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INDUSTRY SECTOR REPORT

Infrastructure Sector: Overview and Commercial Prospects in Saudi Arabian and U.S. Construction, Real Estate, and Transport

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Executive Summary

Saudi Arabia's construction industry is the largest in the Middle East, shaped by a changing labor force and an expanding residential segment to meet growing demand for affordable housing. Historically, contracts with the Saudi Government have been a main driver of the construction sector, more so than free market drivers of the private sector, and so as government revenues have declined, new contracts have as well. While some contracts halted in 2016 due to lower oil prices in the region, a strong stream of projects are in the pipeline because of government stimulus. Payments to contractors and a larger 2017 budget allocation are factors positively contributing to sector recovery over the coming two years. The infrastructure sector proves paramount to Saudi Arabia's diversification as part of Vision 2030. Along with increased spending, the government aims to attract foreign private sector investment and to boost private sector partnerships (P3s) overall.

Megaprojects currently underway in Saudi Arabia create a foundation for new and ongoing projects for international design and consultancy services and a strong source of revenue inflows. Other opportunities will arise from private investment involvement with large foreign contractors.

Despite these emerging opportunities, there are some elements that may hold the sector back from expansion. In particular, heavy regulation may prevent the sector from realizing growth. There are not enough domestic workers to meet the labor force needs, so the sector depends heavily upon expatriate labor for work on large infrastructure projects. In this regard, government efforts to increase national employment and to limit immigrant workers may contribute to a shortage in terms of labor requirements. Additionally, production of building materials domestically may not be sufficient for the near future, so regional demand could in turn cause costs to rise for builders, diminishing margins.

As part of Vision 2030, the Saudi Government is expected to help diversify the economy through residential and non-residential building as the government prioritizes these projects. Residential growth continues to be driven by large demand for affordable housing. The Saudi Government is working to construct housing units for its citizens, and tax law changes aim to incentivize real estate developers to begin construction on empty plots. As the government establishes project management offices (PMOs), there may be a lag in beginning certain housing projects and other social projects such as healthcare. We expect the demand for residential and real estate to

continue along this trajectory, increasing by 38.3 percent by 2030 with a compound annual growth rate (CAGR) of 2.5 percent.

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In effort to boost investment in the nation's housing stock, Saudi Arabia's Capital Markets Authority approved rules for exchange-listed real estate funds in 2016. Real estate investment traded funds (REITs) were offered on the Tadawul to gather investment in various areas of real estate, and are subject to different rules than other forms of real estate ownership, making foreign investment in the sector more feasible.

As spending by the Saudi Government has slowed over the past year, the construction industry has been hit particularly hard, with impacts transcending the supply chains of these projects. However, given Saudi Arabia's longer-term goals of economic diversification, continued development of the nation's infrastructure will be a critical investment in the region's success. Since the Saudi Government has resumed payments to contractors and as work has continued on existing active projects, a large amount of work is set to be completed, creating jobs and leading to future prosperity. Our forecasts estimate that there were approximately 1.51 million private sector jobs in the Saudi construction sector in 2017.

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Documented increases in private sector activity and a growing number of public-private partnerships (P3s) is cause for optimism. In the face of slowed government spending over the past couple of years, Saudi Arabian construction companies have become more efficient, and advances in automation may only increase productivity in the sector. Growth in the market is expected in the medium to long term because of strain on existing infrastructure and increasing demand.

Following contraction of the market in 2016, the downturn appears to have ended momentarily for the infrastructure sector in the Kingdom. Large construction

and transportation contracts have already been awarded into 2017, demonstrating new market activity. We project that construction sector recovery will continue into 2018 with a modest 3 percent CAGR through 2030. In the near term, this growth is estimated to be approximately a 5 percent CAGR through 2020.

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Modest increases in oil prices, larger budget allocations for infrastructure, and resumed payments to contractors, evidence of private sector involvement, and expansion of Saudi Arabia's non-oil economy into 2017 are factors supporting growth of the Saudi infrastructure sector. By 2020, construction activities are expected to contribute \$42.2 billion to Saudi Arabia's economy, real estate and renting are expected to contribute \$44.9 billion, and transportation is expected to contribute \$32.5 billion to Saudi Arabia's economy. While awarded construction contracts largely declined in the first half of 2017 across the GCC, new contract awards saw a 12.3 percent year-on-year increase, totaling nearly \$16 billion for H1.

Even though transportation infrastructure saw slowed growth in contracts in 2016, transportation contracts have also picked up in 2017, especially for aviation. Some projects were significantly slowed, though not likely indefinitely cancelled, as these projects are critical for long-term growth prospects. Megaprojects in this sector will continue as planned, including work on expansion of King Abdulaziz International Airport, the Riyadh Metro, and the Makkah Metro. Substantial contracts have been awarded by the General Authority for Civil Aviation (GACA) and the Saudi Arabian Ministry of Transportation (MOT) throughout 2017 as the Saudi Government works to privatize airports and develop roads and transit systems under Vision 2030. For instance, GACA has awarded contracts for construction on Taif International Airport, Hail Domestic Airport, and upgrades for the King Khalid International Airport in Riyadh. We expect that the total demand for transportation will increase by 44.5 percent from 2017 to 2030 with a CAGR of 2.9 percent. Among the open transportation projects in Saudi Arabia as of 2017 Q2, rail comprised the largest share with 77 percent of contracts. Aviation projects accounted for 12 percent, roads and bridges accounted for 9 percent, and ports accounted for 2 percent.

Large contracts were awarded for the construction of energy and utilities infrastructure in 2016 and 2017

such as the award for industrial facilities at the Jizan IGCC Power Plant and the award for water transmission infrastructure from Shoaiba to Mina. Major projects that have been underway were continued such as the Shuqaiq Steam Power Plant in Jizan.

There was also a strong project pipeline for new power capacity in Saudi Arabia. As of Q2 2017, 24 percent of projects were in the pre-construction phase, and 76 percent of projects were under construction. The Saudi Electricity Company (SEC) and Saline Water Conversion Corporation (SWCC) have awarded billions of dollars for large contracts in 2017, such as the third phase for the Yanbu Power Plant. U.S. companies such as Jacobs Engineering, McDermott, and Honeywell continue to win major contracts in Saudi Arabian infrastructure, and there is an American presence throughout the sector.

In the U.S., opportunities underpin the challenges facing the country's infrastructure system because there is potential to further boost economic growth, increase efficiency, and generate interest of foreign and American innovators. As with Saudi Arabia, private financing options can help to close the gap in infrastructure needs while raising incentives to succeed.

Like Saudi Arabia, the private sector has a significant role in U.S. infrastructure projects, and this role may increase under the current U.S. administration's initiatives, diversified financing, new P3 initiatives, and replication of successful private company involvement already completed or underway.

Despite aging U.S. structures, and the challenges faced with a growing infrastructure gap, the U.S. market also has many strengths. The U.S. infrastructure market is the second largest globally, and supported by high quality credit and a robust municipal bond market. A great deal of freedom exists at the local level in terms of project priority, and there is a growing framework for P3s. Many states, including Virginia, have already successfully partnered with companies for the design of highway systems.

In both the United States and Saudi Arabia, investment in infrastructure impacts both individuals and businesses alike. Strategic investment in the efficient delivery of energy, efficient and safe transport of people and goods, increased connectivity, and rebuilding of deteriorating infrastructure are essential to increasing national competitiveness and productivity. Not only do these investments directly affect the infrastructure industries in question, but they also create a foundation for broader economic expansion, underscoring economic outputs across the economy.

Saudi Arabia

Trends in Contracts

Industry executives observe that the construction industry is coming off a significant boom from the King Abdullah bin Abdulaziz Al Saud reign. One executive noted that *“there were too many projects at this time – the industry experienced a lot of growth, but a lot of mega projects were demanded in a short period of time. Many fast-track projects put a larger drain on the economy. Construction companies are really faced with an issue of managing cash flow.”*

Liquidity has proven to be a source of strain in Saudi Arabia’s construction industry, pushing stakeholders in the Middle East to pursue non-traditional financing. In the region, liquidity challenges have been the direct result of lower trends in oil prices. Slowed government spending has meant fewer bank deposits and thus reduced lending. Liquidity challenges have resulted in stakeholders securing financing from private equity, specialist infrastructure funds, and capital markets by way of traditional bonds or sukuks.

Saudi Arabia’s construction industry has experienced difficulty over the past few years with stalled projects – affecting 40 percent of contracting companies, causing a delay in paying workers’ salaries. Official figures reported a 3 percent year-on-year contraction in the market during the first half of 2016, with difficulty throughout the first three quarters of the year.

One top construction firm’s executives reflected on these challenges:

“Interest rates were low during this time [prior to 2015]. During this period, we had to build capacity and get the most out of projects. Projects began to come to a halt in 2015. Interest rates increased and liquidity became a predominant issue. Government projects slowed and some were cancelled. In 2016 there were also cancelled projects. Broadly speaking, 2015 was chaotic for the industry, though 2016 was more settled. As of the beginning of 2017, there were minimal government projects; the whole market has shrunk. Now, there is overcapacity and lack of liquidity. Many large projects have still not recovered.”

The head of the Union of Arab Contractors, Fahd Al-Hammadi echoed this sentiment earlier this year. *“Many challenges are facing the contracting sector on the Arab, Gulf and Saudi levels especially the lack of liquidity and funding, noting that despite these challenges, the sector has witnessed significant development and growth during the past decade in terms of the number of companies operating and the volume of work.”*

Though lack of liquidity and funding have become overarching trends over the past two or so years, there has been significant development and growth during the past decade in terms of the number of operating firms and the volume of projects.

The government has recognized the impact of project contraction not only on the sector, but on the larger economy, and has taken steps to ease the strain on some firms. In the second half of 2017, the Council of Ministers revealed a decision regarding public sector contractors that began work on major public projects before December 2016. These contractors would be exempt from paying levies on foreign workers. Previously, the Council of Saudi Chambers of Commerce and Industry had warned that implementation of new levies “could alter project budgets and hinder workflow.”

From an industry perspective as expressed by those engaged in sector activities, three themes have emerged as obstacles to economic recovery for infrastructure, particularly for Saudi Arabian construction.

1. There is a lack of clarity around the Saudi Government’s financial plans in terms of both allocation and timing. As a result, it is difficult for firms to plan.
2. The holding of cash is halting the supply chain. Supply chains in this industry have become extended at levels never previously observed in Saudi Arabia.
3. Costs to firms have increased through levies and fees. For example, costs have risen through Saudization, creating challenges for most construction firms.

These sentiments linger among companies in observation of the construction market’s reality from 2015 into 2016. While challenges remain for firms impacted by contraction of the market, evidence points to recovery into 2018 through increased liquidity for resumed government payments and trajectory of growth with an uptick in contracts for industrial, transportation, and residential building projects in the second half

of 2017. Saudi Arabia’s infrastructure budget was 39 percent higher versus spending in 2016, reflecting the government’s commitment to meeting infrastructure goals despite financial constraints.

According to BMI Research’s Infrastructure Risk/Reward Index, Saudi Arabian infrastructure ranks as an attractive market with respect to the global and regional averages. This rating favorably considers significant projects stemming from the country’s infrastructure needs because of large population growth.

Saudi Arabia’s infrastructure budget was 39 percent higher versus spending in 2016, reflecting the government’s commitment to meeting infrastructure goals despite financial constraints.

Growing Value of Infrastructure

Nationally, we expect that construction activities in Saudi Arabia will contribute SR158.2 billion (\$42.2 billion) to the economy by 2020, while real estate and renting will contribute SR168.5 billion (\$44.9 billion). Transportation activities are projected to contribute SR121.9 billion (\$32.5 billion). In sum, we expect these infrastructure activities to account for an estimated 19 percent of Saudi Arabia’s GDP, comprising a large share of the country’s non-oil activity.

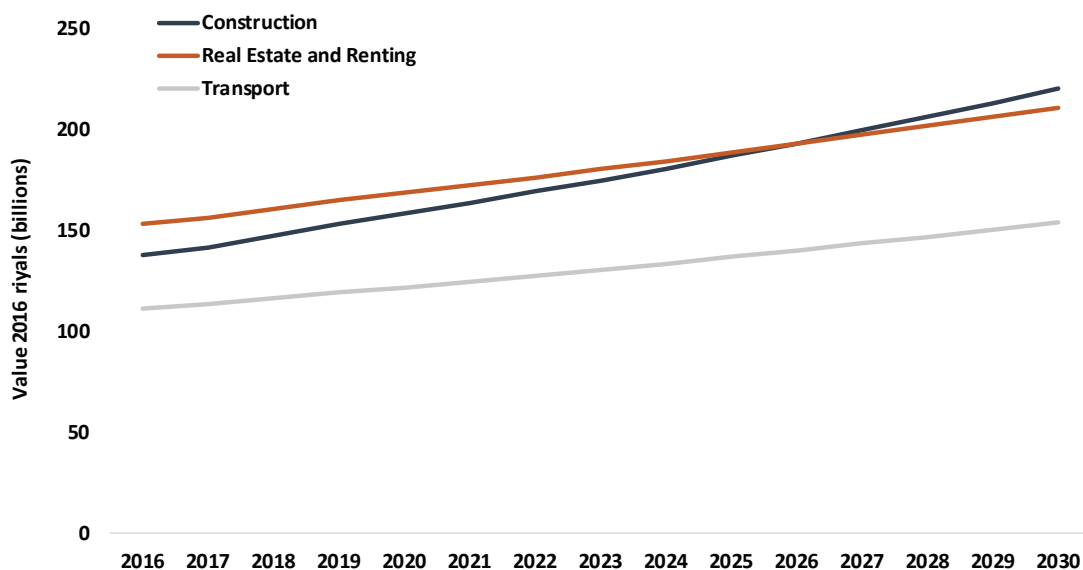
By 2030, contributions to GDP from construction, real estate and renting, and transportation are projected to reach SR220.3 billion (\$58.7 billion), SR210.8 billion (\$56.2 billion), and SR153.7 billion (\$41 billion), respectively. The values may be higher with the successful implementation of NTP initiatives.¹

Value added to the Saudi Arabian economy from infrastructure activities differs regionally. For instance, real estate and renting activities in Makkah contribute the largest share in the region’s sector, though construction has a projected increasing share of contribution to GDP through 2030. **Figure 2**, **Figure 3**, and **Figure 4** display the industry trends each for Makkah, Riyadh, and the Eastern Province for Construction, Real Estate and Renting, and Transport. The bulk of value-added infrastructure activities originate from these provinces.

In 2020, construction activities from these three regions are expected to account for nearly 78 percent of Saudi Arabia’s construction contribution, 81 percent of the nation’s transportation contribution, and approximately 87 percent of real estate and renting’s contribution to the country’s economy.

The profile for Makkah for the year 2020 shows a SR51.6 billion (\$13.8 billion) contribution from construction, a SR48.5 billion (\$12.9 billion) contribution from transport

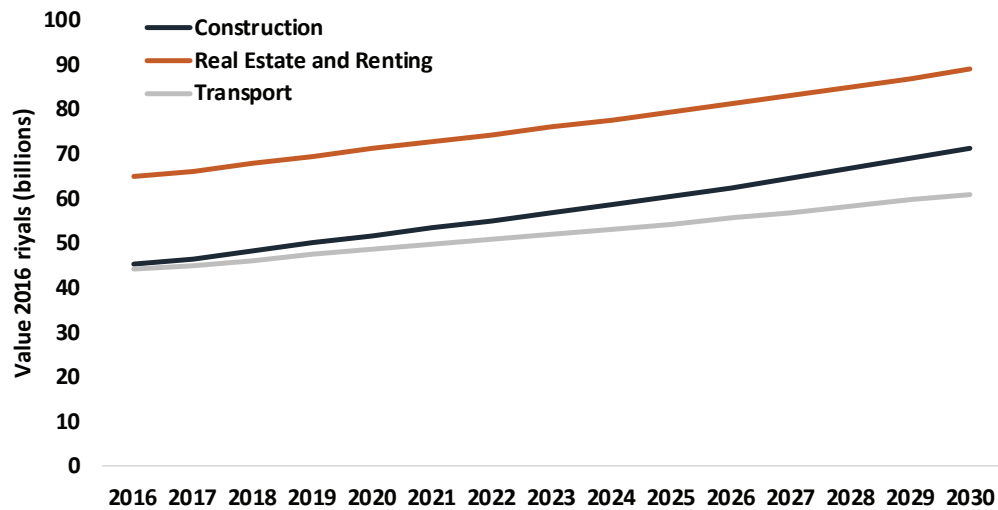
Figure 1: Contribution of Infrastructure Activities to Saudi Arabian GDP
National Forecast, 2016-2030



Source: REMI, USSABC

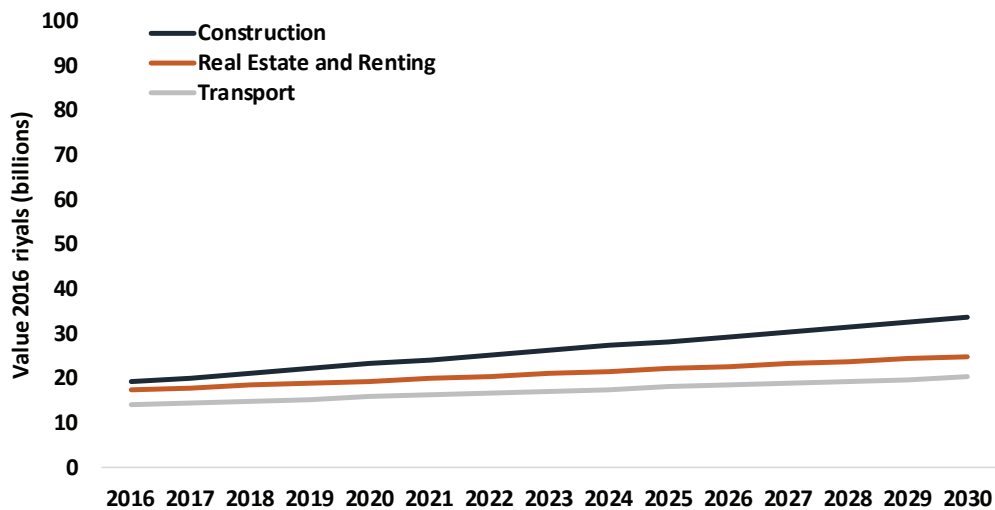
¹ Projections assume no large shocks to the country’s economy and potentially underestimate growth in areas where future national initiatives have yet to be announced.

Figure 2: Makkah – Contribution of Infrastructure Activities to Saudi Arabian GDP 2016-2030



Source: REMI, USSABC

Figure 3: Eastern Province – Contribution of Infrastructure Activities to Saudi Arabian GDP 2016-2030



Source: REMI, USSABC

activities, and SR71.1 billion (\$19 billion) contribution to Saudi Arabia’s economy from real estate and renting.

