Sailing Through

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

In terms of the Caspian ports, the Iranian Sea ports of Anzali and Amirabad, located in the north of the country, are to undergo major capacity upgrades to double their loading and unloading capabilities,

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

Despite the various obstacles facing the Iranian construction sector, we do see scope for these projects to be realised. The Caspian Sea port upgrades come off the back of increased demand for imported grain, namely from Kazakhstan and Russia who have reported particularly strong harvests lately. 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 over recent months.

The country's ports are still limited in their capacity, as the majority is only able to service 100,000 tonne vessels. This has forced Tehran to ask ships to dock at the main UAE ports, such as Dubai's Jebel Ali, so that goods can be loaded onto smaller ships and then sent to Iran. We expect Iran to start developing better and more autonomous port infrastructure on the back of the lifting of international sanctions.

Table: Key Projects: Transport

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Imam Khomeini International Airport Expansion Project Phase 2	Airports	2,800.00	26.5	mn passengers/yr	Bonyad Taavon[Sponsor]{Iran}, Government of Iran[Sponsor]{Iran}		At planning stage
Said Rajee Port Renovation Project	Ports		7,600,000	TEU		2014	Completed
Chabahar Port Development Project	Ports		10,000	'000 tonnes	Government of Iran[Sponsor]{Iran}, Khatam al-Anbiya (KAA){Iran}	2015	Under construction
Imam Khomeini Airport - Parand City subway	Rail		52	km	Tehran Urban & Suburban Railway Operation Company[Construction]{Iran}		At planning stage
Chabahar-Zahedan-Mashhad Railway	Rail	3,400.00	1,330	km	Iran Roads and Transportation Ministry[Operator]{Iran}	2015	Under construction
North South Rail Corridor (Qazvin-Rasht-Astara)	Rail				Government of Azerbaijan[Sponsor]{Azerbaijan}, Government of Iran[Sponsor]{Iran}, Russian Railways[Construction]{Russia}	2015	Under construction
North - South Transnational Corridor, Turkmenistan and the Persian Gulf	Rail		70	km	Government of Kazakhstan[Sponsor]{Kazakhstan}, Government of Turkmenistan[Sponsor]{Turkmenistan}, Government of Iran[Sponsor]{Iran}, Asian Development Bank (ADB) [Financier]{Philippines}, Islamic Development Bank (IDB) [Financier]{Saudi Arabia}	2014	Completed
Silk Road Economic Belt Railway	Rail				Government of Iran[Sponsor]{Iran}, Government of China[Sponsor]{China}	2030	At planning stage
Tabriz Tramline Project, Tabriz	Rail						At planning stage
Tabriz-Bazargan Highway, Phase - I (Tabriz Airport - The Southern	Rail	850.00				2017	Contract Awarded

Key Projects: Transport - Continued							
Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Ring Road Subway)							
Iran-Iraq Rail Line	Rail				Islamic Republic of Iran Railways (RAI)[Operator]{Iran}		Under construction
Tehran-Isfahan High-speed Railway	Rail	2,730.00	400	km		2019	Under construction
Afghanistan - Tajikistan - Turkmenistan - Iran Railway Project - Phase 1, Atamyat Imamnazar - Andhoi Akina	Rail				Islamic Development Bank (IDB) [Financier]{Saudi Arabia}, Asian Development Bank (ADB) [Financier]{Philippines}, Government of Tajikistan[Sponsor]{Tajikistan}	2018	Under construction
Monorail System, Qom, Stage 1	Rail	120.00	6.2	km	Kayson Company[Construction]{Iran}, Mapna[Construction]{Iran}	2015	Under construction
Chabahar-Sarakhs railway	Rail	2,500.00			Khatam al-Anbiya (KAA){Iran}		Contract Awarded
Iran, Russia and Azerbaijan railway	Rail						At planning stage
Chabhar Port - Fahraj Railway	Rail		600	km	Indian Railways{India}		Completed
Iran-Armenia Railway Link Project	Rail		165	km	Government of Iran[Sponsor]{Iran}, Government of Armenia[Sponsor]{Armenia}, China Communications Construction Company (CCCC) [Construction]{China}, Rasia FZE[Consultant/Project Management]{United Arab Emirates}	2022	At planning stage
Isfahan Underground line 1	Rail		12.5	km	Namad Mobtaker Company[Construction]{Iran}, Mapna[Construction]{Iran}	2013	Completed
Tehran-Khosravi rail line	Rail	2,000.00	570	km			Contract Awarded
Tehran-Mashhad Rail Line Electrification Project	Rail	2,000.00	900	km			Under construction
Trans Asian (Kyrgyzstan-China-	Rail	2,000.00	270	km	Metra[Feasibility]{Canada}		At planning stage



Key Projects: Transport - Continued							
Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Uzbekistan) Rail Network							
Inceburun-Gorgan railway	Rail	98.00				2013	Completed
Mehran four-lane highway to Iraq	Roads & Bridges					2015	At planning stage
Tabriz-Bazargan Highway Project	Roads & Bridges	1,800.00	255	km	Bergiz Construction[Construction] {Turkey}	2017	Contract Awarded
Tabriz-Bazargan Highway, Phase - II	Roads & Bridges	1,000.00	255	km		2017	Contract Awarded
Cross-Sea Bridge Project, Iranian island of Qeshm - Bandar Abbas	Roads & Bridges	498.10	2.4	km	Government of Iran[Sponsor] {Iran}		Suspended
Tehran-Shomal Freeway (Phase 1)	Roads & Bridges	138.00	32	km	Khatam al-Anbia[Construction] {Iran}		Under construction
Persian Gulf bridge project	Roads & Bridges	889.00	2.2	km		2012	Completed

BMI Infrastructure Key Projects Database

Note: Where blank = not available.

## Energy And Utilities Infrastructure – Outlook And Overview

An agreement between Iran and the P5+1 countries on the nuclear issues will see the lifting of international sanctions benefit Iran's energy infrastructure sector. We anticipate significant investment to target the country's power and utilities infrastructure in order to support the extraction of hydrocarbons as well as improving Iran's insufficient electricity and water networks.

Data for Iran's electricity generation and consumption show a country capable of meeting its own power demands, but distant from achieving its energy export ambitions. Our Power sector analysts estimate electricity generation in 2015 to be 255TWh, just exceeding the country's power consumption of 209TWh for the year. This looks set to continue over the medium-term, with consumption forecast to climb to 276TWh in 2024. This will then be met by supply, which is expected to increase to reach 325TWh.

### **Strong Russian Cooperation For Energy Infrastructure Development**

Although we anticipate the lifting of international sanctions to open the door for a variety of international investors, 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 new 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. Further discussions on the technical and financial aspects of the project are scheduled to take place, but a final agreement is expected to be signed soon. Iran is likely to finance the new Bushehr project on a barter basis. Construction is scheduled to start in 2015 in order to reach completion in five to seven years. In addition, Russia announced in April 2014 it will invest USD10bn in Iran's power sector, including hydropower and thermal power plants, as well as transmission and distribution (T&D) infrastructure.