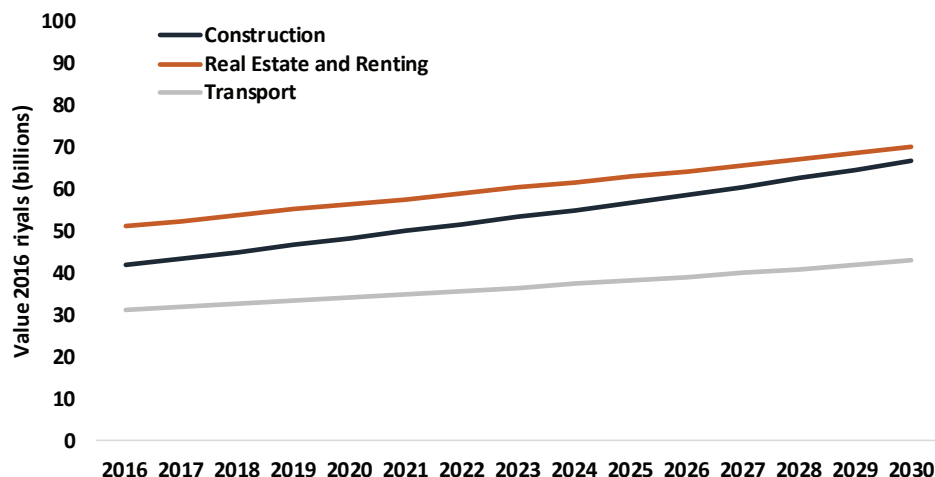
Government Infrastructure Goals and Financing

The Kingdom’s infrastructure has seen stifled growth in 2015 and 2016 and limited growth into 2017 because of government reorganization and slowed contract awards,

though the sector is expected to see an uptick in growth into 2018 and 2019, consistent with projections shown in **Figure 1**.

The 2017 budget for Saudi Arabia allocated SR52 billion (\$13.9 billion) for infrastructure and transport, a \$4 billion increase from 2016, and a 39 percent increase from the actual level of spending in 2016. Under the 2017 budget, there is also SR42 billion (\$11.2 billion) of funding allocated for National Transformation Program (NTP) initiatives. Included in this budget are plans to

Figure 4: Riyadh – Contribution of Infrastructure Activities to Saudi Arabian GDP 2016-2030



Source: REMI, USSABC

expand Saudi Arabia’s network of airports, railways, roads, and ports, and develop Ras Al Khair Industrial Mining and Jubail and Yanbu industrial cities.

Increased budget allocation despite financial constraints demonstrates the Kingdom’s continued commitment to infrastructure spending. The government has successfully financed projects without the drawing down of reserves by way of debt issuances that have so far been oversubscribed. The continuation of ongoing public megaprojects provides opportunities for international design and consultancy firms.

Infrastructure Objectives through Vision 2030 and the NTP

The Saudi Government has prioritized infrastructure projects as part of Vision 2030 goals, underscoring the sector’s critical role in economic diversification. Highlights of these objectives include:

- Increasing private sector investment with the creation of opportunities for private participation in airports, rail, ports, and road infrastructure.
- Enabling citizens to obtain financing for suitable housing, growth in residential building through increased access to financing for homes, and increased efficiency for procurement.
- Improving the performance of the real estate sector and increase its contribution to GDP. Increase the output from private real estate developers from 10 percent to 30 percent.
- Developing tourism capacity including doubling the number of hotels.

- Devising solutions to utilize unused or non-productive government-owned land through a land exchange process to help the Ministry of Housing develop and provide affordable housing units.
- Issuing bonds for the re-securitization of cash flow to the Real Estate Development Fund. Convert the Real Estate Development Fund into a financial institution to bridge the current gap in the mortgage sector.
- Developing infrastructure at Industrial and Economic Cities.
- Increasing the construction of housing at Industrial and Economic Cities.
- Promoting efficient allocation of public resources.

Continued upgrades and development of Saudi Arabia’s infrastructure will help to further establish an attractive investment environment for companies considering operation in Saudi Arabia and will aid in bolstering government performance. The NTP’s focus on the private sector in infrastructure and other key areas reiterates widely held expectations that Saudi Arabia will reduce spending over the long horizon instead of permanently halting megaprojects.

Government Bodies Involved in the Infrastructure Sector:

The following Saudi Arabian government entities have been involved in the governing of infrastructure in Saudi Arabia:

Ministry of Finance

The Ministry of Finance (MOF) supervises the implementation of economic policies, including national budget allocation and financial projections for ongoing infrastructure projects. The ministry ensures that there is liquidity in the system, creates timely payments, and ensures that banks provide funding during periods when banks have tended to be more risk averse. The MOF also oversees implementation of special projects, such as the expansion project of the Holy Mosque in Makkah.

General Organization for Social Insurance (GOSI)

The General Organization for Social Insurance is a government run pension fund that has invested billions of dollars across Saudi sectors, including building. For example, GOSI awarded a \$430 million contract in 2015 to Saudi construction companies to develop new apartment units in Riyadh. GOSI also invested in the building of the Granada Center, a landmark project and one of the largest shopping centers in Riyadh.

The Saudi Industrial Development Fund (SIDF)

Established in 1974, the SIDF was the first government agency to offer interest-free soft loans that allowed businesses to establish industrial plants. These loans can finance up to 50 percent of the capital to build a new factory and have been used to launch and expand industrial facilities.

In 2015, SIDF approved loans for engineering industries totaling approximately SR24.1 billion (\$6.4 billion) and loans for the cement industries totaling approximately SR11.6 billion (\$3.1 billion). Additionally, SIDF approved SR13.3 billion (\$3.5 billion) in loans for projects classified under 'other building industries.'²

In line with Vision 2030 goals to support local industrial projects, the fund's total capital increased from SR25 billion (\$6.7 billion) to SR65 billion (\$17.3 billion).

Ministry of Economy and Planning

Broadly, the Ministry of Economy and Planning is responsible for devising long-term economic and strategic goals for Saudi Arabia. NTP goals involve building of new infrastructure such as roads and ports under build-operate-transfer contracts such that firms in the private sector finance projects and later operate them to recoup investments.

In early 2017, the Ministry of Economy and Planning hired the consultancy firm PricewaterhouseCoopers to review \$69 billion of government contracts with the goal of cutting one third, including contracts by the ministries of housing and transport. The Ministry aims to control capital spending and efficiently carry out government projects in all sectors.

Ministry of Housing

The NTP has outlined initiatives for the Ministry of Housing including the development of affordable housing, creation of partnerships with private sector developers, provision of mortgage financing, implementation of fees to undeveloped urban lands, and the development of a savings program for housing applicants. Another key initiative is to convert the Real Estate Development Fund into a financial institution, with the fund acting as the executive arm of the Ministry of Housing. Other initiatives are to allow the Ministry of Housing to establish power plants for housing projects and to facilitate cooperation with the Ministry of Finance for the provision of bank loans to government employees for housing.

The Ministry of Housing is already taking a central role in tackling Saudi Arabia's shortage of affordable housing. In 2015, the Ministry awarded two contracts to Emdad Najed Group worth a combined value of nearly \$300 million to build residential units. Both projects have expected completion in the second quarter of 2018.

The Ministry of Housing reported that it would leverage public-private partnerships (P3s) in order to promote housing investment, providing the market with 1.5 million units. First deployed on lands owned by the Ministry, the P3 program will facilitate the value chain of real estate development. Through the NTP 2020, the Ministry will provide \$5.3 billion in financing to applicants for homes. Saudi Arabia's mortgage market is estimated to be over \$30 billion in value with a targeted value of \$70-\$80 billion by 2020 through activation of the secondary mortgage market. Sales of sukuks to foreign investors could both open opportunities in the refinancing of companies and provide opportunities to private sector players in mortgage markets.

Al Ra'idah Investment Company

Established in 2007, the government-owned company provides real estate property investment, development, and management. The company acts as the real estate investment division of the Saudi Public Pension Agency, involved on projects including the King Abdullah Financial District and multiple residence compound projects in Riyadh. Recently, the company awarded contract work nearly \$500 million to MNG Holdings for the construction of 2,556 units in Jeddah.

² SIDF report Distribution of Loans by Sector. www.sidf.gov.sa.

Private Sector Initiatives

The targets outlined in Vision 2030 and the NTP call for a greater role of the private sector in Saudi Arabia's economy. In line with Saudi Arabia's goals for private sector participation, private investors have already become involved in the areas of aviation and power infrastructure, though continued success in other areas of infrastructure could support broad growth in the sector. Traditionally, P3s benefit private firms by mitigating risks involved in investments. The NTP targets an increase in private sector participation from 5 to 50 percent in the rail segment and from 30 to 70 percent for work on national ports.

One industry executive observed that he had *“already seen a shift in the breakdowns of the total numbers of projects in the sector, with a shift from a majority of government led projects to a majority of private sector projects.”* He noted also that *“there is revising of existing capital projects with participation of the private sector, now with better planning and budget allocation.”*

Saudi Arabia's past efforts towards achieving new P3s have been on an ad hoc basis; however, in March 2017, the Ministry of Economy and Planning established the National Center for Privatization (NCP) that will be responsible for procurement and the associated administration of P3s. To be successful, the NCP will have to make a business case for private investors. The NCP may need to play a role in the management of perceptions around P3s if initiatives are to be successful. Given the new creation of Saudi Arabia's P3 program, the Saudi Government is still determining the best approach to attract experienced private investors into the market.³ With the establishment of the National Center for Privatization, there is now capacity to undertake these projects, especially towards the goal of coordinating various ministries for successful project implementation. Creation of the national center will ideally centralize some of the contract awards, and impose processes going forward. Although creation of the NCP intends to promote P3s, procurement laws in Saudi Arabia may have created barriers to actually achieving them. Saudi laws have stated that government entities must give contracts to the lowest bidder, in turn restricting strategic selection of private firms. Even if selection of private firms comes at a higher price, the benefits of private sector presence may

³ A report released by the World Bank, “Benchmarking Public-Private Partnerships Procurement 2017” outlines the best practices for various economies to prepare, procure, and manage P3s. While the report did not include Saudi Arabia in the 2017 edition, Saudi Arabia will likely be included in 2018. The report uses infrastructure projects as a case study.

indeed exceed costs, creating the true optimal choice. Some experts have argued that linking transport to real estate could be used as a strategic method of attracting private investors into the Saudi infrastructure sector, as was successfully done in Hong Kong. This intermeshing would encourage operators of rail and ports to develop surrounding areas.⁴ Investors could access the indirect benefit from proximity to transportation infrastructure, especially increased value of real estate near transportation corridors. Loan guarantees are another mechanism that can help to leverage private investment in large-scale transport infrastructure projects.⁵

Aviation is one area of the infrastructure sector that has already seen early success in achieving private partnerships. In 2017, P3s were announced for airport projects in Hail, Qassim, Taif, and Yanbu.

Private sector projects are already prevalent in some areas like industrial development and real estate development. The impacts of newly formed P3s in the construction sector in 2017 ought to begin to take shape in 2018. Saudi Aramco has proven to be effective in gathering public-private partnership in the space of industrial construction. An example of an Aramco project that employs a private sector participation model is the industrial plant in Jizan worth \$2.1 billion. Once completed, the project will be the world's largest complex for gas. The Arabian Company for Water and Power Development (ACWA) will own 75 percent of the project, and U.S. firm Air Products and Chemicals, Inc. will own the remaining 25 percent.

In order for the private sector to succeed, there is an urgency to both resolve issues with the Saudi regulatory environment and to attract the right investors. Progress in either area will likely support continued progress in the other.

In this vein, an industry executive noted that *“regulation is an obstacle to the private sector in this industry – there's no reason an improved regulatory environment can't be extended around the Kingdom. No one is going to invest if there's no way to win. There needs to be greater investment in areas like renewables, roads, and ports. These types of infrastructure projects would create a boom.”*

Once regulatory issues are resolved, it will be easier to attract investors. The executive underscored that *“there is a substantial amount of money waiting to be*

⁴ Atkins design and engineering consultancy.

⁵ Ang, G. and V. Marchal (2013), Mobilizing private investment in sustainable transport: The case of land-based passenger transport infrastructure, OECD publishing.

invested, and ultimately, there's a need to attract the right investors. Saudi Arabia is waiting to be developed, and without the right investors, the construction sector will be challenged into 2018."

Oil Revenues and Government Projects

Over the past few years, work on major projects like the King Abdullah Economic City (KAEC) have continued steadily, though because of declining oil prices, contracts for development of many government projects stalled or slowed during 2015 and 2016. Payments to suppliers, developers, and contractors were heavily delayed for the first three quarters of 2016, creating pressure for firms and leaving many workers without months of pay. At a macro level, the withholding of payments acted as a shock to the economy. In Q2 2017, one industry executive noted that delayed payments still proved to be problematic on the supply side. *"Some companies are now just receiving payments for projects, the first payment in a year. Payment terms are very expensive, and it's now a buyer's market."*

Megaprojects in the Kingdom have been included in government budgets, and since the downturn in oil prices, there has been a broad focus on the efficient implementation of government projects, including those in infrastructure.

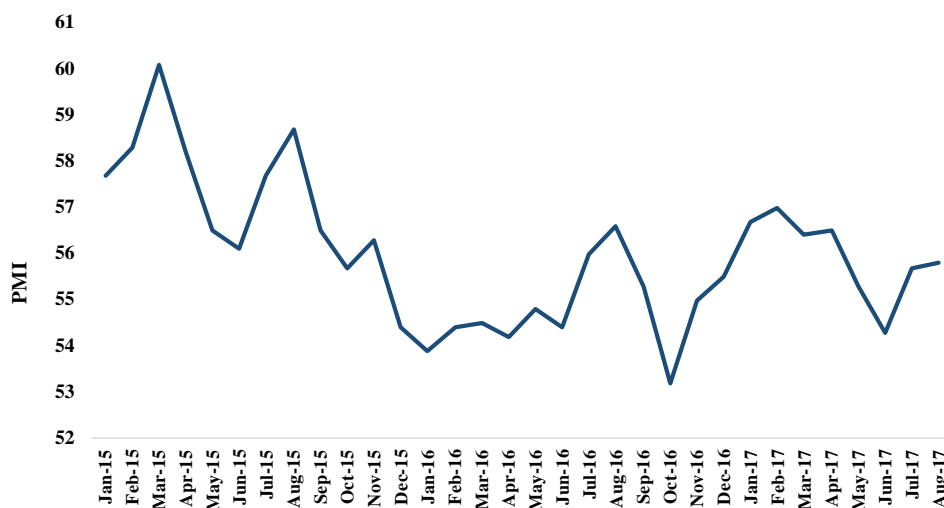
In 2016, the Saudi Government made the decision to

suspend the awarding of new contracts for large public projects until the national Project Management Office (PMO) could be established. Aligning with Vision 2030, the PMO intends to centralize awards and create spending efficiencies, ideally eliminating redundancy among ministries. While the creation of the PMO helped to resume contract payments and new contract awards, project assessment could create a bottleneck in the project pipeline and could also delay implementation in the short term. Depending on the full responsibilities of the office, there may be lag time in the Office's operation at full capacity. The work done by the PMO office has the potential benefit of strengthening best practices in the infrastructure market, though there is also a potential reduction in total awards, depending on the interpretation of efficient spending. Undoubtedly, removing inefficiencies in the management and allocation of infrastructure spending can help to ensure better outcomes in the sector. There is much work to be done to expand Saudi Arabia's infrastructure to support a growing domestic population and demands that come with further integrating the country into the global economy.

Empirically, contract opportunities tend to correlate with government revenues, meaning that as government revenues decline, so do new construction contracts. Broadly, there is consensus that cuts to public sector spending have stifled growth in the construction industry – this observation is underpinned by declining oil prices in 2015 and 2016.

The Purchasing Managers' Index (PMI) is widely viewed as a proxy for growth in the non-oil economy.⁶ In January 2017, Saudi Arabia's non-oil private sector expanded at

Figure 5: Non-Oil Private Sector Growth, Saudi Arabia Purchasing Managers' Index 2015-2017



Source: USSABC, Emirates NBD Saudi Arabia PMI

6 The PMI is created to provide a snapshot into the economy on a monthly basis since GDP figures are compiled on a quarterly or annual basis.

the fastest rate in nearly a year and half as the government injected cash into the economy following a long period of austerity. The government had delayed paying debts to the construction industry for more than a year following a fall in oil prices. The time trend for the seasonally adjusted Emirates NBD Saudi Arabia Purchasing Managers' Index is shown in **Figure 5**.⁷ A level above 50 indicates that business is expanding, and the higher the reading is above 50.0, the faster the rate of expansion.

The headline PMI reading averaged 55.4 in Q2 2017 and ticked up to 55.7 in July and 55.8 in August, signaling strong expansion in the non-oil private sector heading into the third quarter.

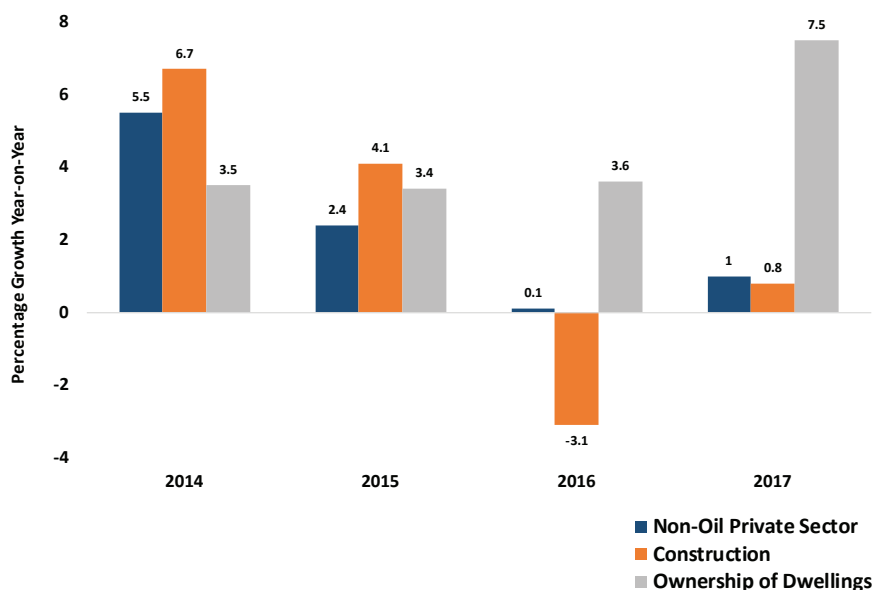
Negative shocks to the construction industry can hinder growth in the larger non-oil economy. As evidence, consider that the construction sector accounts for 8.5 percent of Saudi Arabia's non-oil GDP.⁸ Thus, rebounds in the sector by way of other initiatives should aid in stabilizing the Kingdom's non-oil economy. Jadwa Investment forecasted 0.8 percent year-on-year growth for Saudi construction in 2017, an improvement from the 3.1 percent per annum contraction in 2016 as shown in **Figure 6**. This forecast also reflects 0.7 percent per annum growth of the aggregate non-oil sector in 2017

compared with 0.2 percent growth the previous year. According to Jadwa Investment, ownership of dwellings, accounting for 9 percent of non-oil GDP, is likely to be among the fastest growing areas of the non-oil economy in 2017 and beyond, driven by major initiatives to promote residential real estate development. For instance, the Ministry of Housing's 'My House' program will provide 85,000 eligible citizens with financial support, and the program will transfer 75,000 land plots in various residential areas. The Ministry of Housing estimates that through this initiative, over 120,000 units will be constructed over three years, in turn injecting SR562 billion (approximately \$150 billion) into the country's economy.

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Figure 6: Saudi Arabian Real Non-Oil GDP Growth by Kind of Activity 2014-2017



Source: USSABC, Jadwa Investment (data)

⁷ In the GCC, the PMIs are based on monthly surveys of non-oil private sector companies, and are compiled by IHS Markit, a global provider of financial information services based in the UK. The surveys and methodology are consistent with other PMIs produced by IHS Markit for the rest of the world.

⁸ Figure reported by Jadwa Investment.

To promote economic growth through ownership of dwellings, The General Authority for Real Estate was approved by the Council of Ministers in early 2017. The Authority is responsible for the NTP goal to accelerate GDP growth in ownership of dwellings from 4 percent to 7 percent by 2020. Programs under the Authority will regulate, develop, and monitor the real estate sector, both increasing efficiency and promoting investment.

Financing

Fiscal spending in Saudi Arabia has been increasingly tightened coinciding with declines in oil prices beginning mid-2014, and lower oil prices have also damaged confidence. The government made budgetary adjustments and withheld payments from contractors. In 2016, the 3-month Interbank Offered Rate (SIBOR) reached its highest level since 2009. Many banks have reduced SAMA bills and excess reserve holdings at the Saudi Arabian Monetary Authority (SAMA) to provide credit to the private sector and to purchase government issued bonds. Growth in deposits to the private sector year-on-year were largely negative in 2016, though credit to private businesses expanded, especially for the construction sector. This credit growth largely reflects efforts by construction firms to manage cash given delays in government payments.⁹ Despite national challenges faced by the Saudi Government and firms operating in the Kingdom, overall growth in the infrastructure sector in 2016 was approximately 2 percent, driven by continued work in areas like industrial and power.

Infrastructure spending will benefit from Saudi Government issued domestic and international capital market debt. Proceeds from Saudi Arabia's international bond sales are critical to building confidence and financing the construction and real estate sectors in Kingdom without drawing down on reserves. Following the benchmark \$17.5 billion foreign bond issuance in October 2016, central bank data showed that the Saudi Government disbursed nearly \$27 billion to begin repaying debts. This alternative source of funding provides a means for Saudi Arabia to finance its budget deficit and will allow the Saudi Government to continue large real estate projects such as King Abdullah Economic City (KAEC).

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⁹ Ken Miyajima. (2017). What Influences Bank Lending in Saudi Arabia? International Monetary Fund.

the international market. In Q2 2017, the country sold \$9 billion worth of sukuks, with maturities of five and ten years, reporting bids totaling \$33 billion.

These issuances have been oversubscribed, reflecting confidence from the global bond market with regards to Saudi Arabia's economy and goals. To some degree Saudi Arabia's bond issuances in late 2016 and early 2017 have made strides in addressing the liquidity shortage, at least at the national level. Increased liquidity in the market will have a longer-term impact on the sector as the government has been the main client for contractors, and this increase will facilitate the development of open projects, flowing through to companies in the construction and real estate space. Eventually, with forward progress on existing projects, the boost in liquidity will allow for the generation of additional contracts. A growing global interest will increase borrowing costs; however, since Saudi Arabia has a minimal national debt load and is working to fiscally consolidate, the country should be able to issue further debt at a competitive rate.

On the back of fiscal tightening, major metro projects in Dammam, Jeddah, and Madinah were stalled in 2016. The value of contracts awarded declined in 2016 compared with 2015 because of substantial reduction in the awarding of new megaprojects, though there was a significant increase in the volume of smaller contracts. The Eastern Province continued to receive a large share of projects, attributed to a large amount of investment by Saudi Aramco in the oil & gas segment. New contracts in Makkah have stemmed from petrochemicals projects, and contracts in the Riyadh region involve real estate and urban development.

A contract to Larsen & Toubro from Saudi Aramco for the Hasbah sour gas field expansion is one example of an infrastructure contract awarded in 2016. Also, the Saudi Electricity Company awarded a contract for the transmission line project for the Al Dawadmi substation in Riyadh to the Arabia Electrical Transmission Line Construction Company for transmission lines, insulators, conductors and cables.

Overall evidence points to increased contracts coinciding with the government's reworked budget and efforts to boost liquidity. Contract awards have begun to pick up in 2017 in multiple areas, as shown in **Appendix I**. Major awards were given by Saudi Aramco, the Saudi Electricity Company, SWCC, the Royal Commission for Jubail and Yanbu (RCJY), and the General Authority of Civil Aviation (GACA). For instance, in the first quarter, Saudi Aramco awarded multiple contracts of over \$100 million each to LT Hydrocarbon Engineering for platform upgrades, to McDermott for installation of jackets on the Berri and Marjan fields, and to Dynamic Industries for

pipeline installation. Another contract was awarded to Al-Kifah Contracting for apartment buildings in South Dhahran. So far in 2017, SWCC has awarded contracts totaling over \$3 billion to Hyflux, Acwa Power, Doosan Heavy Industries and Construction, and Yas Consulting Engineers. The largest of these was a \$2 billion contract with Sepco 3 in the second quarter, for Yanbu Power Plant, Phase 3, a plant with a 3,300MW capacity. As show in **Table 1**, there has been significant activity in aviation in 2017 corresponding with the privatization of airports. As with Jeddah's King Abdulaziz International Airport, the company awarded the contract will operate and maintain the airport and share revenues while the government bears the cost for expansion projects.

An effective transport network will be needed to support development of Saudi Arabia's industrial base corresponding with Vision 2030 goals towards diversification of economy. Other projects in Saudi Arabia's transportation sector began to look more promising in 2017 as the Saudi Government announced at the start of the year three public transportation projects in Jeddah. The projects are a tram on the northern waterfront, construction of the Obhur Bridge north of Jeddah City, connecting two parts of the city, and a marine taxi service linking Sharm Obhur with the central and northern parts of the region. The projects are being completed with joint public and private sector involvement, and were seen as a sign that the Saudi Government is once again relaxing spending on infrastructure. Development of metro systems in Riyadh and Makkah are also moving forward.

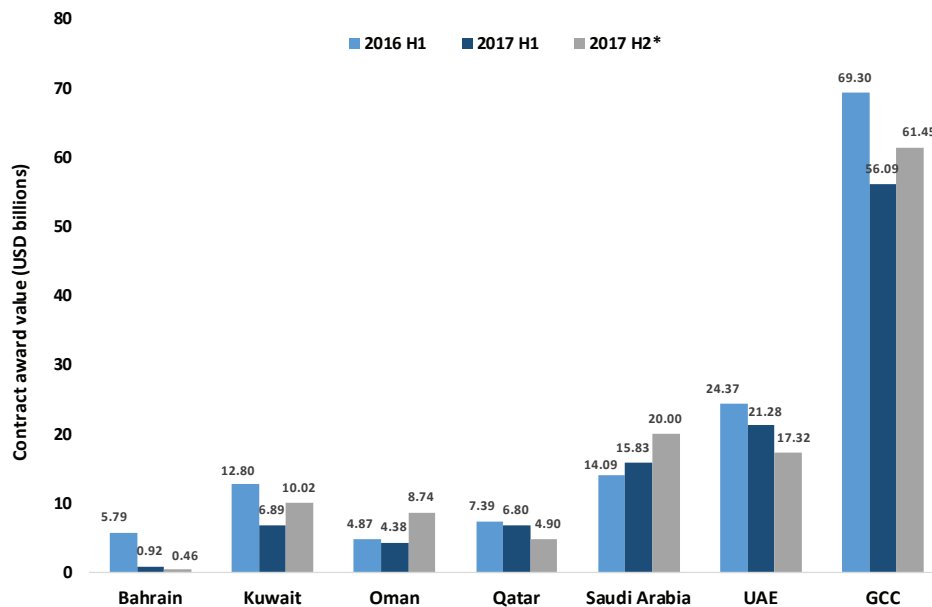
Regional Trends in Contracts Awarded

Across the Gulf Cooperation Council, the value of awarded construction contracts has declined. Data from MEED Projects indicates that the total value of contracts awarded in the first six months of 2017 had decreased by nearly 20 percent from the contracts awarded in the first six months of 2016. Within the region, construction projects were the most active in 2017 among new awards, accounting for over 40 percent of total awards. Transportation followed with just over 20 percent of total contracts, and power with 15 percent.

Saudi Arabia accounts for approximately one third of the Gulf's construction market, and with many projects in the pipeline, remains the market with greatest potential in the region. As shown in **Figure 7**, all Gulf countries saw year-on-year contraction into 2017, except for Saudi Arabia which saw a 12.3 percent increase in new contracts awarded during this time period, totaling SR59.36 billion (\$15.83 billion) in the first half of 2017, up from SR52.82 billion (\$14.09 billion) in 2016.

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Figure 7: GCC Contract Awards
2016-2017 H1 Comparison and H2 Forecast



*Indicates projection

Source: USSABC, MEED Projects

Despite slowed activity from declining oil prices, there has been an uptick, driven by eased government spending and P3s. Based on contracts already awarded in the second half of 2017, along with projects under bidding, there will be a projected SR75 billion (\$20 billion) worth of contracts awarded in the second half of the year.

According to a MEED report on construction, Saudi Arabia has \$250 billion of projects in pre-execution phase, pointing to expansion of the sector over the next few years. Saudi Arabia’s work currently in pre-execution phase totals nearly the amount of combined pipeline projects in the U.A.E. and Qatar.

Continued recovery in the construction sector presents an opportunity for national economic growth and reduction of the unemployment rate. The Saudi Economic Association reported that Saudi Arabia has spent more than \$1 trillion over the past decade on construction projects, with construction companies comprising 27 percent of all registered facilities in Saudi Arabia. According to the Association, the industry value amounts to SR300 billion (\$80 billion) and SR350 billion (\$9.3 billion). These reports also noted that the construction sector has contributed approximately six to seven percent to Saudi Arabia’s gross domestic product, consistent with our projections.

Domestic and Foreign Firms Involved in Saudi Arabian Infrastructure

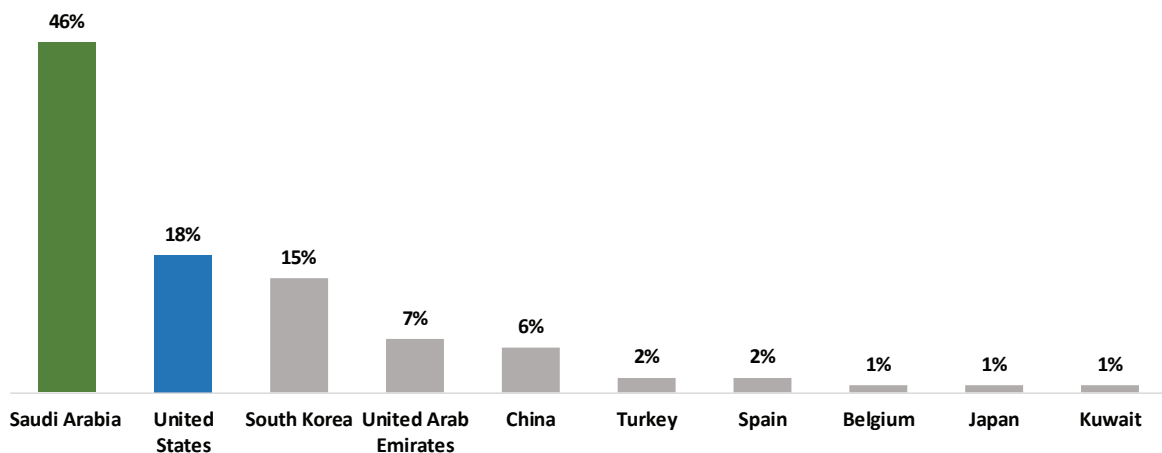
Following years of investment in infrastructure by the Saudi Arabian Government, domestic firms remain the

dominant force in the market for project development in all major areas. Domestic firms often have close ties with the government and are given preference for major public contracts. In some cases, domestic firm partnership is mandatory to complete projects where only Muslims are permitted, as in Makkah. As shown in **Figure 8**, **Figure 9**, and **Figure 10**, Saudi Arabian firms account for a 46 percent share of the projects in Residential & Nonresidential Building, a 45 percent share in Transportation, and a 37 percent share in Energy & Utilities. Domestic firms like Saudi Binladin Group and Al Rajhi Construction Group have had a large presence in residential and non-residential building. The Saudi Arabian firm Naif Alrajhi Investment announced a SR600 million Burj Ramla residential tower construction project in Riyadh, to be developed by the subsidiary Ramla Real Estate Development Company, with expected completion in Q3 2018.

However, foreign firms are gaining market share, and opportunities for outside construction and engineering players are expected to increase as the Saudi government prioritizes P3s. As of 2017, U.S. firms had 18 percent of building contracts and South Korean firms also had a sizable 15 percent share.

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Figure 8: Residential & Nonresidential Building Projects Under Development by Firm Country of Origin



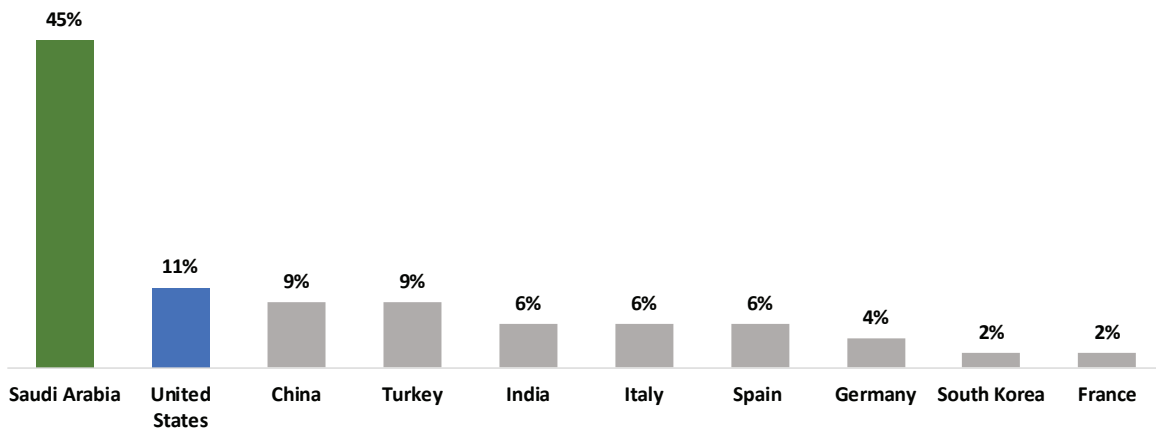
Source: USSABC, BMI

Within the residential and nonresidential building projects segment, industrial-based projects have high potential given the government's priority on these for diversification. Over \$400 million of contracts have been awarded for developments in King Abdullah Economic City (KAEC), with nearly one-third of these dedicated to the industrial valley. U.S. firms including Bechtel and Fluor are heavily involved in industrial construction projects, especially downstream oil and gas projects. U.S. engineering firms such as KBR have been involved in the feasibility study of the Jubail 3 complex, and Jacobs Engineering won a large contract with Sahara Petrochemicals. South Korean firms including Daelim Industrial Company, GS Engineering & Construction Corporation, Samsung Engineer & Construction, and SK Group are major holders of construction contracts related to industrials and petrochemicals industries.

The development of affordable housing projects has solidified as a key theme in Saudi Arabia's future. Major residential building projects are developed by consortia comprised of both Saudi Arabian and foreign firms. For example, the \$20 billion Dahiyat Al-Fursan project involves the construction of 100,000 homes. The project is under development by a consortium made up of Saudi Pan Kingdom for Trading, Industry, and Contracting and South Korean firms Daewoo Engineering & Construction and Hanwha Engineering & Construction. Saudi Aramco has issued a contract to a consortium made up of the Chinese firm Sinohydro Corporation and the Saudi Arabian firm Azmeel Contracting Company for the building of homes and facilities for employees in Dhahran.

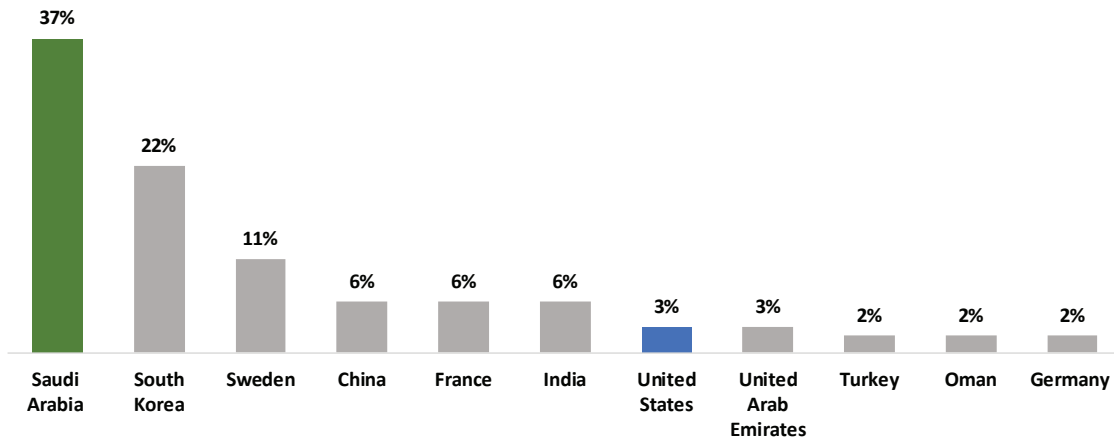
Regarding transportation projects in Saudi Arabia, in 2016, Bechtel was awarded a contract on Riyadh's metro

Figure 9: Transport Projects Under Development By Firm Country of Origin



Source: USSABC, BMI

Figure 10: Energy and Utilities Projects Under Development by Firm Country of Origin



Source: USSABC, BMI

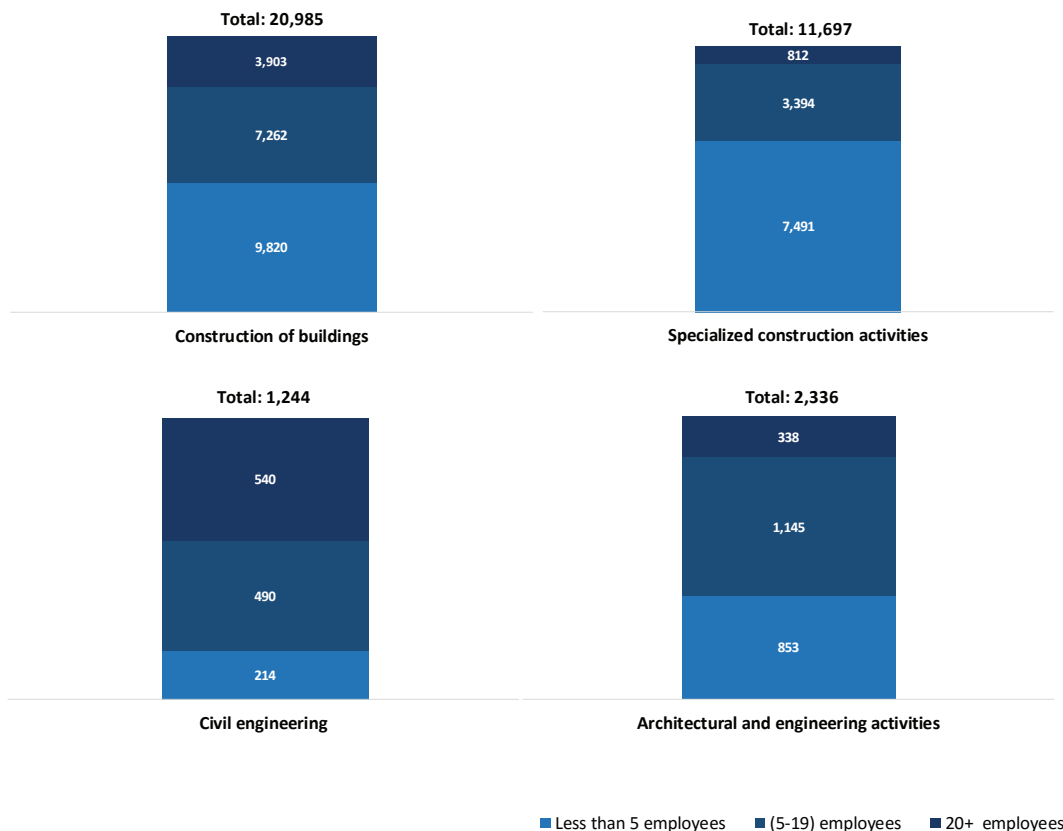
project, the largest lump-sum civil engineering contract ever awarded to a single team. U.S. firms were awarded large contracts for preliminary design and planning work for large public transportation projects, such as AECOM's award from Jeddah Metro Company for the city's metro project. The U.S. firm Caterpillar has provided equipment for North-South Railway project. In the rail segment, Chinese firms like China Railway Construction Corporation (CRCC) and China Railway Engineering Corporation (CREC) have maintained a large share of projects. The Indian firm Larsen & Toubro won a contract for work on Riyadh's metro rail projects, and European firms like Alstom, Bombardier Transportation, and Salini Impregilo Group are also involved in metro consortia. Turkish firms like TAV Construction and Yapi Merkezi Group have gained traction in developing transport projects, especially airports and railways. South Korea has a strong presence in maritime transportation, with the firm Hyundai Heavy Industries involved with shipyard construction.