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

## Filling Up On Gas

Although Iran has the installed capacity to meet demand, the country's undiversified power sector is susceptible to blackouts. Iran has 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 the end of our forecast period in 2024. Gas-fired projects include two 1.04GW combined cycle plants in the south of the country, a 1.3GW combined cycle plant at Arak, a 1GW facility in Bandar Abbas, and a 1GW combined-cycle plant being built by the **Tehran Regional Electricity Company** in Qom.

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. Pakistan will face difficulty financing its half of the pipeline. Furthermore, Iran's ability to meet export obligations is also in doubt given its own domestic gas shortfalls.

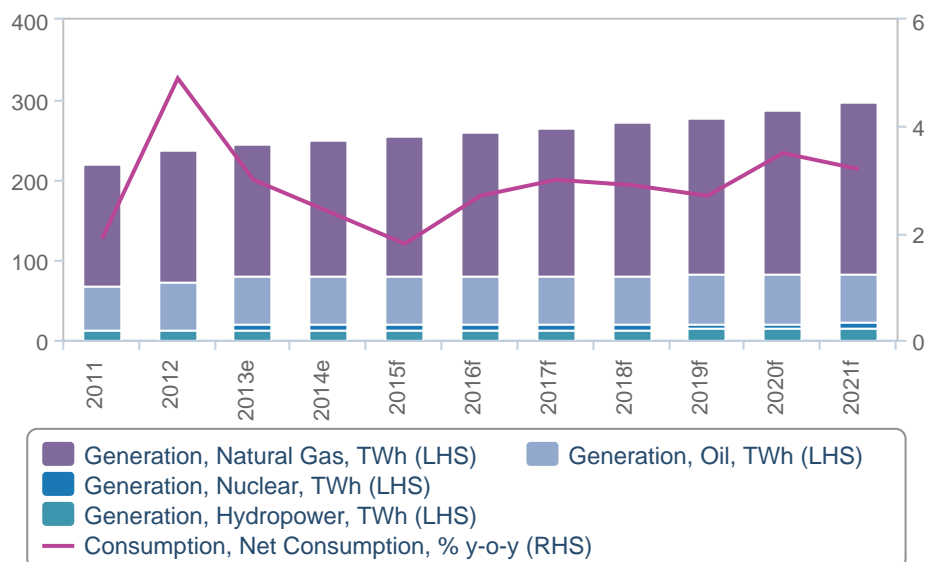
By contrast, we are seeing tangible progress on the USD450mn Iran to Iraq gas transmission pipeline which is 95% complete (as the latest reports by the Iraqi government indicate). Although the pipeline was expected to be completed already, the section in Iraq was delayed as a result of unstable security and land ownership issues.

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

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

## 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

### 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 are planning 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 that the construction of a third electricity transmission line from Iran to Armenia, with capacity of 800-900MW, was due to begin in June 2011. However, construction has not started yet due to multiple obstacles. The minister said the project is expected to cost up to USD110mn and is to be followed by a further joint Iranian-Armenian project, a hydroelectric power plant based on the Aras River, subject to negotiation.

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

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

### **Progress On The Waterfont**

Given the country's frequent water shortages - particularly in times of drought - we have seen increasing investment target the water infrastructure sector. For instance, 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 fact, the Islamic Development Bank (IDB) approved a EUR144mn (USD197.61mn) loan for the development of water and wastewater projects in the Iranian province of Fars in February 2014. The fund will be utilised by Iran's **Water & Wastewater Company** to construct wastewater facilities in Abadeh, Fasa, Darab, Sepidan, Neiriz and Firouzabad, according to Water & Wastewater Company's MD, Hamid Reza Janbaz. In addition, the IDB also earmarked EUR200mn (USD250.17mn) for building rural wastewater networks in Iran in November 2014.

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

of desalination plants, the government started pilot testing of a solar-powered desalination facility in Hormozgan Province and the test results will be used to commercialise the project.

In April 2013, the Iranian government announced that it will invest IRR52trn (USD4.1bn) in the development of 20 water supply projects across the country. The projects are intended to ameliorate a water shortage within the Islamic republic. One of the projects is the construction of a 762km water pipeline that will provide drinking water to more than 1.5mn people. The pipeline, which will be the longest water supply pipeline in Iran, is aimed at serving the potable water demands of five large cities and eleven small cities along the Persian Gulf coasts.

## Major Projects Table - Energy & Utilities

Table: Key Projects: Energy & Utilities

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Anbar-Akkas Gas Pipeline Project	Oil & Gas Pipelines	449.00	550	km	Iraqi Ministry of Oil[Sponsor]{Iraq}, STX Group[Construction]{Netherlands}, Korea Gas (Kogas)[Operator]{South Korea}	2017	Contract Awarded
Iran-Iraq-Syria Natural Gas Pipeline (Friendship Pipeline)	Oil & Gas Pipelines		225	km	Iranian Gas Engineering Development Company[Operator]{Iran}	2015	Under construction
Iran to Oman Natural Gas Pipeline Project	Oil & Gas Pipelines				Government of Oman[Sponsor]{Oman}, Government of Iran[Sponsor]{Iran}, Iranian Offshore Engineering and Construction Company (IOEC)[Sponsor]		At planning stage
Iran-Pakistan-India Pipeline (Peace Pipeline) Project	Oil & Gas Pipelines		1,100	km	Government of India[Sponsor]{India}, Government of Pakistan[Sponsor]{Pakistan}, Government of Iran[Sponsor]{Iran}		Delayed
Kuwait-Iran Pipeline	Oil & Gas Pipelines		590	km	Kuwait Petroleum Corporation[Sponsor]{Kuwait}, National Iranian Gas Exports Company (NIGEC)[Sponsor]{Iran}	2014	At planning stage
Karachilare Hydropower Plant, Aras River	Power Plants & transmission grids	400.00	130	MW	European Bank for Reconstruction and Development (EBRD) [Financier]{United Kingdom}, Farab Company Iran[Construction]{Iran}	2016	Under construction
Aras River hydropower plant (Meghri Plant and	Power Plants & transmission grids		260	MW		2016	Under construction