As the government aims to further develop and privatize its transportation assets, transport projects remain a central opportunity for U.S. companies.

The global picture of current energy & utilities projects in Saudi Arabia involves large firms from the Middle East, Asia, North America, and Europe. South Korean firms have 22 percent, the largest share of projects from any country. For instance, Hyundai Heavy Industries (HHI) has won several large construction contracts in the power sector and has won contracts for the construction and repair of offshore drilling rigs. HHI boasts construction awards on the Shuqaiq Steam Power Plant located in Jizan and the Jeddah South Power plant located in Makkah. In April 2017, the firm created a Construction Equipment spinoff Hyundai Construction Equipment Co. Ltd to further grow market share within this space. Examples of European firms involved in Saudi Arabia's water and power infrastructure are French firm Veolia and Swiss firm ABB Group, each with sizeable contracts.

While the presence of U.S. firms in Saudi Arabian Energy and Utilities is smaller than the U.S.'s presence in building and transport projects, U.S. companies have a three percent share of all projects, not an insignificant amount in value terms. Global Power Equipment was awarded a contract to supply equipment as part of the third phase of Yanbu Power and Desalination Plant

Figure 11: Number of Saudi Arabian Construction and Engineering Firms by Activity and Size 2016



Source: USSABC, GaStat Annual Economic Survey 2016.

construction in Medinah. Both the Shuqaiq Steam Power Plant and the Jeddah South Power Plant have equipment contracts with GE.

For the Waad Al-Shamal power plant, the Saudi Electricity Company (SEC) awarded GE with a SR3.75 billion (\$1 billion) contract in 2015 for the planning and construction of gas turbines. Under these contracts, GE will supply four advanced heavy-duty gas turbines, with assembly of three turbines in the U.S. and the assembly of the fourth in Dammam, Saudi Arabia.

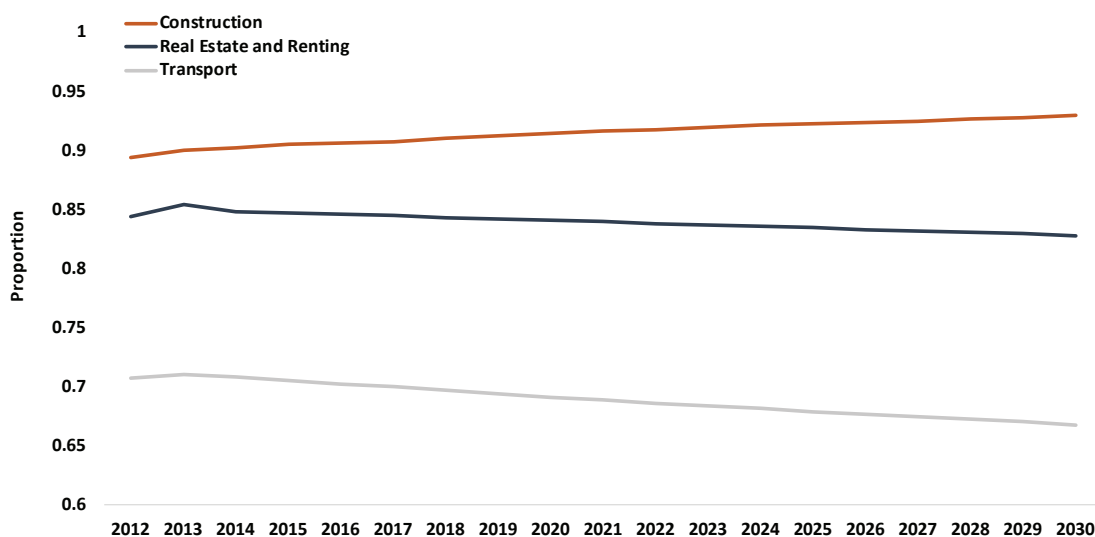
With regards to the project, CEO of SEC, Ziyad Mohammed Al-Shiha, said *“we continue to strengthen the Kingdom’s power infrastructure to meet the growing demand for electricity and to accelerate all around growth. Waad Al Shamal is a strategically located power plant that has tremendous potential to energize the local economy and create jobs for Saudis through its support to the industrial sector. By awarding the contract to GE, we are further building on the long-term partnership we have with GE, with a focus on advanced technologies.”*

In addition, GE secured a SR4.5 billion (\$1.2 billion) contract from the SEC to establish a fossil fuel and solar power plant near Dhuba for the construction of supply lines. Once constructed, the 600MW plant will burn natural gas but will also produce 50MW of solar power.

Not only are the firms involved in Saudi Arabian construction diverse in terms of nationality, but there are a range of firms by size and specialty. **Figure 11** displays these breakdowns. As of 2016, there were 20,985 companies involved in construction and building in Saudi Arabia, according to the GaStat Annual Economic Survey. Additionally, there were 11,697 firms involved with specialized construction activities, 2,336 companies of architecture & engineering, and 1,244 companies of civil engineering.

To help attract more foreign investors, Saudi Arabia began allowing for full foreign ownership of engineering firms beginning in 2017. This initiative follows the Saudi Arabian General Investment Authority’s (SAGIA) focus on promoting foreign ownership to support diversification of the economy, allowing for 100 percent foreign ownership of retail and wholesale businesses in Saudi Arabia beginning in 2015. After SAGIA’s acceptance of applications in 2016 for engineering consultancies, the Ministry of Commerce and Investment and the Saudi Arabian General Investment Authority (SAGIA) moved to allow 100 percent foreign ownership in engineering business without requiring a partnership with a Saudi firm. To qualify, the foreign company must have existed for at least ten years and must be multinational with operations in at least four countries. Engineering companies were previously regulated by the Ministry of Commerce and were required to partner with Saudi-based engineering firms.

Figure 12: Saudi Arabian Infrastructure Regional Purchase Coefficient, Forecasts, 2012-2030



Source: USSABC, REMI

Macroeconomic Trends

Regional Purchase Coefficient

National macro level indicators reflect the trend of a predominant domestic presence in construction as well as opportunities for foreign investment within infrastructure. The Regional Purchase Coefficient (RPC), shown in **Figure 12**, is defined as the proportion of the regional demand for a good or a service that is fulfilled by regional production, as opposed to being fulfilled by imports from other regions. By looking at this metric, it is possible to ask, is infrastructure reliant upon foreign investment, or is it self-supplied?

For the real estate and transport sectors, we project that the RPC will decline year-on-year through 2030. This trend suggests that Saudi Arabia’s future reliance on foreign contribution in these infrastructure spaces will modestly increase. Meanwhile, within the infrastructure segment, Saudi Arabian construction has the strongest reliance on domestic firms for goods and services, and through 2030, we project that the RPC will increase on an annual basis for construction. This trend tracks with the observations that the majority of infrastructure projects are awarded to domestic firms, and that, the majority of raw building materials like cement, ceramic tiles, and steel are produced within Kingdom.

Infrastructure Sector Supply and Demand

Investigating trends in supply and demand on a national level can reveal information about opportunities for firms to fill future gaps in the market. In this discussion,

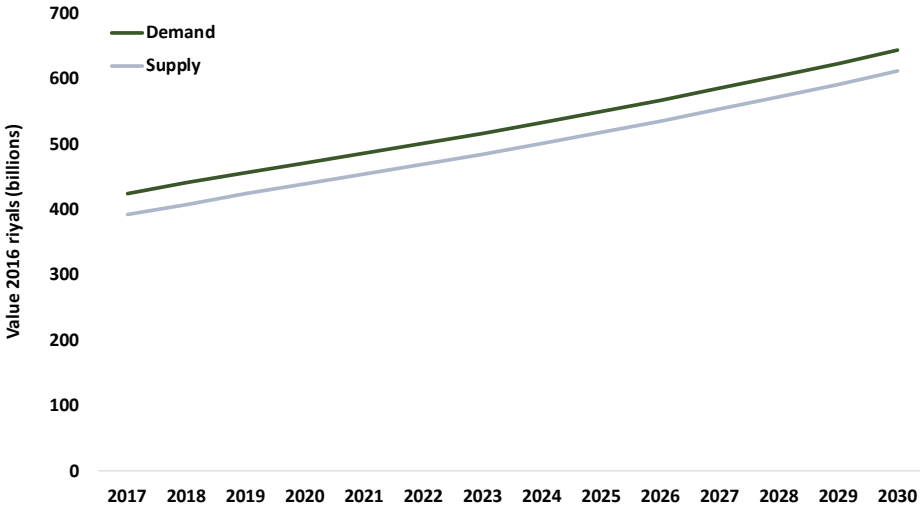
supply, or output, is defined as the amount of production, including all intermediate goods purchased as well as value added. Relatedly, demand refers to the amount of goods and services demanded.

A growing strain from population increases and economic initiatives will create a need for updated transportation infrastructure, opening opportunities for private sector involvement. Overall demand for the transport sector is projected to increase by 38.3 percent by 2030.

Another ongoing issue in Saudi Arabia is a shortage of affordable housing. Residential real estate demand is expected to grow by 44.5 percent by 2030. This demand is already evident through residential development contracts. For instance, \$170 million worth of contracts in King Abdullah Economic City (KAEC) were granted to residential developments, comprising 40 percent of the overall contracts in the city. As reported in the Saudi Gazette, the Ministry of Housing began work in 2017 on the construction of 280,000 residential units worth approximately SR120 billion (\$32 billion), a project that is expected to be underway for the next three years. Additionally, to help meet large demand, 75,000 residential plots of land for construction of residential living areas will be given to Saudis.

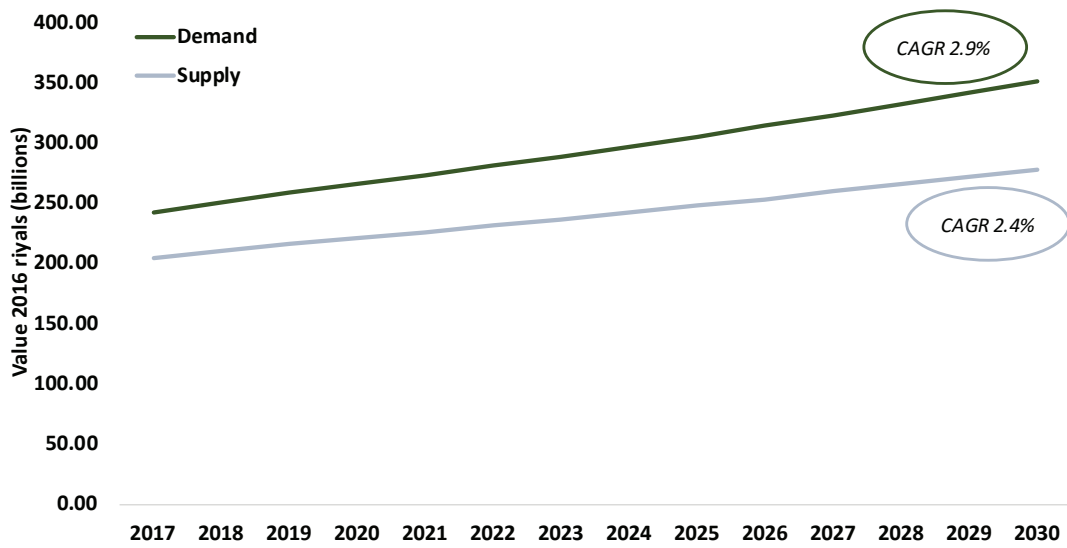
Between 2017 and 2030, we project that the national demand for construction will increase at a CAGR of 3.2 percent, the national demand for transport will increase at a CAGR of 2.9 percent, and the national demand for real estate will increase at a CAGR of 2.5 percent. These trends are shown in **Figure 13**, **Figure 14**, and **Figure 15**.

Figure 13: Saudi Arabian Construction Supply and Demand, National Forecasts, 2017-2030



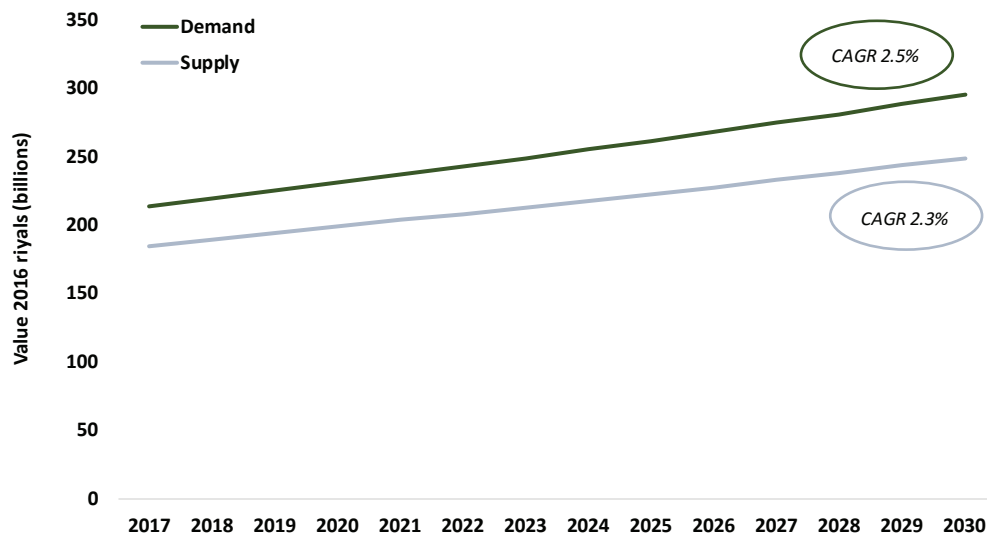
Source: USSABC, REMI

Figure 14: Saudi Arabian Transport Supply and Demand, National Forecasts, 2017-2030



Source: USSABC, REMI

Figure 15: Saudi Arabian Real Estate Supply and Demand, National Forecasts, 2017-2030



Source: USSABC, REMI

Between 2017 and 2030, we project that the national demand for construction will increase at a CAGR of 3.2 percent, the national demand for transport will increase at a CAGR of 2.9 percent, and the national demand for real estate will increase at a CAGR of 2.5 percent.

In value terms, construction demand is greatest in Riyadh, Makkah, the Eastern Province, Madinah, and Asir, and the majority of future opportunities for firms are expected to be concentrated within these areas. Regionally, the Eastern Province has the third-highest level of demand, yet has the highest growth rate for the construction sector at 4.4 CAGR through 2020. The growth rate reflects rapid expansion of the Dammam Metropolitan

Area, including the cities of Dammam, AlKhobar, and Dhahran. Industrial and residential building are demanded for activity in oil and gas production along with expansion of chemical industries in Jubail. A steady influx of expatriate workers in the region also contribute to residential demand as the majority of residential stock is composed of older low-rise apartments and villas. We forecast that Riyadh, the province with the greatest value of construction demand, will have a CAGR of 3.2 percent through 2020. Meanwhile, Makkah, Madinah, and Asir each have approximately a 3 percent CAGR in the construction sector during this time period. Jeddah, the largest city in Makkah's province, is expected to have residential development growth based on demand near Kingdom Tower and Jeddah Economic City as well as area near South Obhur.

Of all segments of infrastructure, the gap between national transport supply and transport demand diverges at the greatest rate, evidence that targets to expand P3s in support of the Kingdom's transport networks are in line with the nation's future needs. Behind this demand is a need to boost capacity for an increasing number of passengers and to extend coverage and increase efficient of intercity and intracity transit. Regionally, Makkah has the greatest demand for transport in Saudi Arabia followed by Riyadh and the Eastern Province. We expect transportation demand to grow most quickly in the Eastern Province, with a CAGR of 3.5 percent through 2020.

A vital component to a country's developing infrastructure, the positive effects from the real estate sector propagate throughout the economy to spur further activity in other sectors. Regional demand for real estate development nearly mirrors the pattern seen in transport. Makkah has the greatest demand in value terms, closely followed by Riyadh. The Eastern Province ranks third in terms of overall demand but has the highest growth rate nationally with a CAGR of 3 percent through 2020.

Real estate in Saudi Arabia has been undergoing changes with regards to supply and demand. In 2017, the supply and demand has begun to balance, with a 20 percent drop in prices during the first half of 2017, compared to the same period of 2016. Amid the demand for affordable housing in Saudi Arabia, many hope for continued expansion of supply and declining prices. Some real estate specialists have commented that the market has undergone a temporary recession but that the recession will not be long term. However, a trend towards smaller sizes of deals has the potential to hinder investor confidence.

Housing Market

Residential building is set to be a catalyst of growth the construction industry in the near to mid-term. Vision 2030 targets the goal of increasing the rate of home ownership to 52 percent by 2020. A central concern given the Kingdom's emphasis on family within the culture, housing presents both a social and security issue. Currently, there are not enough affordable homes in the country to match demand, yet there are thousands of undeveloped sites in Riyadh, Jeddah, and Dammam. Under Vision 2030, the government is working to address issues such as undeveloped land and access to financing in order to provide more Saudis with the potential of owning a home. Some reports have estimated that Saudi Arabia plans to build 1.5 million new homes over the next five years.

The housing shortage problem is rooted in Saudi Arabia's dramatic population growth. Since 1967, Saudi Arabia's population has increased six-fold, growing from just over 5 million to over 31 million¹⁰, and continued population growth will only further expedite the demand for housing.

With an increasing demand for homes and slow development, housing prices have continued to rise in the Kingdom. Figures from the Ministry of Justice show that prices for villas have risen sharply, increasing in Jeddah by 17 percent in 2014 and another 4 percent in 2015. Similarly, in Dammam, prices for villas increased by 10 percent in 2014 and 7 percent in 2015.

Changes to the mortgage market have made housing generally difficult to obtain in Saudi Arabia, and many Saudis simply cannot afford to purchase a villa. In November 2014, Saudi Arabia's new mortgage law revised the loan-to-value ratio limit of 70 percent, requiring anyone purchasing a home to pay a 30 percent deposit. While this change was intended to prevent a housing bubble, the result created a hurdle for middle class families to purchase a home because this amount simply was not financially feasible for families considering home ownership. Thus, individuals end up priced out of the market. In practice, the new LTV ratio has hindered some developers and limited new projects. Figures from the Real Estate Development Fund (REDF) showed that loans for real estate trended upwards during the period of 2012-2014, but reversed in 2015 following this decision. According to Ministry of Justice figures, this led to a 59 percent decrease in transactions around villas and a 27 percent decline in sales of apartments through 2016.

¹⁰ World Bank Statistics.

With the goal of increasing demand for housing units and thus expanding real estate development in the region, SAMA increased the maximum loan-to-value cap from 70 percent to 85 percent for citizens buying their first home in March 2016. This change went into effect in 2017. Mortgage lending companies also began giving specialized home financing to increase access to homes. Lack of financing, refund companies, innovative fund products, and loan guarantees have created obstacles in the housing market. To mitigate these obstacles, the Saudi Government has increased the number of beneficiaries to the REDF, and the Ministry of Housing in coordination with the REDF to finance the Al-Moyassar Home Mortgage Program. The program is available through Riyadh Bank in order to reduce amounts of advance payments of the borrower. The bank finances eligible Saudi citizens, and the REDF guarantees the advance payment up to 5 percent of the property value, thereby reducing the advance payment amount from 15 percent to 10 percent.

As a result of limited affordable housing, along with low penetration rates for home financing, rental properties have experienced demand growth in 2016 in Riyadh, Jeddah, and the Eastern Province. To meet this demand growth, there has also been an increasing supply of rental properties. In Riyadh, apartment rentals grew by approximately 5 to 6 percent in each 2014 and 2015. Meanwhile in Jeddah, rentals grew approximately 6 percent in 2014 and by 12 percent in 2015. In Dammam, rental growth was 10 percent in 2014 and 12 percent in 2015.¹¹ Given an overall shift of property sales towards rentals and subdued annual growth rate for demand, housing rents declined by 9 percent in Q2 2017 and by 8.5 percent year-on-year in 2016¹². Despite the improvements in the rental environment, supply of total residential units is only expected to increase by approximately 2 to 3 percent through 2018, a slower pace than is required. Moreover, supply availability is sensitive to social class priority of local real estate developers.

Only 47 percent of Saudis own their homes, and there is a shortfall of approximately 100,000 to 200,000 homes per year. Meeting the demand for homes will be a future battle as approximately one third of Saudis are under the age of 15 and half are under the age of 25. As such, housing initiatives in Saudi Arabia intend to improve the lives of future generations.

Increasing urban density can play a role in addressing the shortage of affordable housing. According to the World Bank's World Development Indicators, 83 percent of Saudi Arabia's population lived in urban areas in 2016. With development of the 'white lands' and creation of rapid

transit systems, we expect urbanization to continue into the near future. The term 'white lands' refers to urban lands that remain undeveloped. The building of metro systems in Saudi Arabia's largest cities may also result in the construction of a larger number of smaller homes that have shared amenities. These factors have the ability to greatly modify Saudi Arabia's urban landscape because presently, as reported by the World Bank, Riyadh is a low-density city with no metro and large plots of undeveloped land.

In order to provide more affordable housing for Saudis, there needs to be available land to develop in urban areas with large populations. One obstacle in doing this is development of vacant 'white land' that has been held by owners without allowing for real estate development. These plots of land within Saudi Arabia's cities are estimated to comprise 40 percent of land in Riyadh.¹³

As an incentive to encourage development of 'white lands', the Saudi Government began levying a 2.5 percent land tax in March 2017. The collected funds are to be applied towards the construction of affordable homes. The small-sized real estate developers and owners will be more affected by the land tax compared with large-scale major real estate owners. As another option, landowners are also given the opportunity to lease land to investors and developers on long-term basis. The tax applies to all undeveloped urban lands greater than 10,000 square meters in Riyadh, Jeddah and Dammam.

As an incentive to encourage development of 'white lands', the Saudi Government began levying a 2.5 percent land tax in March 2017.

According to 2017 Ministry of Housing estimates, there were 245 land plots larger than 100 million square meters that would be subject to the tax. Taxed land values will be assessed based upon proximity to services. Registered white land assets in Riyadh reached 128 million square meters with an estimated value of SR187 billion¹⁴, based on average land prices in Riyadh in 2017. The average land price in Riyadh was estimated at SR1,460 Saudi riyals per square meter. Commercial plots were valued at SR1,720 per square meter, and residential plots were valued at SR1,199 per square meter. Many owners will have to redevelop their lands to avoid these taxes.¹⁵

Reportedly, the Saudi Government indicated that the next phase of the white land tax will be initiated in 2020, which could include a tax levied on additional undeveloped commercial areas.

¹¹ As reported by the Ministry of Justice.

¹² JLL – Jeddah Real Estate Market Overview.

¹³ Estimate initially reported by the IMF.

¹⁴ As reported in Zawya.

¹⁵ Details as reported by the Ministry of Justice.

Housing Reform and Regulation

The Saudi government bodies responsible for organizing the sector have historically faced poor coordination with inadequate regulations in place to properly develop the residential segment of the sector, notably for associations of multi-owned and rental buildings. In 2016, there were 16 new regulations implemented. In 2015, Saudi Arabia created the National Housing Company (NHC), a government holding company serving as the Ministry of Housing's investment branch. The NHC wholly owns 4-6 subsidiaries responsible for operating and implementing the ministry's plans relating to Vision 2030 and the NTP. The Ministry of Housing has underscored the importance of supporting the Saudi housing program, noting that because Saudi Arabia has a waiting list for 1.5 million housing units over the next five years, the ministry aims to deliver one million units to contribute to demand. Discussions have emphasized restructuring of the real estate market and restructuring the Ministry of Housing (MoH) to become more transparent and efficient. By achieving these reforms, the ministry plans to attract higher involvement of the private sector and foreign investments.

Newly implemented laws cover the regulatory lease sector, property owners' associations, urban density regulations, and Saudi Real Estate Company – Al Akaria, the state-backed real estate developer which is majority-owned by the Public Investment Fund.

Established in 2014 by the Ministry of Housing, the Eskan program was intended to increase private-sector participation in development of high-quality and affordable housing for Saudis. The mission of Eskan was to increase the rate of home ownership by Saudi nationals. Under Eskan, Saudi citizens who are not yet homeowners may access a subsidized loan or land sales for a ten-year period. Eskan is constructing 1,250 residential buildings near Jeddah (Salman Bay) and 3,000 residential units near the King Khalid International Airport in Riyadh.

As of 2016, under Eskan, there were 95 units projects with 141,567 units in the design stage, 25 projects with 21,360 units in the EPC stage, and 67 projects with 70,724 units under construction.

In February 2017, the MoH launched the SAKANI program to provide Saudi Arabia's 'most deserving citizens' 120,000 housing units as part of the MoH's plans to allot 280,000 units. The Real Estate Development Fund financed the first batch of the SAKANI program for creation of 16,000 housing units. The SAKANI program caters to Saudis of different income levels across different regions.

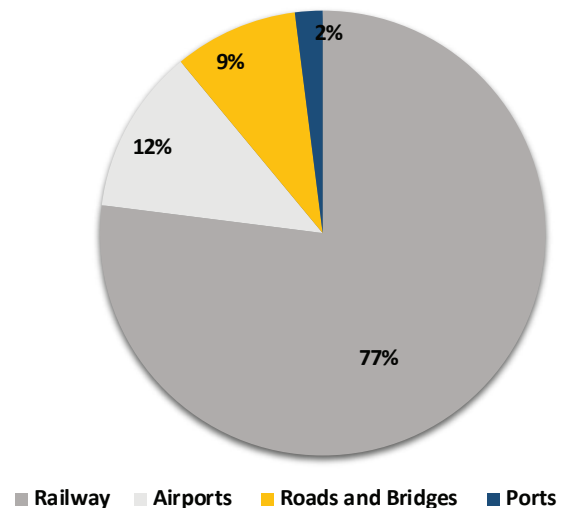
Strategic objectives in the residential segment include raising productivity and efficiency in housing construction, localizing resources, and using the geographic position to emerge as a global hub for innovation in construction. Currently, there is a supply side issue in Saudi Arabia's housing market, and the international business community – with specialties in technology, innovation, and construction – may be able to succeed in the current conditions. In 2017, interactions between the Ministry of Housing and the U.S. Department of Housing suggest possible bilateral partnerships. A multipronged plan from the Kingdom involving innovative technology, public-private partnerships (P3s), and new operating models targeting regional and international markets through technology-led housing delivery can lead the sector closer to NTP targets.

Transportation

According to Alpen Capital, Saudi Arabia had planned \$180 billion of transport infrastructure projects through 2019. Despite delays in implementation of large transport projects through 2016, we expect strong growth prospects for Saudi transport infrastructure. Vision 2030 and the NTP outline goals for private development of Saudi transportation segments. The aviation space has already gathered success with the private sector partnership model, though the NTP calls for roads, railways and ports to open to private sector operators and investors. Targets for private development are 70 percent for ports, 50 percent for rail, and 5 percent for roads.

In terms of open transport projects, approximately \$87.78 billion are railway, \$13.68 billion are airports,

Figure 16: Saudi Arabian Transport Projects by Subsector



Source: USSABC, BMI Infrastructure Projects Database

\$10.26 billion are roads and bridges, and \$2.28 billion are ports.¹⁶ These project shares in Saudi infrastructure are reflected in **Figure 16**.

Rail

Riyadh Metrorail:

Currently Riyadh has no public transportation system. To meet future demand, the Riyadh Public Transport Project has undertaken construction of six metro lines, including construction of tracks and 85 stations. The project is being developed by the High Commission for the Development of Arriyadh at a cost of \$23 billion, with expected span of 110 miles of track. Simultaneously, a new bus system will be integrated. Expected to be opened in 2018, the project will be the largest urban mass-transit system created from the ground up. Saudi Arabia awarded contracts to a variety of engineering and contracting companies, with the largest contract awarded to the U.S.'s largest construction firm Bechtel at \$10 billion, leading the consortium in building the project. Bechtel is using tunnel-boring machinery called Mneefah to build the system. Each machine weighs 1,000 tons and tunnels through the earth at 325 feet per week while laying concrete panels.

The consortium also includes Consolidated Contractors Co. and Almagbani General Contractors. Siemens is designing the system, overseeing construction operation, wiring, cars, and signals and building of two of the six lines. The trains will be automatic and driverless, traveling at speeds of up to 90 mph. The High Commission for the Development of Arriyadh reported that solar energy will generate nearly 20 percent of the system's power. The four main stations in the network are being designed by global architecture firms, including Zaha Hadid Architects.

The project includes three landmark stations: the King Abdullah Financial District Metro Station as part of Riyadh's new commercial center; the Downtown Station located near Al Madinah Al Munawarah Street and King Faisal Street; and the Olaya Metro Station located between Riyadh's commercial districts.

Other selected rail projects also in development:

Jeddah Metro Project:

Located in the province of Makkah and sponsored by the Jeddah Metro Company, the Jeddah Metro Project will be 149 km with a value of \$9.5 billion to \$12 billion once completed. The public transit system is

expected to be operational by 2020. International design and architectural firms involved in the project thus far include the U.S. firm AECOM, and other international firms such as Foster & Partners and Sysra. The Obhur Bridge project will carry the city's metro line.

Makkah Metro Project:

The \$16.8 billion public transportation system in design is expected to be operational by 2020. The project is sponsored by the Makkah Public Transport Program (MPTP). The Malaysian firm Prasarana Malaysia Berhad has been brought onto the project for consulting and project management.

Haramain High-Speed Rail:

The rail will link Makkah and Medina and Jeddah. A successful test was conducted in July 2017 after delays to the project. The rail is expected to transport passengers between Makkah and Madinah traveling at speeds of 300 km/hour with 450 km in length, ideally providing secure, comfortable, and speedy transportation to passengers travelling to Jeddah and King Abdullah Economic City. The train is expected to be in full operation in Q1 2018.

Saudi Landbridge:

The project is planned to run from the Red Sea to the Arabian Gulf, spanning over 1,600 km. Once completed, the track will allow passengers to complete a 12-14 hour trip in under four hours by traveling at speeds reaching 350 km per hour. Benefits of the project include reduction in time for shipping seaborne freight from the Saudi coasts and improved capacity for travel between Jeddah and Riyadh. Saudi Railway Company will seek contract tenders in 2017 and 2018. According to the company's Chief Executive Officer, Bashar Al-Malik, "*the cost of the Land Bridge line will depend on the exact route chosen and the location of the Red Sea terminus, with bidding for contracts likely to include local and international engineering companies and financial institutions.*"¹⁷

Longest Railway:

This line covers 2,750 km between Riyadh and the northern city Gurayat located in the Al-Jouf province. The project is the longest railway in the country and has been called 'one of the world's longest railway lines,' passing through the regions of Al-Jouf, Al-Majmaah, Qassim, and Hail. The new railway will allow those residing in the northern region of the country to travel to Riyadh in a shortened period.

¹⁶ BMI Infrastructure Projects.

¹⁷ As reported in Bloomberg.

The Saudi Railway Co. has already completed much of the project's construction such as support buildings as well as control and operation systems. At full operation, the project plans to have six railway stations, tourism zones, and will operate an overnight train. Operation of the SR10 billion (\$2.7 billion) project is expected to begin near the end of 2017 or early 2018.

Aviation

Saudi Arabia currently has four international airports and 23 domestic or regional airports, all that play a critical role in the country's vision for diversification and modernization. Saudi Arabia's General Authority of Civil Aviation (GACA) has planned to upgrade and expand regional and domestic airports as part of this vision, including airports in Ahsa, Jouf, Najran, Qaisumah, Turaif, and Rafha. In Q3 2017, GACA announced building of a new airport in Qunfudhah with expected completion in 2020. The airport will be constructed with conventional engineering, though will have a procurement and construction procurement (EPC) rather than a P3.

In early 2017, GACA awarded development of airports in Hail, Qassim, Taif International, and Yanbu as public-private partnerships. As shown in **Table 1**, once work on Taif is completed and converted to an international airport, and following the completion of the new airports at Qunfudhah and Jubail, there will be 5 international airports and 24 domestic and regional airports.

Saudi Arabia plans to move ownership of airports from GACA to the General Aviation Holding Company, which is wholly owned by the Public Investment Fund (PIF). GACA has set a timeline for privatization of all airports in Saudi Arabia for the end of 2017, an update from the original deadline of 2020.

Saudi Arabia plans to move ownership of airports from GACA to the General Aviation Holding Company, which is wholly owned by the Public Investment Fund (PIF).

One recent airport development contract example was for the renovation and upgrade of the Al-Wajh domestic airport to Almbani General Contractors and to Zuhair Fayed Partnership for consultancy.

Table 1: Saudi Arabian Aviation Project Status

Aviation Project	Project Status*	Expected Completion	Contract or Budget Value USD millions
Al-Wajh domestic airport expansion	Execution	2022	240
Arar domestic airport expansion	Execution	2018	80
Hail domestic airport	Execution	2021	400
Prince Nayef bin Abdulaziz regional airport expansion	Execution	2020	224
Abha Regional airport – terminal building	Execution	2018	490
King Abdulaziz International airport phase 1 – new terminal package 1	Execution	2017	4,034
King Abdulaziz International airport – aircraft maintenance hangars	Execution	2018	765
King Abdulaziz International airport – apron 6 rehabilitation	Execution	2017	84
King Abdullah bin Abdulaziz airport in Jizan	Execution	2020	685
King Fahd International airport upgrade – airside	Execution	2017	100
King Khaled International airport terminals and airside upgrade	Execution	2021	2,100
Local airports runways renovation phase 2	Execution	2018	167
Prince Abdulmohsin bin Abdulaziz airport expansion	Execution	2021	280
Tabuk airport expansion phase 2	Execution	2017	17
Taif International airport	Execution	2020	800
Al-Jouf domestic airport expansion	Bid evaluation	2019	223
Al-Baha domestic airport expansion	Bid evaluation	2020	97
Al-Kharj domestic airport	Study	2021	300
Al-Qunfudhah	Study	2020	100
Farasan Island	Study	2020	50
Jubail Industrial City airport	Study	2022	200
King Fahd International airport – terminal expansion	Study	2022	40
King Khalid International airport – terminal 6	Study	2024	3,000
Shaqraa domestic airport	Study	2021	300
Qaisumah domestic airport expansion	Design	2020	300
Qurayyat domestic airport expansion	Design	2021	140
Rafha domestic airport expansion	Design	2022	300
Sharurah domestic airport expansion	Design	2020	300
Turaif domestic airport expansion	Design	2022	300
Wadi al-Dawasir domestic airport expansion	Design	2020	300

*As of 2017 Q3

Source: USSABC, MEED, MEED Projects

GACA awarded another contract to TAV Airports and Al Rajhi Group for development and operation of the Yanbu Prince Abdul Mohsin bin Abdulaziz International Airport. The venture will construct a terminal in Yanbu with operation for 30 years. Expansion of the Yanbu airport was a priority as Yanbu is a significant industrial hub and the world's second busiest port located on the Red Sea. Yanbu's location near Makkah and Medina also makes the project a priority for handling Hajj and Umrah traffic.

Aviation projects have bolstered the goal of making Riyadh more international and interconnected. In a joint venture, Turkey's TAV partnered with Al-Arrab Contracting to build terminal 5 at Riyadh's King Khalid International Airport (KKIA). The construction included airside infrastructure and connections to existing terminals, a supply building, plane apron, multi-level parking facility, and operations and supply buildings. At the height of the construction project, there were more than 5,000 workers from over 25 countries.

The largest award in the region in the first half of 2017 was a \$2.9 billion contract with Turkey's IC Ictas and Al-Rashid Trading & Contracting for the redevelopment of four terminals at Riyadh's KKIA, a key project in developing Saudi Arabia's aviation sector. The number of domestic passengers in 2016 increased by 12 million, and KKIA served 23.4 million¹⁸ passengers in 2016, remaining the country's busiest airport.