## Key Projects: Energy &amp; Utilities - Continued

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
Gharachilar/ Karachinar plant)							
Kish Island Gas Electric Power Plant	Power Plants & transmission grids				Kish Free Zone Organization[Operator]{Iran}	2014	Completed
Simareh Dam project, Ilam	Power Plants & transmission grids		850	MW			At planning stage
Second power station on Kish Island	Power Plants & transmission grids	58.00					Under construction
Qazvin wind park, Kahak village	Power Plants & transmission grids	200.64	100	MW	Iran Power Plant Investment Company[Construction]{Iran}	2016	Under construction
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
Manjil wind farm Expansion, Gilan	Power Plants & transmission grids		100	MW	Renewable Energy Organisation of Iran[Sponsor]{Iran}	2014	Under construction
Tabas Coal Fired Power station, Khorasan	Power Plants & transmission grids		650	MW	Tavanir[Sponsor]{Iran}, Iran Power Plant Investment Company[Operator]{Iran}, Mapna[Equipment]{Iran}		Under construction
Gas-fired power plant	Power Plants & transmission grids	10,000.00	6,000	MW	Power Grid Corporation of India Ltd (PGCIL){India}, National Thermal Power Corporation (NTPC){India}		At planning stage
Bakhtiari Hydropower Plant CDM Project, Zagros Mountains, Lorestan Province	Power Plants & transmission grids		1,500	MW	Iran Water & Power Resources Development Co[Operator]{Iran}, Rahbord Energy Design & Development Eng. Co. (REDECo)[Consultant/Project Management]{Iran}, Khatam al-Anbiya (KAA){Iran}		Under construction
Third Iran-Armenia electric power line	Power Plants & transmission grids	95.38			Export Development Bank of Iran[Financier]{Iran}, Sanir[Construction]{Iran}	2018	At planning stage
Jarandaq wind power plant, Qazvin	Power Plants & transmission grids		60	MW			Feasibility studies/EIA underway
Persian Gulf coast water supply pipeline	Water	243.30	762	km			Announced

## Key Projects: Energy &amp; Utilities - Continued

Project Name	Sector	Value (USDmn)	Size	Unit	Companies	Time-frame End	Status
New Solar-Powered Desalination Plant, Hormozgan Province	Water				National Water and Wastewater Engineering Company[Sponsor]{Iran}	2014	Completed
Caspian Sea-Semnan Water Pipeline And Desalination Plant	Water	1,000.00	200	mn m3 per year			Under construction

BMI Infrastructure Key Projects Database

Note: Where blank = not available.



## Residential/Non-Residential Building – Outlook And Overview

The residential and non-residential sector in Iran has underperformed over the past few years due to the shrinking domestic purchasing power and the rising costs of building materials in the context of a depreciating currency. We are, however, more optimistic from 2016 onwards as we forecast an average annual growth rate in the construction industry of over 4.3% during the next five years. We highlight the potential of the residential and non-residential sector to play a key role in driving growth, given the country's housing deficit, but we remain aware of the challenges.

### Back On The Right Track

#### Iran Construction Industry Forecasts



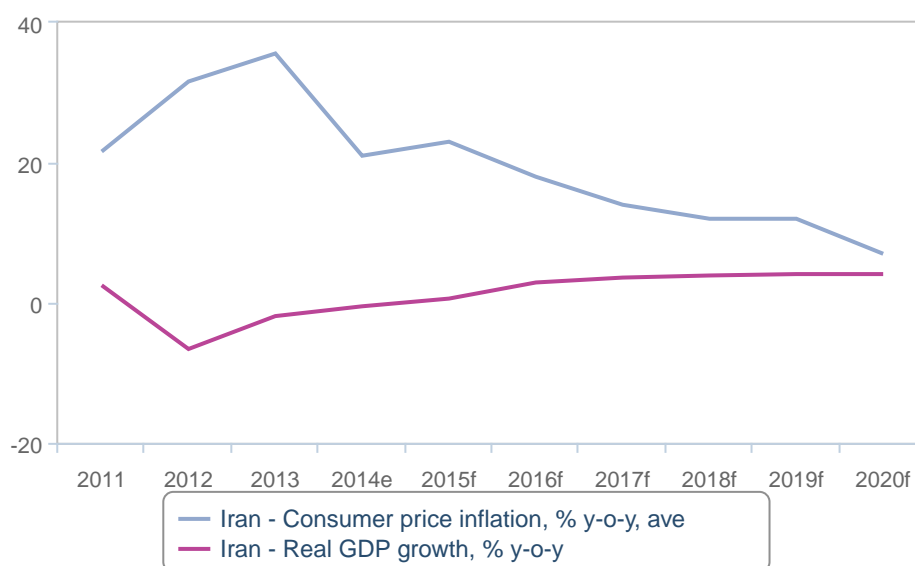
e/f = BMI estimate/forecast. Source: UN, BMI

Demand for housing stock has traditionally been a key driver for the construction sector in Iran, but during sanctions over the country's nuclear programme the sector fell behind. In the years before Ahmadinejad, private capital supplied most of the funding for the housing sector as this used to be a profitable business. However, external banking sanctions, the government's failure to deliver on housing programmes, subsidy reforms that have made construction materials more expensive, depreciation of the Iranian *rial*, in addition to political and legal uncertainties led to a crisis in the housing market. As a result, there is a shortage of urban housing, affecting the middle class.

The interplay of elevated price pressures and a weak currency has maintained unemployment high and this will continue during 2015, ensuring demand for housing remains low in the short term. Iranians' purchasing power has been eroding steadily over the past several quarters, with inflation making it difficult to purchase basic goods. With the cost of building materials continuing to rise and demand for housing weakened by the challenging conditions facing Iranian households, residential construction activity will be constrained in future. That said, we expect activity in the housing market to recover in H216, on the back of improving macroeconomic conditions resulting from an end to sanctions.

## Improving Macroeconomics?

Iran Inflation And Unemployment Rates



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

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. Yet despite the ambitious announcements, the Mehr housing project continues to be the largest in the residential sector.

However, so far the government has failed to deliver much of what it had promised while absorbing some of the private capital that would normally have gone into constructing new units. The current administration

led by President Hassan Rouhani has put a stop to the Mehr plan, a move which will likely encourage private sector companies to step in and contribute to a gradual decline in housing costs. We believe that housing prices will remain relatively elevated over the coming quarters, largely a result of a lack of appropriate housing units. Although we are confident that the current administration will succeed in encouraging private sector companies to increase the offer of housing, contributing to a gradual decline in costs, the effects of such policies will be felt only after a few years.

### **Industrial Construction Gaining Steam**

We have started to notice increasing activity in Iran's industrial construction sector. For instance, the government is reportedly planning 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.

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.

## Industry Risk Reward Ratings

### Iran - Infrastructure Risk/Reward Index

The potential for growth in Iran's overall infrastructure market is one of the country's redeeming features, with a combination of its dilapidated infrastructure and the government's reported spending pledge. However, for Iran, political risk is the greatest ongoing threat, which 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. In this context, the agreement Iran signed with the P5+1 countries in July 2015, which will result in sanctions being lifted, presents upside to its Industry Rewards and Country Rewards scores. The country scores 37.6 out of 100 in our RRI for the Middle East.

## Rewards

### Industry Rewards

Iran scores a weak 32.5 for Industry Rewards, well below the regional average of 50.7. 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 now international sanctions have been lifted. In terms of value, the Iranian construction industry is relatively sizeable, and with a large and growing population, there is strong demand for infrastructure development.

### Country Rewards

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

## Risks

### Industry Risks

Iran 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 a score of 45.5 for the Country Risks sub-category - again, well below the regional average, but slightly better than previous quarters. Foreign firms still find the legal/regulatory aspect of doing business in Iran laborious and prohibitive. The country's score is deflated by a lack of separation between the executive and judicial branches, as well as the risk of political and economic isolation from Western-led sanctions. The country suffers from endemic levels of corruption, while a complicated and poorly enforced commercial legal code undermines the effectiveness of the Iranian judicial system. Although nominally independent, political interference in the judicial system is rife. This further damages the business environment for foreign firms.

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

## Industry Risk Reward Ratings

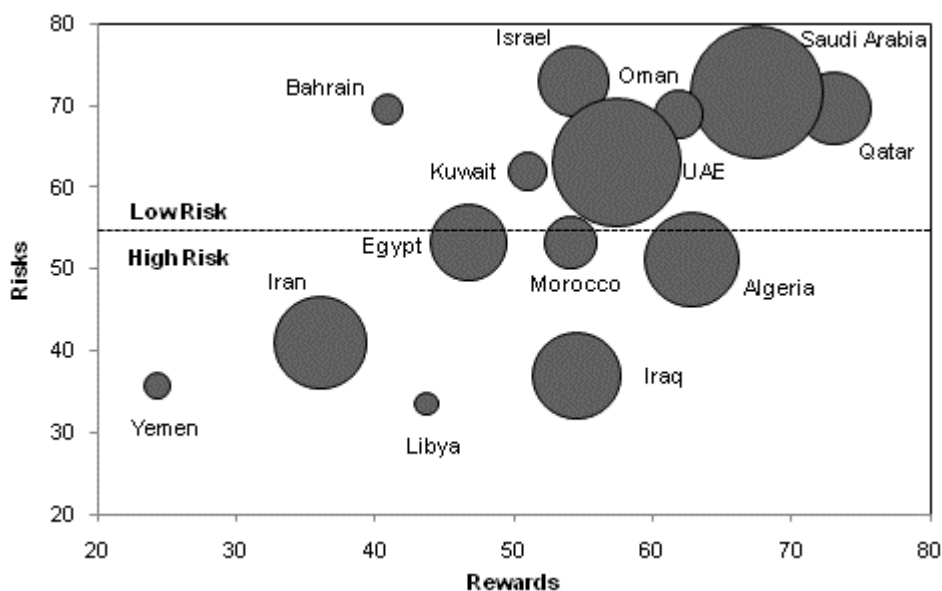
**BMI View:** *The GCC remains the outperforming region within MENA infrastructure markets, offering both higher rewards and lower risks - even in the face of lower oil prices. We expect rewards to continue to grow in Egypt and note the possible H215 lifting of sanctions on Iran could significantly improve the market's risk-reward balance. Iraq, Libya and Yemen remain 'no go' destinations for investors, given the ongoing violence.*

The themes of lower oil prices, heightened security risks and the improving risk-reward profile in markets such as Egypt and Iran remain the salient issues in the Middle East and North African (MENA) infrastructure markets. Scores in **BMI's** Infrastructure Risk Reward Index (RRI) for the region have remained broadly stable this quarter; however, notable score changes include:

- Iran has increased its score for Country Risk, indicative of the improving relations with the P5+1 countries (China, France, Russia, US, UK, and Germany) which we expect will yield a gradual lifting of some sanctions over the second half of the year.
- Egypt has seen both its Industry Rewards and Country Risks scores improve on the back of an improved and more stable investment climate resulting in a recent wave of major investment deals being signed.
- Bahrain and Oman - the two markets within the Gulf Cooperation Council (GCC) which we have previously noted as being most vulnerable to a lower oil price environment - have seen lower Industry Rewards scores.
- Likewise, Iraq and Yemen have also seen their Industry Rewards scores fall significantly owing to the continued state of conflict in these markets which show little sign of abating despite international intervention.

## Clear Risk Divide

MENA - Risk Reward Index Matrix



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

### Egypt and Iran's Growing Promise

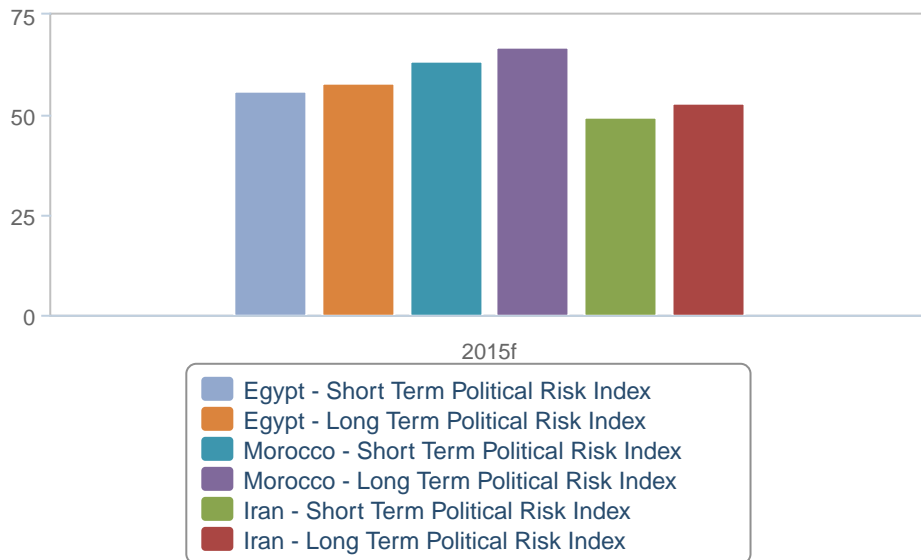
Two major markets which have in recent years been too high risk to be seen as attractive investment destinations are increasingly improving their RRI scores and beginning to gain traction in terms of investor interest - Iran and Egypt.

Certainly, Egypt is far ahead of Iran in this regard. Our increasingly positive view on Egypt's construction industry was compounded by the project announcements made during the Egyptian Economic Development Conference in March 2015. In fact, an unprecedented number of project announcements as well as financing deals to support infrastructure development in Egypt have prompted us to revise upwards our construction industry value forecasts from FY2016 (July 2015 to June 2016) to FY2020. Not only has the project pipeline been swelled, but also the major names associated with these project announcements is indicative of a renewed confidence in the Egyptian market under the al-Sisi government; **Siemens, Bombardier, Orascom, Arab Contractors, Vinci and Bouygues** have all won contracts to work on major infrastructure projects in 2015.