In 2017, GACA continues to work towards the goal of privatizing all Saudi airports. As with KKIA, the airport was transferred to a company, with a minority holding sold. Another model is build-operate-transfer, such that the private investors build and operate the facility and then transfer ownership over to the government. GACA has deployed this model for the Prince Mohammed bin Abdulaziz Airport along with airports in Taif, Qassim, and Hail. Finally, as with the King Abdulaziz International Airport, GACA bears the initial cost of the projects and then shares revenues with private firms that then operate the facilities. In addition to privatization of airport facilities, Saudi Arabian Airlines reported that it would fully privatize all assets by 2020, including the company.

The private partnership model worked well with the King Abdulaziz International Airport (KAIA) in north Jeddah. For nine years, Fluor worked on multiple facets of airport construction, including directing and reviewing a detailed design, developing and implementing all contracts, managing construction, and conducting value management studies. The company also developed a comprehensive program for maintenance and supported the maintenance function of runways, terminals, the

royal pavilion, the desalination plant, roads and ground, and utility systems. Fluor supplied over 1,200 workers and was closely involved with training Saudi citizens.

Seaports

As a global exporter of primary products and importer of approximately 70 percent of products for the country's domestic consumption, Saudi seaport infrastructure proves of great importance for sustained economic growth. To implement the Vision 2030 goals of leveraging Saudi Arabia's global geography and substituting oil exports with other container-based goods, seaport infrastructure is target for expansion. The Saudi Government has already taken steps to upgrade facility capacity to accommodate ultra-large container vessels. Most of the seaports in the Kingdom transport bulk cargo or industrial products, where there has been a large growth in demand. For instance, cargo products through Jubail's industrial seaport have risen from approximately 46 million deadweight tons (DWT) in 2010 to approximately 62 million DWT in 2015. Meanwhile, King Fahd Industrial Port Yanbu and Yanbu Commercial Port have a combined non-crude throughput of over 62 million DWT.

Jeddah Islamic Seaport is the largest and busiest seaport in the MENA region. The Red Sea Gateway Terminal opened in 2009, expanding container capacity of the port. The Saudi Port Authority (SPA) approved a SR510 million (\$136 million) expansion of the Terminal in 2016, and in 2017, contracts were awarded to international firms for expanding the capacity by 2 million 20-foot equivalent units (TEUs).

The King Abdulaziz Port located in Dammam is the Kingdom's primary seaport on the Arabian Gulf. The port opened a second terminal in 2015 as part of a \$530 million joint venture between the PIF and PSA International.

Located near King Abdullah Economic City and opened in 2014, King Abdullah Port (KAP) is the first privately-owned port in the Kingdom. In 2016, KAP's container terminal managed 1.4 million TEUs. Throughput in terms of TEUs and number of vessels each increased by 14 percent y-o-y in H1 2017.

Tourism Construction

As part of Saudi Arabia's National Transformation Plan, the Saudi Commission for Tourism and National Heritage (SCTH) announced that it would invest \$7 billion countrywide on tourism-focused initiatives. Additional government investment in tourism totaling \$800 million was announced earlier in 2017. H.R.H.

¹⁸ MEED reported estimate.

Prince Sultan bin Salman, president of the SCTH said that Saudi Arabia would become “*one of the biggest players in the industry.*”¹⁹ In spite of declining oil prices, development of the tourism and hospitality sector in Saudi Arabia has proven to be resilient.

Riyadh has set a target of attracting 88 million tourists to the city by 2020, with the majority of visitors coming from other areas of the country or within the Gulf Region. The travel and tourism sector in Saudi Arabia is expected to contribute over \$81 billion to Saudi Arabia’s GDP by 2026.²⁰

Under Vision 2030, Saudi Arabia is also aiming to double the number of UNESCO World Heritage Sites to encourage even greater levels of domestic tourism. The two Holy Mosques have large expansion plans. Saudi Arabia’s geographical assets such as deserts, mountains, and seas are untapped elements for potential tourists.

Ongoing development of the tourism sector will create new land development and construction projects, ideally creating employment opportunities for young Saudis. Saudi Arabia is especially keen to develop Islamic tourism and has considered the possibility of offering tourist visas.²¹

One strategic goal is to expand the capacity for Umrah visitors from 8 million annually to 30 million annually.

Examples in Makkah include the following projects:

- Al Shamiyah Urban Development (\$9.3 billion)
- Tareeq Al Mawazee Development (\$5.6 billion)
- Abraj Kudai – world’s largest hotel (\$3.5 billion)

Along with Islamic tourism, Saudi Arabia has begun to focus on developing family-oriented tourism, especially amusement parks, as this will be an additional source of revenue and jobs. A government owned company plans to build parks and partnerships within the private sector, developing infrastructure for 19 parks in partnership with the private sector while seven existing parks are opened to private investments.²² As reported by Trade Arabia,

19 As reported in Arab News.

20 Projection from the World Travel and Tourism Council. Domestic tourism has been a source of growth for tourism in the country, with the number of local tourist trips exceeding 47.5 million last year. This is a 2.3 percent increase year-on-year.

21 As of 2017, Saudi Arabia does not issue visas for tourist travel. Visas may be obtained for other reasons including business, religious, or family visits.

22 Saudi Arabia Theme Park Market Outlook to 2021.

Abdallah Al-Qarni, Deputy Director of Natural Resource Management at the Ministry of Environment, Water, and Agriculture said “*the parks are expected to generate an estimated SR130 billion (\$34.6 billion) and to draw 5.6 million visitors annually.*”

New mega projects, such as the Red Sea Tourism project announced August 2017, will create significant opportunities in the construction industry, creating projects in nonresidential and residential building as well as transport hubs. The Red Sea Project, to be developed by the Public Investment Fund, intends to develop 50 islands and 34,000 square km along the Red Sea coastline into a destination for international tourism. The project is located between Umluj and Al Wahj.

Construction on the Red Sea Project is expected to begin in 2019 with completion of the first phase by 2022. Arabian Cement will reportedly be providing cement for the development of the new tourist spot.

Early in 2017, the hotel management company Rotana announced plans to open four new hotels in Saudi Arabia and to continue to drive growth and expansion. Rotana previously supplied 969 rooms, and the new construction will add 888 rooms. Guy Hutchinson, Rotana’s Chief Operating Officer said: “*Saudi Arabia is pivotal to Rotana’s expansion strategy for the region,*” citing a 22 percent year-on-year growth in Saudi room occupancy and a 8.7 percent growth rate in revenue for 2016. Saudi Arabia accounts for the greatest number of hotel rooms under construction in the region, with approximately 38,000 hotel rooms being built in Kingdom at the start of 2016.

There could be financial and regulatory hurdles as well as obstacles with social laws to develop the appeal of Saudi Arabia to international tourists. Analysts suggest that the success of the project will depend upon the details of this region in being semi-autonomous. The aim of Saudi Arabia is to increase tourism, creating an additional source of revenue and jobs.

Domestic tourism is expected to increase by 7.5 percent year-on-year through 2020, with a projected 6.1 annual increase in international visitors to Saudi Arabia. Initiatives to increase Saudi household spending on cultural and entertainment activities inside the country from 2.9 percent to 6 percent aim to fuel this growth. Currently, the hotel market in Saudi Arabia is dominated by corporate room night bookings, particularly in Riyadh, where only 12 percent of demand is attributed to leisure. The greatest demand for hotels is expected to be in Riyadh, Madinah, and Dammam and Khobar. Riyadh is forecasted to have a 9 percent increase in

occupancy in 2017, while Madinah and Dammam each have forecasted occupancy growth of 2 percent. Notably, there is a shortage in supply of economy hotels with two or three stars, so growth is expected in this area with *“internationally branded economy hotel rooms expected to reach 7,600 by 2021, the majority of which will be developed in Makkah.”*²³ Similar to the trend in broad real estate, the tourism segment has opportunities geared towards the low-middle class as developers focused on obtaining the highest margins previously overlooked them.

Building Automation

Automation is also a predominant issue for construction companies and manufacturing, both in the construction process and in the systems used in final infrastructure. Digital transformation and automation are focused across all sectors in the Kingdom, and the building automation and control market is expected to grow at a CAGR of 9.4 percent through 2020.²⁴ Currently, this market is comprised of a mixture of domestic and foreign firms.

With the Saudi Government’s aim to build affordable homes, automation will likely play a role in addressing the housing shortage. For instance, in 2017, Saudi Arabia signed one agreement with the Australian tech company Fastbrick Robotics to supply 100 Hadrian X construction robots that allow for automated bricklaying. One estimate showed that these robots are expected to construct approximately 50,000 houses in Saudi Arabia.

Factors such as growth in foreign tourists and construction in the hospitality industry has led to deployment of increased building automated systems such as security systems, elevators, and lighting and climate control systems. U.S. companies already involved in the Saudi automation and control market include Honeywell, Pelco Corporation, and United Technologies Corporation.

Construction Supply Chain for Raw Materials

Observing trends in the supply chain for raw materials can reveal changes within the construction industry, such as increases in cement sales mirroring increased activity in the project pipeline. An oversupply of construction materials may cause prices to fall, whereas price increases could negatively impact firm margins.

23 2017. Market Snapshot: Saudi Arabian Hospitality Market. Colliers International.

24 6Wresearch.

According to Jadwa Investment, in 2016, cement and steel production were down by nearly 10 percent, but production is expected to accelerate given government payments to contractors in late 2016 and white land fees in 2017.

In July 2017, Saudi Arabian cement sales increased by 11.5 percent month-on-month while production increased by 5 percent year-on-year. Southern Province Cement and Yamama Cement both posted strong sales, with nearly 20 percent sales growth year-on-year. These sales increases are in the context of sales volumes declines for Saudi Arabian cement companies in June 2017, with 40.6 percent declines year-on-year. For the first half of 2017, total volume of cement sales declined by 19 percent year-on-year according to Al Rajhi Capital. Clinker production also declined 10 percent annually. Based on data from the past year, in terms of capacity, inventory, and demand, the Northern region is the weakest as inventories have accounted for 118 percent of producers’ dispatches. High inventories, when coupled with low demand and increased competition, cause prices to rise. In the Western and Southern regions, there has been an issue of oversupply stemming from increased capacity building.

While there is tough competition within the sector, for the first eight months 2017, the market shares of City Cement, Qassim Cement, Yanbu Cement, and Al Safwa Cement improved by 1.7 percent, 0.9 percent, 0.8 percent, and 0.5 percent, respectively. During the same period, the new companies Umm Al-Qura Cement and United Cement gained 2.4 percent and 3.5 percent, respectively. Also, the market shares of Saudi Cement and Southern Cement declined by 2.2 percent and 2.6 percent, respectively.

As of August 2017, four companies held 47 percent of the total cement inventories (34.5 million tons): Saudi Cement with 5.0 million tons, Yamama with 4.4 million tons, Yanbu with 3.8 million tons, and Najran with 3.1 million tons. Cement prices are shown in **Figure 17**, and cement production and inventories are shown in **Figure 18**.

Although the worst contraction in demand for construction materials has passed, cement prices are likely to remain constrained with recovery of the project pipeline.

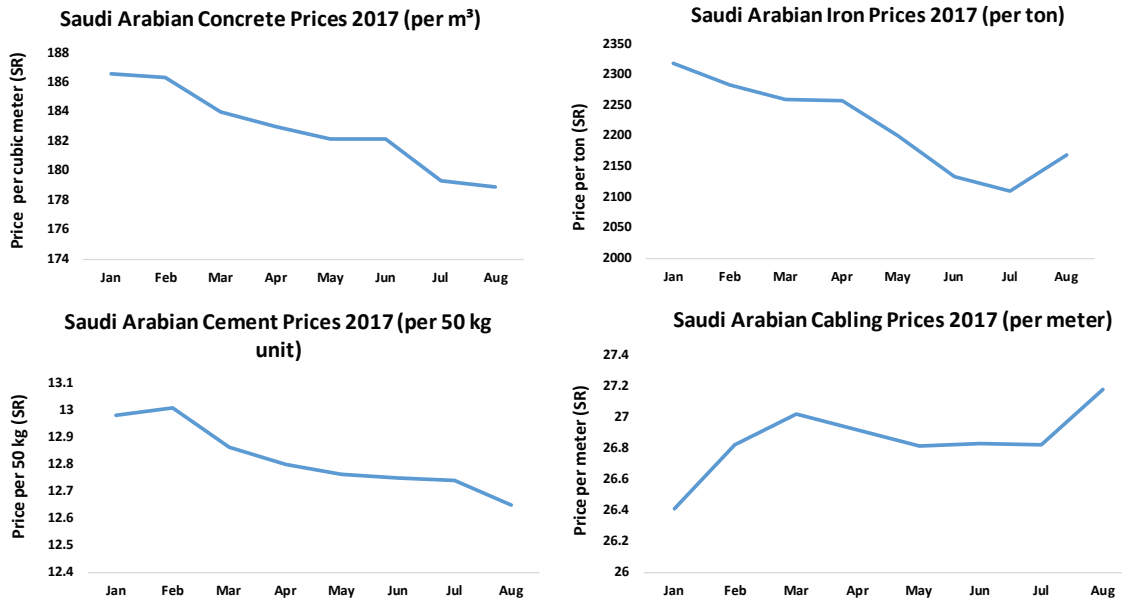
As of 2016, Saudi Arabia lifted the 2008 ban on cement exports that was originally introduced to keep costs down for large ongoing domestic infrastructure projects. The reversal of the ban followed a slowed construction industry caused by the downturn of oil prices. However, prior to the introduction of the ban, less than 10 percent of the Kingdom’s total production was exported.²⁵ Thus, the policy change had minimal impact on export revenues.

25 The Economist Intelligence Unit, Saudi Arabia lifts export bans on cement and steel.

To help boost local industries, the Saudi Government announced a 50 percent cut in export tariffs and announced that it would suspend all export duties on steel for two years beginning in 2017. While these cuts are helpful to firms, economists find major growth of cement and steel companies unlikely.

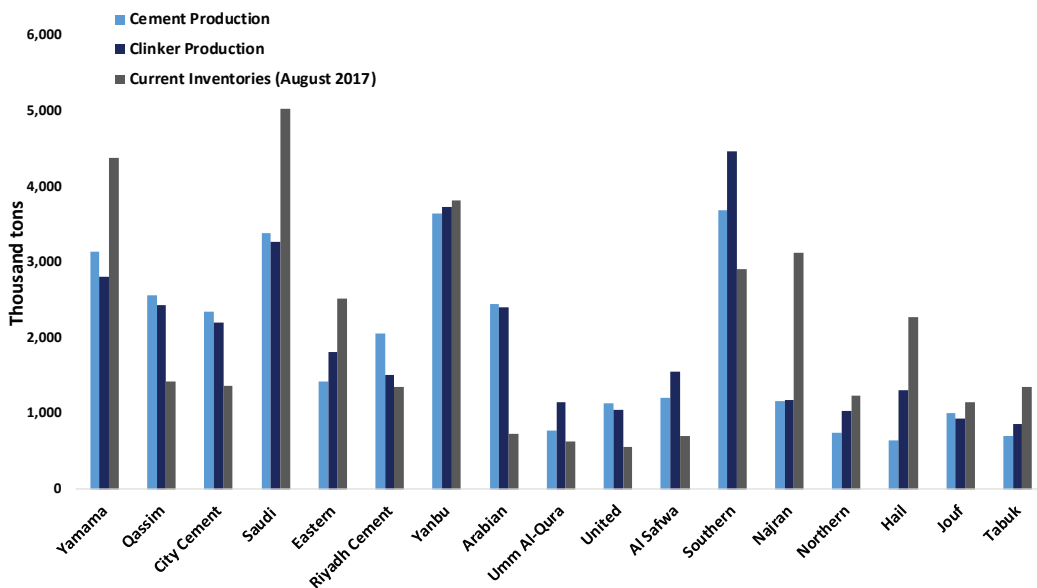
Industry experts have noted that the prices of raw materials prices have declined, especially steel. Hadeed SABIC, the Kingdom’s largest steel producer, raised prices by SR50 (\$13) per ton in August 2017 to SR1,800 (\$480) per ton.

Figure 17: Saudi Arabian Concrete, Iron, Cement, and Cabling Prices 2017



Source: USSABC, General Authority for Statistics

Figure 18: Saudi Arabian Cement Production and Inventory by Company 2017



Source: USSABC, Al Rajhi Capital (data)

In addition to cement and steel, the production of ceramics has a large market in Saudi Arabian building materials. Ceramics companies in the Kingdom manufacture, wholesale, and retail wall and floor tiles, heaters and fixtures used in buildings.

Listed companies in the production of building materials can be found in **Table 3**.

Labor

One of the largest obstacles for construction firms is overcoming challenges of the Saudi labor market. Because of new labor laws in recent years, a rising cost of labor means tighter margins for construction companies. Changes to labor laws are deeply tied to the infrastructure sector, especially because of increased costs directly to firms. Companies in the construction industry are no longer exempt from Saudization. Saudization means that Saudis are more expensive to hire, and in some cases, firms must also bear the cost to attract and train Saudi workers.

One construction executive reflected on recent labor market hurdles.

“Saudization is a huge issue across all sectors. It challenges the whole value chain in terms of performance. This is both an emotional and performance challenge. There’s a need to replace

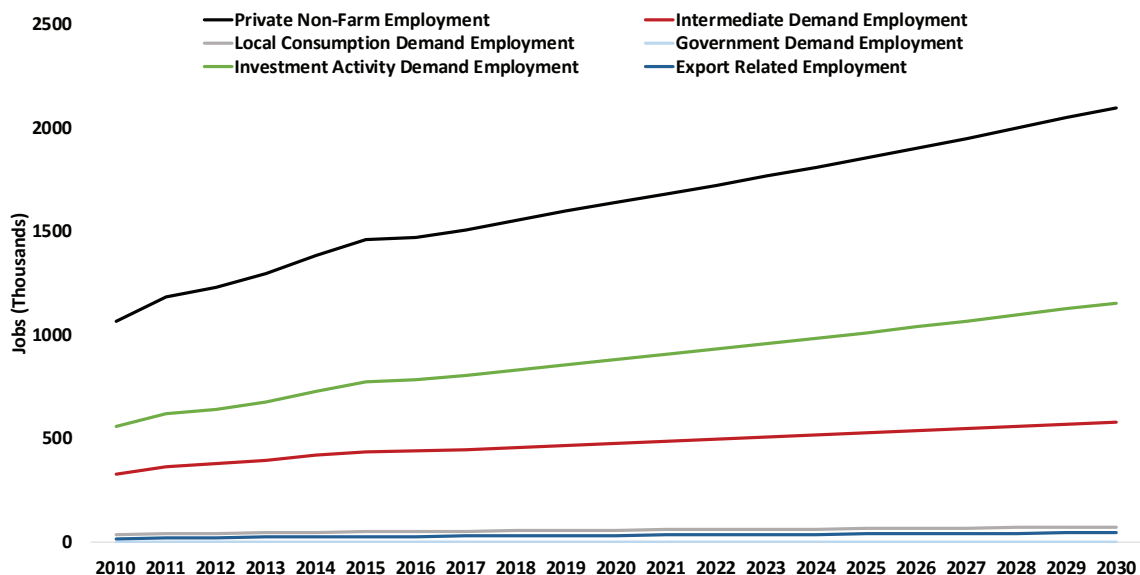
expats, and companies have to spend a lot on training and development. One of the biggest challenges for any company is finding and training Saudis.”