With regards to Iran, negotiations between it and the P5+1 countries over Iran's nuclear programme have made significant progress over recent months. Iran and the P5+1 countries have reached a framework agreement which we believe lays the foundation for a final accord to be reached at the end of June 2015. The potential normalisation of relations with Iran presents a considerable upside risk to our construction industry forecasts from 2016 onwards as we expect considerable investment to be channelled into Iran's outdated infrastructure. Not only will this see infrastructure opportunities more broadly pick-up, but specifically we note that shipping and oil and gas industries will require significant capital expenditure on infrastructure to rebuild the long-neglected sectors.

### Improvement On The Horizon

MENA - Short Term and Long Term Political Risk Indices



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



### **GCC Holding Strong**

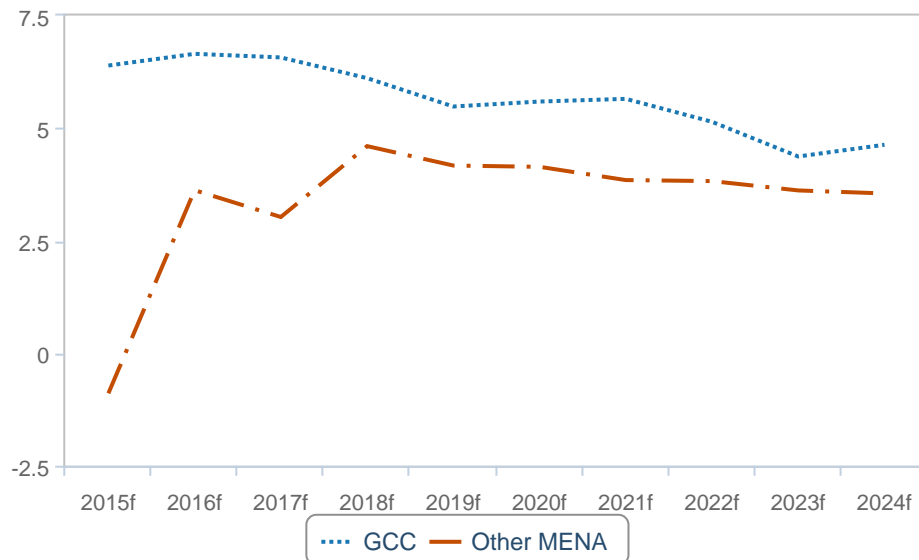
The Gulf Cooperation Council (GCC) contains our choice infrastructure markets across the Middle East and North Africa (MENA) region. Not only are the GCC countries investing more in projects (in order to diversify their economies) than their North Africa counterparts, but they also offer a much stronger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

We do not expect the fall in oil prices to have a significant impact on the rewards on offer in the GCC markets and hence their Industry Rewards scores in our RRI remain steady, apart from Oman and Bahrain which have seen their scores fall this quarter. Our Oil & Gas team forecast an average annual price of USD59 per barrel (bbl) for Brent in 2015; according to the IMF, Bahrain's fiscal breakeven point for 2015 is USD116.4/bbl, while Oman's is 107.5/bbl.

The majority of governments in the GCC have stated that they intend to continue financing their infrastructure pipelines owing to their political and economic importance (*see 'Lower Oil Prices Not an Immediate Threat To Infrastructure', 12 November 2014*). However, we note that given **BMI**'s expectation for a prolonged period of lower oil prices, we could see budgetary pressures build in markets such as Saudi Arabia, where we could see moves to normalise fiscal expenditure, which may result in the cancellation of less economically important projects.

## GCC Outperformance

MENA - Construction Industry Value Real Growth, % Chg y-o-y



f = BMI forecast. Source: BMI

### Danger Zones Remain Underperformers

Three ongoing conflicts are severely impacting on the rewards on offer in Libya, Iraq and Yemen, as well as heightening the risks across the MENA region - especially as the involvement in airstrikes by the likes of Saudi Arabia and the UAE continues. The three markets in which there is ongoing violence occupy three out of the four bottom positions in our regional RRI table for MENA which is a situation we do not expect to change over the remainder of 2015 and well into 2016.

- In Iraq, Rewards are being undermined by an ineffective central government under immense fiscal pressure from lower oil prices. Risks, however, are the major issue. The gains made by Islamist State (IS) militants across large swathes of Iraq throughout May 2015 underline the weakness of the Iraqi state, which seemingly finds itself unable to check the radical jihadist group's advances, despite the support of the international coalition assembled against it (see '*Islamic State's Gains Underline Weakness Of Baghdad And Damascus*', 27 May). While the strength of IS is questionable, the weakness of the Iraqi state institutions is evident and even if the security situation in Iraq improves, we expect this issue to remain a key hindrance to the infrastructure sector. We also note that while relations at present will remain cordial, we expect tensions to flare up between Erbil and Baghdad, as core issues remain unresolved.

- In both Libya and Yemen there has been a near complete breakdown of the central government, destroying what little rewards were on offer and markedly increasing risk. Despite showing some signs that the infrastructure opportunities in the market were beginning to return in 2013, a descent into violence has reversed that trend. Libya's economy will take almost a decade to return to 2012 levels as there is little prospect for an improvement in the security situation. We believe a resolution in the conflict is not within reach in the coming months. Libya is awash with weapons with rival militias not aligned to either of the governments which claim legitimacy in control of vast areas of the country. Thus far, negotiations between the two factions have steered clear of any talk of disarmament or a weapons amnesty.
- The situation in Yemen has deteriorated, with Saudi Arabia now intervening with airstrikes. Yemen is facing a perfect storm of widespread political and social instability, weaker oil prices and declining hydrocarbon output - factors which leave it at the bottom of our regional RRI table. We expect a fragile federalised state to emerge over the coming quarters and for security risks to remain elevated.