Within this regulatory environment, increases to productivity from modern equipment, along with updated methods and technology for training of staff, could help boost the success of infrastructure development in the long term.

In spite of regulatory challenges for firms, there are some trends that seemingly benefit workers. Wages in the construction industry are projected to have a 4.3 percent year-on-year growth rate, while the average annual wage rate in the real estate industry is expected to see 4 percent year-on-year increase, and wages in the transport sector are expected to grow the most steeply among these sectors with a 5 percent projected year-on-year growth through 2030.²⁶

REMI forecasts also project that there will be approximately 1.55 million private sector construction and engineering jobs in Saudi Arabia in 2018, with a CAGR of 2.6 percent through 2025. Of the private sector construction jobs, the majority (approximately 54 percent) are being created through investment activity demand, or in other words, the employment needed to satisfy the demand for capital goods. The rest of the created jobs can be attributed to intermediate demand, local consumption demand, government demand, and exports.

Figure 19: Saudi Arabian Cement Production and Inventory by Company 2010-2030



Source: USSABC, REMI

²⁶ REMI forecasts for average annual wage rate.

Real Estate and Renting has a projected 440,000 Saudi private sector jobs in 2018, with a CAGR of 1.7 percent through 2025. Unsurprisingly, of private sector real estate and rental related jobs, local consumption activity creates the largest share, approximately 50 percent of jobs. The remaining employment in this sector is created through intermediate demand and demand from government and international exports.

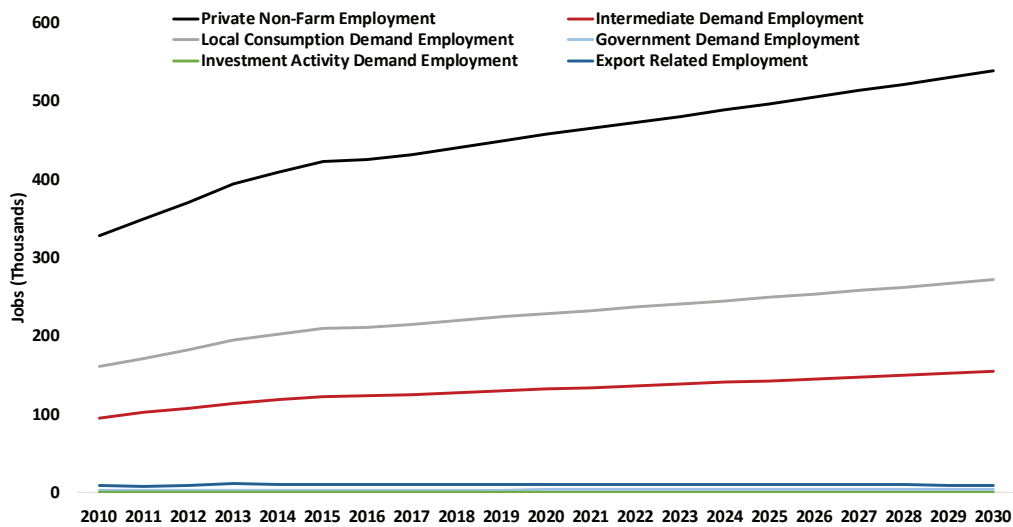
In terms of Transport and Storage, there is a projected 557,000 jobs in 2018, with a CAGR of 0.8 percent through 2025. In this sector, the largest share of

employment is created through intermediate demand, or the employment needed to satisfy demand for material inputs to the production of final goods.

Labor productivity is expected to increase for each of the infrastructure subsectors. Transport has a projected 1.6 percent increase in labor productivity through 2020, while labor productivity in construction is projected to rise by 0.8 percent, as seen in **Figure 22**.

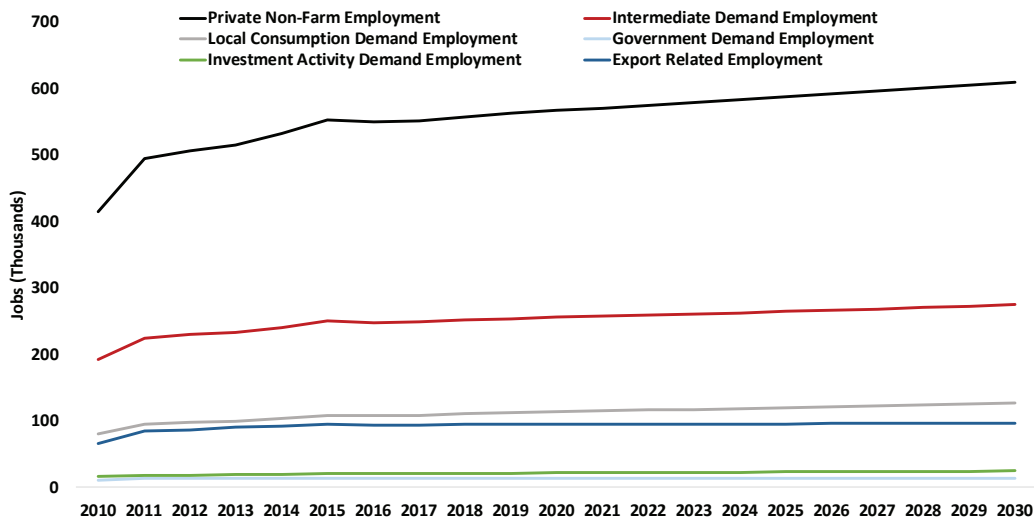
A report by the McKinsey Global Institute showed that the construction sector in Saudi Arabia created over one

Figure 20: Real Estate and Rentals: Private Employment by Demand Activity 2010-2030



Source: USSABC, REMI

Figure 21: Transport and Storage: Private Employment by Demand Activity 2010-2030



Source: USSABC, REMI

million jobs during the period 2003-2013. An estimated 60 percent of these jobs were created between 2010 and 2013, with expatriates comprising over 90 percent of this labor force because of the low cost of employment for work that has tended to be unattractive to Saudis.

Figure 22: Infrastructure Labor Productivity: Compound Annual Growth Rate 2017-2020



Source: USSABC, REMI

The McKinsey report showed that at the start of 2015, construction employed approximately 17 percent of private sector workers in Saudi Arabia. Our findings from REMI are similar, though our figures suggest that the share of construction employment has declined slightly by 2017 to approximately 13.2 percent of private sector workers, in line with the sector's contraction in 2015 through 2016.

Nitaqat, the government Saudization program, was introduced in 2011 for companies with greater than 10 employees. As a result, the cost of work visas increased sharply. In November 2012, levies on foreign workers increased from SR100 to SR2400 per year. To incentivize the hiring of more Saudis, some firms pay a rate of SR200 per month for every foreign worker that exceeds the number of Saudi staff under this scheme.

In 2017, the Saudi Government also announced a levy on foreign workers families, collecting a fee of SR100 for each dependent, with gradual increases in this fee through 2020.

As reported in Reuters, a new policy in 2017 will be applied to construction firms employing 500 to 2,999 workers. Percentages will increase for Saudis employed at firms in order to be considered compliant. Firms would have to employ a staff that is 100 percent Saudis to be ranked as the top 'platinum' category in the Nitaqat scheme. By employing 10 percent Saudis, the company would be ranked 'lower green.' The current scheme has levels of 16 percent Saudis for 'platinum' and 6 percent for 'lower green.'

Figures from GaStat show that there were 141,250 Saudis working in construction in 2012. By 2015, after introduction of new quotas and levies on foreign workers, the number of Saudis was 125,802. By 2016, this number was 134,601.

Empirically, firms have tended to reduce payroll in order to offset higher costs for labor due to Saudization. According to Jadwa Investment, construction firms reduced staff in 2015, eliminating 5,000 Saudi workers and 61,000 workers in total.

Labor Force Organizations

The following entities will have an ongoing hand in Saudi labor force regulation in the infrastructure sector.

Council of Engineers

The Council of Engineers has had heavy involvement in regulating the labor force since any engineer has to be licensed and pay dues. This Council has been instrumental in securing new talent in this community and eliminating people who have falsified documents as this has been an ongoing issue. The Council ensures that non-Saudis have approved documents. Technicians also require licenses, raising the quality of workers in the profession.

Newly established Commission for Contractors

Approved in 2017, the Commission will be created with the goal of organized contracting, for contractors, and by contractors.

Jeddah Development and Urban Regeneration Company (JDURC)

The provincial government body works to prepare urban development and implement programs for self-sustaining projects. With regards to projects in Jeddah, the state-owned company oversees labor issues related to the ownership, development, and operation of projects on land, real estate, and services.

Real Estate

Saudi Arabian real estate has a favorable outlook given rising incomes and a large proportion of the population under the age of 30. As discussed in the supply and demand sector, nationally, the demand for real estate is expected to increase at a CAGR of 2.5 percent through 2030. Segments of real estate such as office and hospitality have faced oversupply and low demand, while

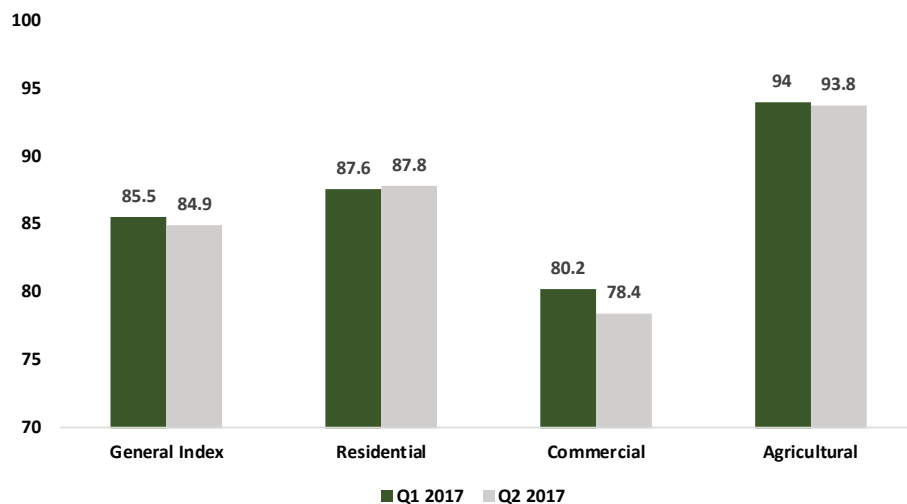
Nationally, the demand for real estate is expected to increase at a CAGR of 2.5 percent through 2030. Segments of real estate such as office and hospitality have faced oversupply and low demand, while the residential segment continues to face high demand.

the residential segment continues to face high demand. The Saudi Government has taken steps to increase development of residential units through the white land tax and has increased opportunities for foreign investors within real estate.

Real Estate Price Index

General Authority for Statistics released a new real estate price index. The index broadly reflects a downward trend in activity since 2015. The reversal of the trend in residential real estate development is expected to be reflected beginning in 2017.

Figure 23: Saudi Arabian Real Estate Price Index 2017 Q1 and Q2



Source: USSABC, General Authority for Statistics

The real estate industry is a strategic production factor critical to the success of all sectors in Saudi Arabia, and the industry plays a role in income-based, job-creating investment. Movements in prices of the constituent units of the real estate sector and values of real estate transactions throughout Saudi Arabia are relevant to promoting sustainable development in Saudi Arabia.

The Real Estate Price Index²⁷ defines distinctive real estate statistical indicators that measure the performance of the real estate market in Saudi Arabia based on the residential, commercial, and agricultural subsectors.²⁸ The Real Estate Price Index data can be useful for the economic and statistical analysis of real estate price movements and in making predictions about real estate trends along with future economic growth.

In Q2 2017, the real estate price index declined by 8.6 percent year-on-year, compared with a 9.8 percent year-on-year decrease in the first quarter. The decline in prices in the second quarter were largely driven by lower prices for commercial property, as shown in **Figure 23**. Echoed by findings from the property consultant JLL, 23,000 square meters of new space opened up on the market in the commercial sector, causing increased vacancy rates because of low demand.²⁹

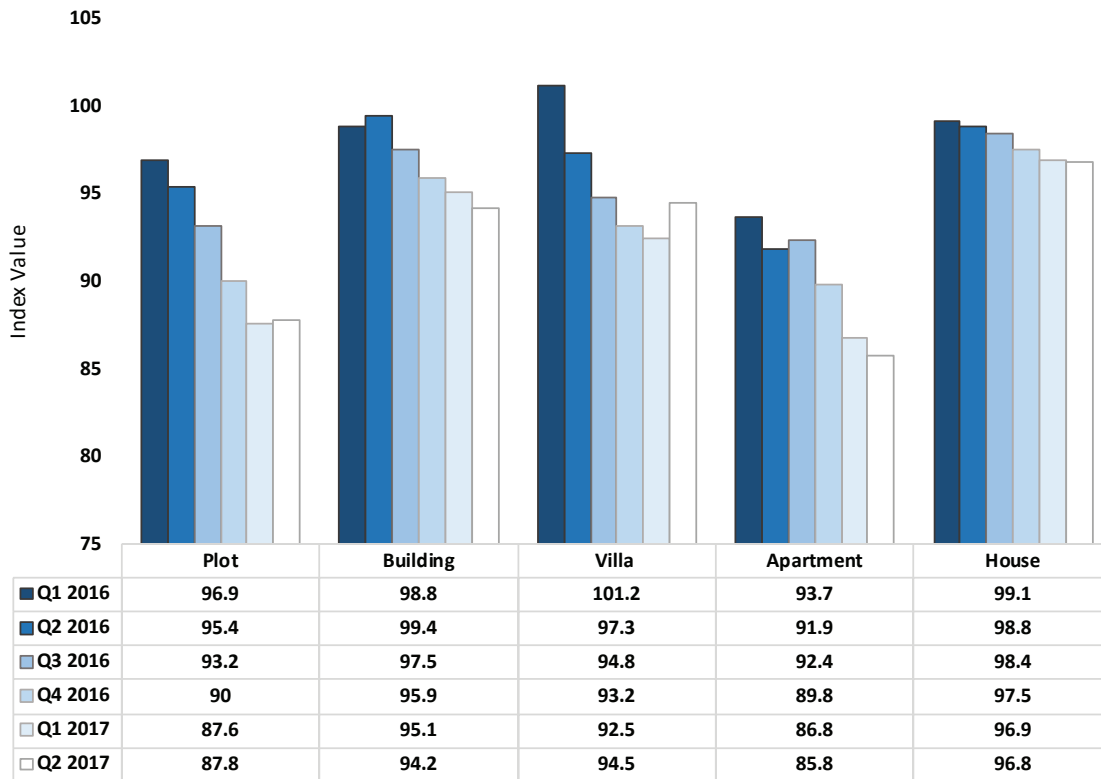
Nationally, with respect to the components of the residential real estate index, residential plots saw the largest decline of

27 The General Authority for Statistics provides the Real Estate Price Index through Ministry of Justice primary data on all KSA administrative regions, collected and audited through an integrated system. The Authority has evaluated primary data on real estate transactions to verify adequacy and to construct the index, determining: the appropriate base year as 2014, the level of coverage/representation, classification, and relative importance of aspects through calculation of weights. The price index is a statistical tool for measuring the relative change in real estate prices between two points in time.

28 Weights are calculated based on the value of real estate transactions of each sector comprising the index in the course of the base year. Current weights for analyses in this paper are as follows: residential (65%); commercial (31%); and agricultural (4%).

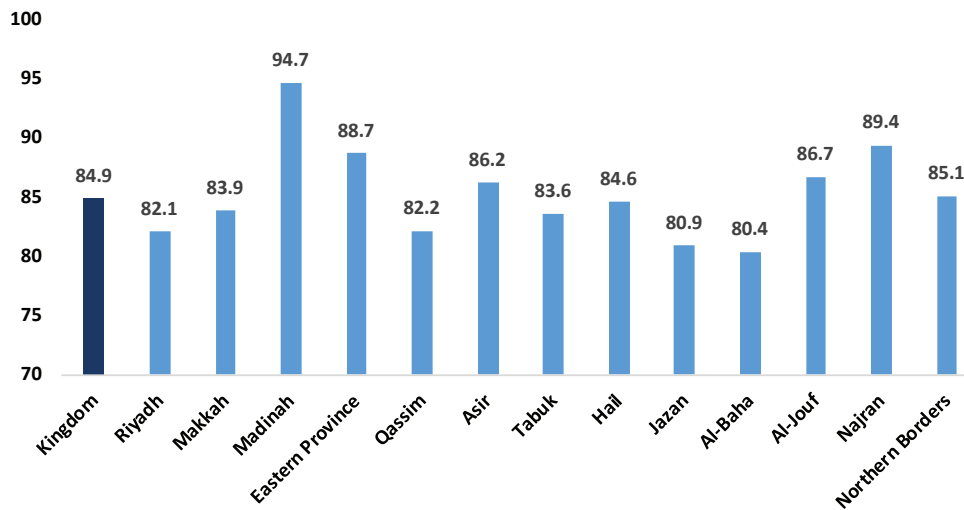
29 Jeddah Real Estate Market Overview.

Figure 24: Saudi Arabian Residential Price Index by Component 2016-2017



Source: USSABC, General Authority for Statistics

Figure 25: Regional Real Estate Price Indices 2017-Q2



Source: USSABC, General Authority for Statistics

prices with an 8 percent year-on-year decrease in Q2 2017. Apartment prices declined by 6.6 percent annually and residential building prices declined by 5.2 percent. Villa prices fell by 2.9 percent while housing prices fell by 2.0 percent annually. These trends are shown in **Figure 24**.

With respect to the components of the commercial index, commercial plot prices decreased by 11 percent year-on-year while gallery and shop real estate fell by 4.4 percent. Commercial building prices notched up by 0.1 percent while commercial center prices decreased by 0.1 percent annually. Agricultural land prices decreased by 1 percent year-on-year.

Regionally in Saudi Arabia, real estate prices were the highest in Madinah and the Eastern Province in 2017, as shown in **Figure 25**.

The following vehicles provide real estate financing in the Kingdom:

The Real Estate Development Fund (REDF)

The REDF offers specialized credit. In 2015, the fund became a bank and began providing a broad offering of services to support Saudi families in purchasing affordable homes. The fund is a vehicle through which Saudi citizens can access finance to cover down payments required for new home purchases.

According to the property management group JLL, the REDF loaned a sum of SR229 billion (\$61.1 billion) between its inception and 2014, financing the development of 928,000 residential units. After converting to a bank, the fund will work with the private sector to offer home loans and mortgages on existing properties. The funds came directly from the Ministry of Finance, and reports surfaced that converting REDF into a bank would create a network of 40 branches across the Kingdom. Maximum loans for the REDF are limited to SR500,000 (\$133,000) paid to developers for building new properties.

Saudi Real Estate Financing Company

The Saudi Real Estate Financing Company (SREFC) was created as a Saudi Government initiative to boost the real estate sector. The company is owned by the Public Investment Fund (PIF) and supervised by SAMA. Key activities involve long-term funding solutions for mortgage finance, beginning with refinancing of mortgages up to SR1 billion within the next five years.