Table: MENA RRI Table

	Rewards			Risks			Infrastructure Risk Rewards Rating	Regional Ranking
	Industry Rewards	Country Rewards	Rewards	Industry Risks	Country Risk	Risks		
Qatar	72.5	74.2	<b>73.1</b>	75.0	66.0	<b>69.6</b>	<b>72.0</b>	<b>1</b>
Saudi Arabia	72.5	58.3	<b>67.5</b>	75.0	69.4	<b>71.6</b>	<b>68.8</b>	<b>2</b>
Oman	62.5	60.7	<b>61.9</b>	82.5	59.8	<b>68.9</b>	<b>64.0</b>	<b>3</b>
Israel	40.0	80.9	<b>54.3</b>	75.0	71.7	<b>73.0</b>	<b>59.9</b>	<b>4</b>
UAE	57.5	57.3	<b>57.4</b>	60.0	65.1	<b>63.1</b>	<b>59.1</b>	<b>5</b>
Algeria	72.5	44.7	<b>62.8</b>	47.5	49.6	<b>48.8</b>	<b>58.6</b>	<b>6</b>
Kuwait	40.0	71.3	<b>51.0</b>	57.5	65.0	<b>62.0</b>	<b>54.3</b>	<b>7</b>
Morocco	50.0	61.8	<b>54.1</b>	55.0	52.0	<b>53.2</b>	<b>53.8</b>	<b>8</b>
Egypt	45.0	54.8	<b>48.4</b>	55.0	51.9	<b>53.2</b>	<b>49.8</b>	<b>9</b>
Bahrain	27.5	65.8	<b>40.9</b>	77.5	64.2	<b>69.5</b>	<b>49.5</b>	<b>10</b>
Iraq	62.5	39.7	<b>54.5</b>	32.5	40.0	<b>37.0</b>	<b>49.3</b>	<b>11</b>
Libya	47.5	36.7	<b>43.7</b>	32.5	34.4	<b>33.6</b>	<b>40.7</b>	<b>12</b>
Iran	32.5	42.7	<b>36.1</b>	35.0	45.2	<b>41.1</b>	<b>37.6</b>	<b>13</b>
Yemen	27.5	18.3	<b>24.3</b>	37.5	34.7	<b>35.8</b>	<b>27.7</b>	<b>14</b>
<i>Regional Average</i>	<b>50.7</b>	<b>54.8</b>	<b>52.1</b>	<b>57.0</b>	<b>54.9</b>	<b>55.7</b>	<b>53.2</b>	<b>-</b>

Source: BMI

## Market Overview

### Competitive Landscape

Since the Iranian revolution in 1979, 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, the lifting of sanctions has sparked interest from overseas investors.

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.

However, the lifting of sanctions has sparked considerable interest among other foreign players. We have previously noted how companies from the Middle East, Asia, France, and Turkey have started surveying the market, preparing for an eventual return to Iran. According to the Iranian Ambassador to Turkey, Ali Reza Bikdeli, Iran is looking for partnerships with Turkish companies to develop projects worth USD10bn in the transport sector, particularly roads, airports, and ports. This is in addition to the road and railway projects already under construction by Turkish Bergiz Insaat. Furthermore, South Korean steelmaker **POSCO** has reportedly been exploring business opportunities with Iranian companies to pursue in a post-sanction scenario.

India has also announced plans to build a port in the south-east of Iran in 2015. As reported by Reuters, Indian Shipping Minister, Nitin Gadkari, is looking to sign a memorandum of understanding (MoU) with Iran for the development of Chabahar port - an initiative that was first discussed in 2003 but did not make progress due to international sanctions. 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, if international sanctions are lifted, we highlight risks that will continue to limit growth in the market. Some of the main challenges in increasing the use of 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 Tecnimont 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 lifting of international sanction on the back of the agreement between Iran and the P5+1 countries will increase the number of project opportunities in Iran.

#### 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.

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#### Company Overview

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

## Strategy

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

However, Mapna's biggest projects remain in Iran. These include the 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. Mapna Group is responsible for supplying the main equipment for the plant, which has progressed 25%.

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

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

In the last few years, Mapna has financed 10 independent power projects (IPPs), including the South Isfahan (954MW), Tous (954MW) and Asalouyeh (954MW) plants. It is also in the process of developing the Mobin Gas Utility Power Plant (1,944MW), as well as power plants in Sri Lanka and Syria.

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

Outside of Iran, Mapna is also pursuing opportunities in the power sector. In August 2014, the company submitted a statement of qualification to build two power plants in Oman. The winner will be granted a licence to develop, design, finance, engineer, build,

own, operate and maintain two independent power projects with a total capacity of 2,650MW at two locations in northern Oman.

In the transport sector, a consortium comprising Mapna, Mapna Rail Construction and Development, Mapna International, CMC and SuPower secured financial approval for the 900km Tehran-Mashhad railway project in July 2014. The two Chinese companies - CMC and SuPower - will invest USD2bn in the project. Work under the engineering, procurement and construction (EPC) contract includes the renovation of the existing structure as well as the construction of an electrified railway network for trains with speeds exceeding 250km per hour.



## Global Industry Overview

At the mid-way point in the year, we are assessing the performance of our key themes for 2015 as outlined in December 2014 (see, 'Five Key Themes For 2015: Infrastructure', December 10 2014). All themes have played out in a number of guises across the infrastructure sector. In particular we highlight 'China's Infrastructure Focus Going Global' as the most prominent and the one we have seen the most momentum behind.

**Table: Infrastructure Key Themes 2015**

Theme	Description	Playing Out?	Metrics	Key Analysis
Increased Consolidation And M&A Activity	2015 will see a rise in merger and acquisition (M&A) activity, with major players consolidating, offloading non-core assets and acquiring access to strategic sectors.	Yes	Track M&A activity across the sector	Holcim Lafarge Merger Opening Up Competitive Landscape (Feb 10 2015) // Leighton Asset Sales: Views Play Out (Dec 18 2015)
Expansion Of Private Equity Role In Infrastructure	The volume of capital from private equity invested into infrastructure to expand significantly in 2015.	Yes	Tracking private equity investment and fundraising. Announcements/intentions from key institutional investors.	Slow But Steady Entry For PE In SSA Infrastructure (Feb 19 2015) // Private Capital To Help Fill Funding Shortages (Jun 19 2015) // CDPQ's Mexico Entry Is Positive All Round (Apr 15 2015)
China Infrastructure Focus Going Global	Chinese companies will continue to expand the scope of their engagement in the global infrastructure sector in 2015	Yes	Chinese investment pledges, company statements and acquisitions/investments	Chinese Infrastructure Investment: Gaze Fixed Firmly Outwards (Jun 10 2015) // Leighton Asset Sales: Views Play Out (Dec 18 2015) // China's Infrastructure Focus Targets Latin America (May 22 2015) // Outbound Investment To See Greater Developed Markets Focus (Jul 1 2015)
Multilaterals And Development Banks: Changing Role	Multilateral financial institutions and development banks will support infrastructure through the provision of support on a technical and regulatory front	Yes	Pledges from development banks and multi-laterals. Key figure announcements and new funds and entities.	Myingyan Project To Pave Way For Energy PPPs (May 5 2015) // DFIs Crucial In Leveraging Private Infrastructure Investment (Jun 5 2015)
Reforms Crucial To Sustain Infrastructure Investment	Reforms at the regulatory level will be crucial for countries to attract private investment. In 2015 we see some potential for	Yes	Government announced, proposed and passed legislation. Hiring/firing of key	Reform Impetus To Have Limited Near-Term Impact (Jul 1 2015) // Reform Momentum Key For

## Infrastructure Key Themes 2015 - Continued

Theme	Description	Playing Out?	Metrics	Key Analysis
	tangible progress from China and India, but expect little change in Brazil, Russia and South Africa.		figures. New agencies. Tracking project progress.	Infrastructure Forecasts (Apr 24 2015) // Corruption Scandal Could Prompt Market Restructure (Mar 6 2015)

Source: BMI

### Key Theme: Increased Consolidation And M&A Activity

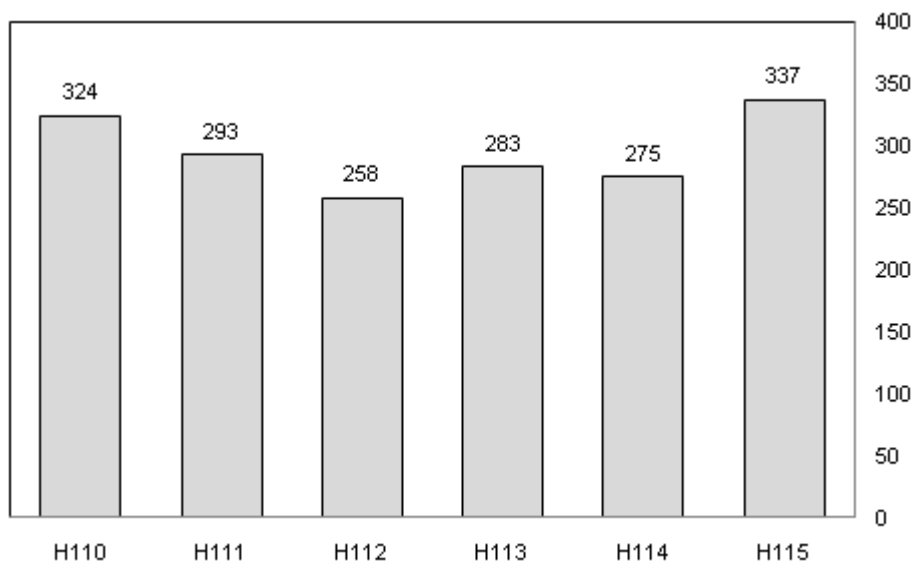
**BMI View:** *'We expect 2015 to see a rise in merger and acquisition (M&A) activity, with major players consolidating, offloading non-core assets and acquiring access to strategic sectors...On the other side of the trend, we see increased M&A activity as creating opportunities for regional players to continue to expand their market share in the global competitive landscape.'*

#### 2015 Developments:

- Before 2015 even started, we saw this theme play out with the divestment by **Leighton Holdings** (now known as **CIMIC Group**) of its rail business **John Holland** on 12 December 2014. The USD1bn deal saw Leighton sell the unit to **China Communications Construction Company (CCCC)** - neatly aligning with both the view that regional players would expand their market share in the global landscape and that Chinese companies would expand their reach with developed markets.
- The Holcim-Lafarge merger has seen several regional and local players acquire assets to build market share (*see, 'Holcim Lafarge Merger Opening Up Competitive Landscape', Feb 10 2015*). Ireland's **CRH Group** acquired EUR6.5bn in assets from **Lafarge** and **Holcim** in February, illustrating a regional player expanding market share - CRH will now be the second largest building materials company, from sixth previously.
- We have also seen companies acquiring to compete in new markets, such as **Hill International's** acquisition of Turkey's **IMS Proje Yönetimi ve Danışmanlık**.
- Substantial M&A has been seen in the midstream energy sector - an area we anticipated would be more resilient in a lower price environment (*see, 'Midstream To Shine', Jan 22 2015*). Major deals include the USD5.5bn partnership between **GIP** and **Hess Infrastructure Partners**.

## Strategic M&A Deals Increasing

### Engineering & Construction Sector - Number of M&A Deals



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*Data for first half. Source: Bloomberg*

### Key Theme: Expansion Of Private Equity Role In Infrastructure

**BMI View:** *'We expect the volume of capital from private equity invested into infrastructure to expand significantly in 2015.'*

*'We expect the level of pension fund investment into the sector, especially in the US and the UK to increase in 2015.'*

*'Developed markets will continue to account for the majority of investment targets... [however] We expect fundraising to expand beyond the traditional remit over 2015, and emerging markets will increasingly be targeted by funds.'*

### **2015 Developments:**

Private equity continues to be a major source of capital for the infrastructure sector.

- In 2015, we have seen this trend expand into emerging markets, with Mexico a popular destination. Both the Canadian pension fund **CDPQ** and **BlackRock** made their first ventures into Mexican infrastructure in 2015.
- Hitting on two nuances of this trend, in April the **New York State Common Retirement Fund** announced it would invest up to 3% of its assets (up to USD5bn) in African funds, with infrastructure and real estate slated to be a major element.

UK pension funds have also slowly expanded their exposure to infrastructure in 2015; in January the Greater Manchester Pension Fund (GMPF) and the London Pensions Fund Authority (LPFA) announced they would pool GBP500mn for infrastructure investments, while the Pensions Infrastructure Platform (PIP) has raised GBP1bn as of July 1 2015.

### **Key Theme: China Infrastructure Focus Going Global**

**BMI View:** *'We expect that Chinese companies will continue to expand the scope of their engagement in the global infrastructure sector in 2015. The role of Chinese engineering and construction players, as well as sector investors, is expected to continue to evolve beyond the traditional resource model, with implications for developed and emerging markets.'*

### **2015 Developments:**

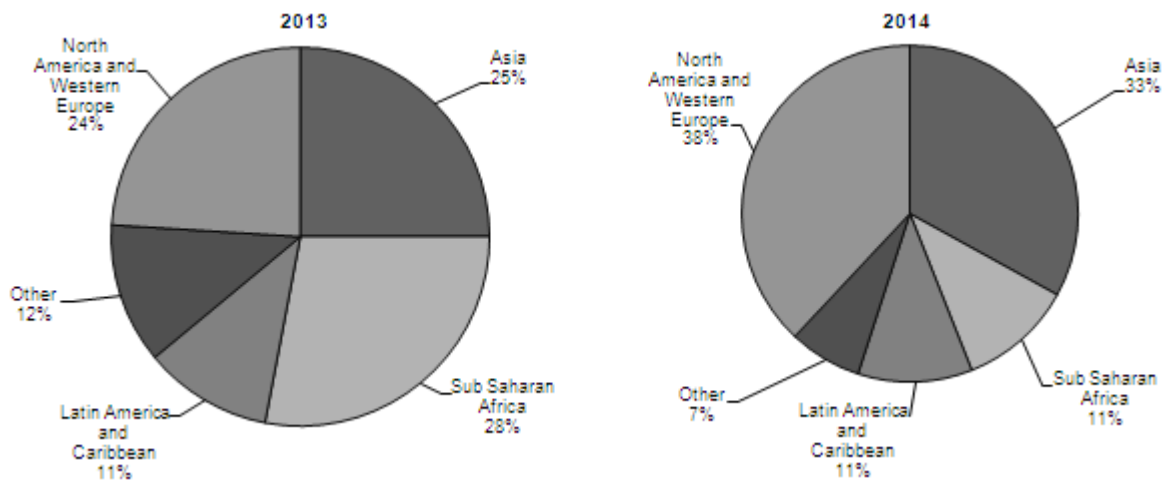
Our view on China's expanded international presence has been the most successful key theme over 2015 with China considerably expanding its international efforts over the past six months.

- Africa and Latin America continue to feature prominently. A major deal with the African Union to develop transport infrastructure was announced, while in May, China announced support for a transcontinental railway between Peru and Brazil as part of an up to USD50bn commitment to invest in Brazil.
- Notable for our view is the continued diversification of China's investments. CCCC's acquisition of John Holland was notable in that it targeted developed markets, while China's pledge to invest billions in the EU's Infrastructure Fund indicates continued strides to expand in the European market.
- **BMI** participated in the International Infrastructure Investment and Construction Forum (IIICF) organized by the China International Contractors Association (CHINCA) on 4-5 June in which the focus on international construction opportunities was reiterated heavily (*see, 'Chinese Infrastructure Investment: Gaze Fixed Firmly Outwards', June 10 2015*). The One Belt, One Road initiative and the

Asian Infrastructure Investment Bank - both of which have made significant progress in 2015 - are key expressions of this strategy.

## Diversification Trend Accelerating In 2015

China - Investment and Contracts, % By Region



Source: Heritage Foundation, China Investment Tracker

### Key Theme: Multilaterals And Development Banks: Changing Role

**BMI View:** *'The role of multilateral financial institutions and development banks in supporting infrastructure investment is expected to evolve in 2015. We expect their role will shift from primarily capital contributions to projects to the provision of support on a technical and regulatory front.'*

#### 2015 Developments:

- In Myanmar, the World Bank and Asian Development Bank have played a crucial role in moving the Myingyan power plant PPP forward, with the ADB creating the PPA model and the IFC providing financial advisory (*see, 'Myingyan Project To Pave Way For Energy PPPs', May 5 2015*).
- In Sub-Saharan Africa we have seen a number of illustrations of this trend, in particular the innovative Africa50 fund is on track to meet its short-term target of USD1bn capitalisation following over USD600mn of governmental and institutional investor commitments in 2015.

**Key Theme: Reforms Crucial To Sustain Infrastructure Investment**

**BMI View:** *'The growing need for reforms in emerging markets' infrastructure sectors is increasingly apparent. Growing pressure on country balance sheets, especially in the large commodity producers, is further underlining the need for private investment to develop much needed infrastructure....In this context, reforms at the regulatory level will be crucial for countries to attract private investment.'*

**2015 Developments:**

We maintain that reforms remain crucial to sustaining infrastructure investment but also continue to expect limited on the ground impact over the next two to three years.

- At the government level, the priority of pushing through reforms is being recognised. In Asia in particular we have seen the drive to enact reforms necessary to unlock infrastructure investments accelerate in 2015. However, implementation remains the major challenge and we expect limited on the ground impact over the 2-3 year horizon (see, *'Reform Impetus To Have Limited Near-Term Impact', July 1 2015*).
- The expectation that greater strides would be made in China and India compared to the other BRICS markets is also holding true (see table below). In Brazil, a major corruption scandal could strengthen the impetus for reforms, and we have seen some indication the government is looking to reform the financing environment for PPPs; however, we remain cautious over the effectiveness of this policy without broader reforms of the operating environment.
- Elsewhere, in Nigeria, new president Muhammadu Buhari has the potential to enact much-needed reforms to unlock growth in the infrastructure sector (see, *'Reform Momentum Key For Infrastructure Forecasts', April 24 2015*).

**Table: Asia: Key Reforms**

Country	Recent Developments
China	Announcement of 1,043 infrastructure projects worth almost CNY2.0tn (USD321.9bn) to be opened to both private and foreign investors as public-private partnerships
	Reform of pricing structures of railways and utilities
	Opening up more sectors to foreign investment through the amended 'Catalogue for the Guidance of Foreign Investment Industries'
India	Re-promulgated the land acquisition ordinance
	Opening up of railway sector to 100% foreign direct investment
	Reduction of fuel subsidies
Indonesia	Land acquisition bill fully implemented since January 2015
	Management shakeup of state-owned oil & gas company Pertamina, as well as liquidation of Petral (oil trading arm of Pertamina)

**Asia: Key Reforms - Continued**

Country	Recent Developments
	Reduction of fuel subsidies
	Establishment of One Stop Services (OSS), a single office that caters to all the licensing and non-licensing documents of different sectors
Vietnam	Various decrees to provide regulatory framework for public-private partnerships and foreign investment
	Privatisation of SOEs, including approval of the privatisation of state-owned airport authority, Airports Corporation of Vietnam (ACV)
	Opening up of railway sector to private investment

Source: BMI

**Key Themes Not Highlighted**

One of the major themes which has emerged over 2015 has been cuts to government infrastructure spending in light of the fiscal implications of lower oil prices. Our view on this trend was that in general the most exposed countries will be those who rely on oil revenues for the majority of income, and public investment for the majority of infrastructure spending. While a number of countries fall into this bracket, it is not a uniform global trend, with regional nuances crucial in the implications of lower oil prices on the construction sector. We maintain this view and note that while we have seen downgrades in investment in Mexico, Angola, Russia and elsewhere, our view for sustained spending in much of the Gulf Cooperation Council has been accurate.

# Methodology

## Industry Forecast Methodology

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

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

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

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

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

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

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



**BMI** uses the selected best model to perform forecasting.

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

## Sector-Specific Methodology

### **Construction Industry**

#### **Construction Industry Value**

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

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

#### **Construction Industry Value Real Growth**

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

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

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

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

### **Capital Investment**

#### **Total Capital Investment**

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

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

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

#### **Government Capital Expenditure**

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

### **Government Capital Expenditure, USDbn, % Of Total Spending**

These are derived indicators.

### **Construction Sector Employment**

#### **Total Construction Employment**

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

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

These are derived indicators.

#### **Average Wage In Construction Sector**

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

### **Infrastructure Data Sub-Sectors**

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

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

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

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

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

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

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

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

## Risk/Reward Index Methodology

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

The RRI system divides into two distinct areas:

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

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

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

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

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

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

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

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

## Sector-Specific Methodology

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

### Indicators

**Table: Infrastructure Risk/Reward Index Indicators**

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

**Infrastructure Risk/Reward Index Indicators - Continued**

	<b>Rationale</b>
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**

<b>Component</b>	<b>Weighting, %</b>
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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