Real Estate Investment Trusts (REITs)

New regulations from the Capital Markets Authority (CMA) allows construction work to be funded by real estate investment trusts. CMA regulations for Saudi Arabian REITs were outlined in May 2015. REITs have already gained success in the region as prior to this, Dubai launched a REIT in 2014. U.S. REITs gained popularity in the 1990's, in which the U.S. REIT Index had an average annualized return of 20 percent. Global REITs comprise a mature asset class with over \$640 billion in market capitalization in the United States.³⁰

The SAMA REIT regulation reads: "Without prejudice to the rule of real estate ownership for non-Saudis in the Kingdom, subscription in the fund is open to any Saudi, GCC citizens or non-Saudi residents in the Kingdom." This ownership possibility makes the fund more tangible for foreign investment compared with other real estate ownership rules. Also, this investment provides a tax benefit to foreign investors. Investors only pay 20 percent on profits generated in Kingdom and a 5 percent withholding tax when repatriating dividends. Given these benefits, REITs may contribute to growth in the sector because they encourage real estate investment and diversification.

According to Al Rajhi Capital, the traded value of REITs seemed to stabilize going into H2 2017 following high volatility just after their listing. The traded value of REITs reached as high as 20 percent of the total Tadawul traded value on some trading days. The market cap of all listed REIT funds remains at just SR2 billion versus SR1,680 billion market capitalization of TASI. The volatility of REITs traded value started showing signs of normalizing in 2017 beginning the second week of May 2017. As shown in **Figure 26**, this volatility has stabilized further in the months of June and July 2017, amounting to less than 3 percent of TASI traded value. REIT funds' traded value comprised just 2.4 percent of TASI traded value in July 2017, an all-time low.

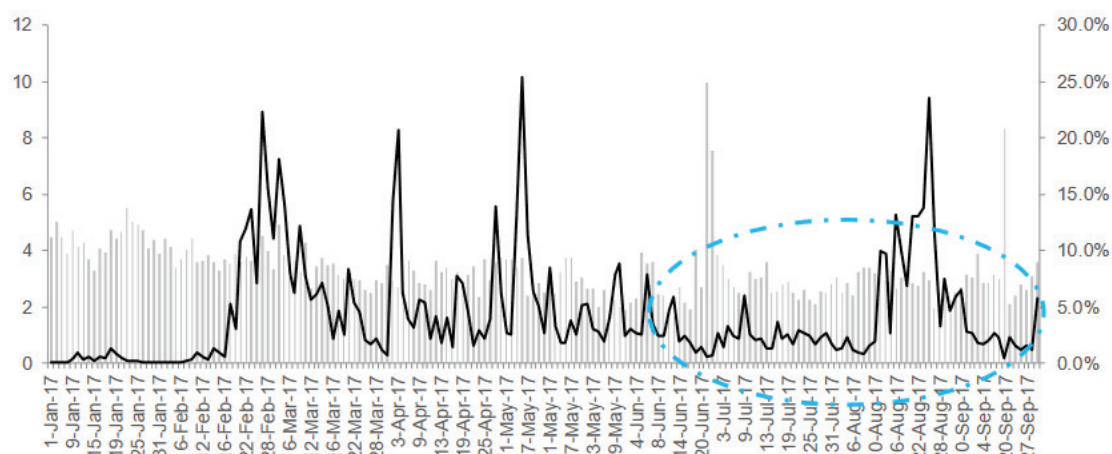
Table 2 shows the TASI listed REIT entities in Saudi Arabia as of 2017 along with their diverse portfolios of assets. **Table 3** highlights the ten companies listed under Real Estate and Development, providing summaries of their main activities.

Infrastructure Projects in Energy

As the Saudi Government aims to reserve domestic oil production for exports rather than electricity generation, thermal generation projects provide a significant opportunity for development in power. In terms of power projects currently under construction in Saudi Arabia, 24

³⁰ S&P report.

Figure 26: Volatility of REIT Traded Value 2017



Source: Tadawul, Al Rajhi Capital

Table 2: REITs Industry Group Listed Companies

Entity	Description	Portfolio Assets Summary
Riyad REIT Fund	A closed-ended Shari'a compliant real estate investment traded fund. The REIT operates in accordance with Real Estate Investment Funds Regulations and REIT Instructions issued by the CMA. The REIT is managed by Riyad Capital, a Saudi Arabian limited liability company.	Al Motamayz Center, Riyadh; Al Izdhar Center, Riyadh; Al Fursan Tower, Riyadh. Ascott Tahlia Tower, Jeddah. Alshatea Towers, Dammam. Ascott Corniche Alkhobar (Development), Alkhobar. Property Management: Taya Real Estate Company (Al Fursan Tower) Trust Partners Real Estate Company (Alshatea Towers) Erad Alriyadh Company (Al Motamayz Center, Al Izdhar Center).
Al Maather REIT Fund	The fund aims to invest in income generating real estate assets, whereby at least 90 percent of the net profit of the Fund is distributed to the unit holders on an annual basis after the Fund Manager receives the rental returns on the real estate assets.	Al Maathar, Al Rabie, Al Mohammadia, Al Tkahssusi, Al Sahafa building, Hair warehouses, Sulai warehouses, Rabie Agreement, Qudus Agreement, Wadi Iaban Agreement, Dabbab Agreement.
Al Jazira Mawten REIT Fund	The fund's goal is to invest in developed real estate properties, generating periodical income, distributing 90 percent of net income annually as dividends every 3rd quarter. The fund will invest in Al Khumrah warehouses in Jeddah city. The fund is managed by Al Jazirah Capital.	Warehouses in Jeddah city. Operating, Maintenance and Marketing Manager is Mawten Real Estate Co.
Jadwa REIT Al Haramain Fund	A closed ended Shari'a compliant real estate investment traded fund. The REIT invests primarily in real estate assets in the Holy cities of Makkah Al Mukarramah and Al Madinah Al Munarawah. The REIT operates in accordance with Real Estate Investment Funds Regulations and REIT Funds Instructions issued by the CMA. The REIT is managed by Jadwa Investment Company, a closed joint stock company pursuant to the laws and regulations of the Kingdom of Saudi Arabia.	At inception, the REIT comprised two real estate hospitality properties, both located in Makkah Al Mukarramah. Property (1): Tharawat Al Andalusia Hotel, a four star hotel located directly on Ibrahim Al Khalil street. The hotel has 294 rooms in addition to commercial shops. Property (2): Tharawat Al Taqwa Hotel, a pilgrim accommodation located in Shisha district, 900 meters from Menna. The hotel has 690 rooms. Both properties are managed by the anchor tenant: Tharawat Al Mashaer Company for Development and Real Estate Investment.
Taleem REIT Fund	A closed ended real estate investment traded fund that aims to invest in developed real estate properties, generating periodical income and distributing a minimum 90 percent of net income annually as dividends. The fund invests in or acquires real estate assets that are linked to the educational or training sector. The fund is managed by Saudi Fransi Capital.	At inception the fund assets include the land and the buildings constructed on the plot the number 1324/B and located in the Umm-ul-Hammam district in Riyadh that is leased by Al Tarbeah Al Islamiah School Limited Company.

Source: USSABC, Tadawul, September 2017

Table 3: Real Estate Management and Development Listed Companies

Company	Overview
Alandalus Property Co.	The main activity of the Company is real estate development and investment such commercial centers and neighborhood shopping Centres (Strip Malls).
Arriyadh Development Co.	The company is involved with real estate activities including the establishment of facilities, commercial buildings, and residential services.
Dar Alarkan Real Estate Development Co.	Investment in real estate. Purchasing lands and erecting buildings on them and selling or leasing the same. Purchasing of real estate and land. General construction (building and maintenance); and Wholesale and retail trade in plumbing and electronic equipment, paints, stationery, and cars, whether cash or installments.
Emaar, The Economic City	Activities including the development of property, reclaimed lands and other types of land in the special economic zone or elsewhere for multiple use or other development operations, including infrastructure facilities. Also, to promote, market and sell plots of lands under the companys ownership for development services or 3rd party ownership.
Jabal Omar Development Co.	Owning the area of Jabal Omar at the western side of the Haram , developing , investment and leasing it for the benefit of the company.
Knowledge Economic City	Real estate development in economic cities or other cities, including infrastructure, communication networks, water, electricity and other works related to the development of economic cities.
Makkah Construction and Development Co.	The company constructed the commercial and residential complex which is located in the surrounding area of Makkah Holy Mosque, including a commercial center, prayer hall admitting 20,000 persons, towers and hotels. Makkah Construction and Development Company is the largest share holder in Jabal Omar Development Company.
Red Sea International Co.	The core business of RSH and main source of revenue is derived through providing housing solutions in remote locations for local and international clients in Oil & Gas, and Mining industries, which include rental of properties and sale of housing units; and enable them to relocate their workforce to designated sites such as oil fields and gas plants.
Saudi Real Estate Co.	The company activity is acquisition and development of lands and establishment of residential and commercial buildings and selling, leasing, property management for the company and others, purchasing, producing, selling and leasing of the materials and equipment for the construction, and construction for buildings and doing all the work related to the achievement of its objectives and buying, selling and renting villas and Duplexes and buildings.
Taiba Holding Co.	Own real estate, Architectural and Electrical Contracting, Maintenance and Operating. Agricultural, Industrial and Mining Activities.

Source: USSABC, Tadawul, September 2017

percent were in the pre-construction phase, and 76 percent of projects were under construction as of Q2 2017. For water projects, 15 percent were under pre-construction and 85 percent were in the under construction phase. These energy and utilities projects were valued at \$24 billion.³¹ Power generation capacity is expected to be the main driver of this growth.

Some large power projects have recently completed. For instance, in April 2017, the Saudi Industrial Property Authority (MODON) opened a 1GW power plant located in Madinah Industrial City after 26 months of construction. The facility is estimated to have cost \$117 million.

31 BMI Research, Key Projects Database as of 2017.

Other megaprojects remain in development. The following are key projects underway in this sector:

Jizan – Integrated Gasification Cycle (IGCC) Power Plant

Construction is set to resume on this \$2.1 billion industrial gas complex project, set to become the largest such facility in the world. The complex will serve Saudi Aramco's Jizan refinery and terminal and will require 600MW for operation. As of 2017, the project was at the planning stage. U.S.-based Air Products and Chemicals and Saudi Arabia's ACWA Holding were awarded a joint venture for the facility. Air Products technology will produce nitrogen and oxygen gases needed for the plant's generators that will provide feedstock to Saudi Aramco's Jizan refinery as well as Jizan Economic City.

Jizan – Shuqaiq Steam Power Plant

The Shuqaiq Steam Power Plant project has been underway since 2013, with a \$3.3 billion award from Saudi Electricity Company to Hyundai Heavy Industries (HHI). The project is located approximately 580 km South of Jeddah and intended to meet rising demand for power in this region. Upon completion of the project, the plant will supply five percent of Saudi Arabia's power generation capacity, providing power for over two million people. The Hyundai contract covers the engineering, procurement and construction, and commissioning for the pressure-technology turbine. Hyundai Heavy Industries awarded a \$227 million contract to Alstom to supply four 720MW steam turbine generators.

Makkah – Jeddah South Power Plant

Originally announced in 2012, Saudi Electricity Company awarded a contract worth \$3.12 billion to help meet the rising demand for electricity in the Western regions of Saudi Arabia, especially tied to growing infrastructure needs of Makkah and Madinah. In 2016, SEC reported that it had successfully linked the first steam unit to the electricity grid, with a capacity of 660MW.

Madinah – Yanbu Power and Desalination Plant, Phase 3

A \$2 billion contract was awarded in the second quarter by SWCC/Marafiq to the Chinese firm Sepco III Electric Power Construction Corp for completion of the third phase of the Yanbu Power

plant. Once completed the plant will cost \$1.37 billion and have power generation capacity of 2,500MW and capacity for 550,000 cm/d to supply water to Madinah. SWCC reported in 2017 that GE would manufacture the plant's equipment and that the plant was already 60 percent complete.

Waad Al Shamal Combined Cycle Power Plant

When completed, the project will have a capacity of 1,390MW with integrated solar technology, providing electricity for over 500,000 Saudi homes and also generating power for nearby mining operations.

For gas turbines for the power plant, GE was awarded over a \$1 billion contract for design and construction. GE will provide 7F.05 heavy duty gas turbines, an efficient F-class gas turbine technology, and long-term operational support.

Recent Awards

Reportedly, by the end of 2017, the Saline Water Conversion Corporation (SWCC) plans to issue a tender for a major independent water and power project (IWPP), Jubail 3 IWPP, with power generation capacity of 3,000MW and a desalination capacity of 1.2 million cubic meters per day. In total, there are eight IWPPs planned for development in Saudi Arabia by 2025.

Industrial Infrastructure Projects

Traditional industrial construction projects associated with oil, gas, and petrochemicals remain relevant to Saudi Arabia's economy, accounting for just over half of open projects in 2017. As shown in **Figure 27**, the petrochemicals segment accounted for 29 percent of projects while the oil and gas segment accounted for 22 percent of projects. Saudi Aramco continues to expand and upgrade, awarding a large bulk of total new infrastructure contracts in 2016 and 2017. Saudi Aramco awarded large contracts for projects including gas plant development, clean fuel facilities, pipeline development, and installation of jackets and observation platforms.

Metal and mineral refineries and manufacturing operations have the potential to contribute to Saudi Arabia's goal of diversifying the country's industrial base. To this end, industrial cities in the Kingdom have the potential to bolster a range of manufacturing activities. The Saudi Industrial Property Authority (MODON) was dedicated to developing industrial cities concentrated on activities around the manufacturing of metal goods, appliances, and construction materials.

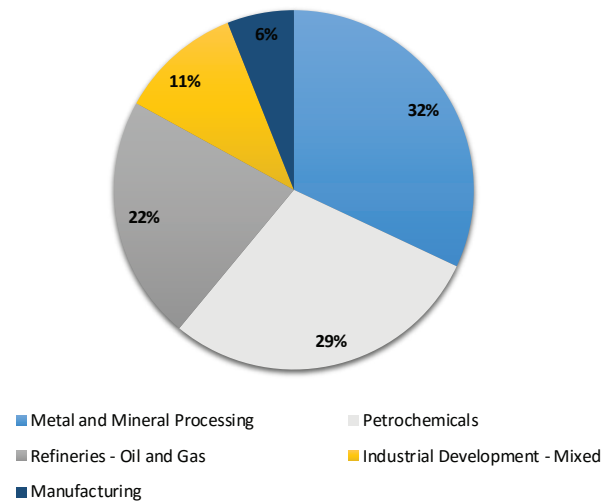
U.S. companies like Bechtel are already beginning to take advantage of some of Saudi Arabia’s megaprojects in mining and minerals. Abdulrahman Al Ghabban, Bechtel’s country manager for Saudi Arabia, noted that *“mining and metals is something that is of extreme interest to us. We see the government is going in the right direction in terms of putting in the right framework for companies to come and invest. And we believe mining and metals is an untapped sector here in Saudi.”*

Related to mining, Ma’aden has asked Bechtel to oversee engineering and construction of a new complex near Turayf in northern Saudi Arabia.

The U.S. firm Fluor, while is involved across a range of infrastructure projects in the Kingdom spanning roads, bridges, ports and aviation, has also had a hand in a number of industrial projects such as the Yanpet Expansion Project, Jubail Acetyls Complex, Ma’aden Aluminum, and Ma’aden phosphate.

Jacobs Engineering Group is another U.S. firm that is a major recipient of large industrial contracts in Saudi Arabia. For example, in 2015, InoChem awarded Jacobs a project management consultancy during all stages of building a soda ash and calcium chloride manufacturing complex in Yanbu Industrial City. In 2016, Saudi International Petrochemical Company awarded Jacobs a contract for general engineering services at Jubail Industrial City. Also in 2016, Jacobs announced a contract from Saudi Aramco Total Refining and Petrochemical Company to provide general engineering services for the company’s Jubail Industrial II facilities.

Figure 27: Saudi Arabian Industrial Projects Underway by Subsector



Source: USSABC, BMI Infrastructure Projects Database

Special Projects

Economic cities and districts are being created with the intention as special zones for logistics, industry, and finance.

King Abdullah Economic City (KAEC)

The King Abdullah Economic City will be Saudi Arabia’s first freehold city. Emaar, The Economic City, a company owned by Saudi Investors and Dubai’s Emaar Properties PJSC is developing this region. The project has attracted investment totaling \$7.9 billion with enough credit and cash to cover spending for the next decade. Included in this development are a deep-sea port, over 6,500 residential properties, a logistics hub, and a sports and recreation center.

Knowledge Economic City (KEC)

This city is being built as a smart city development, and will focus on intellectual property, knowledge-based industries, multi-media, medical, hospitality, and tourism. After raising approximately \$270 million, KEC was listed on the Tadawul in 2010. Serviced apartments, hotels, and conference areas are being developed as part of the city. The city’s residents will be connected to Makkah and Jeddah through the Haramain High Speed Railway.

Prince Abdulaziz bin Mousaed Economic City

This mixed development is being built in the northern region Hail and is planned to be a hub of logistics and transportation. It is planned to include a residential area, hotels, shopping centers, and entertainment venues. The city will also be the location of transportation infrastructure including an international airport that will service approximately 3 million passengers per year. There will also be a railway station for 2 million passengers annually, a dry port, and an operations center that will handle over 1.5 million tons of cargo. The rail and road connections will provide transportation to Madinah and Jordan and Iraq.

Grand Mosque Expansion

Saudi Arabia plans to restart the \$26.6 billion expansion of the Grand Mosque in Makkah. The work is planned to begin in the fall of 2017. Given modest recovery in oil income, work on religious tourism projects are beginning to reconvene.

The Ministry of Finance allocated a portion of the year's budget to key projects in the sector, with the Ministry pledging to make payments to construction firms allowing them to make any outstanding payments to staff.

Al Faisaliyah

In July 2017, Saudi Arabia announced plans for building the Al Faisaliyah project just west of Makkah to include residential units, entertainment facilities, and a sea port and airport. The project is supervised by the Makkah Region Development Authority and is supported by the Public Investment Fund. The project will cover 2,450 square km.

Entertainment City

Saudi Arabia announced plans in April 2017 to develop Saudi Arabia's largest cultural, sports, and entertainment city southwest of Riyadh. This project will involve the development of a safari area and a Six Flags Entertainment Corp. theme park. Construction on the city is expected to begin in 2018 and be completed by 2022. In efforts to boost the economy, the Saudi Government has relaxed certain rules on entertainment. By 2030, Saudi Arabia will double household spending on recreation to six percent.

Red Sea Tourism Project

In August 2017, Saudi Arabia announced the Red Sea Tourism Project that will convert 50 Saudi Arabian islands into luxury destinations. The country's Public Investment Fund is providing the initial capital and also seeking international investors. Reportedly, the area will have eased restrictions intended to attract international tourists. According to estimates from the Saudi Government, the project will produce 35,000 jobs.

NEOM Megacity Project

Saudi Arabia announced plans to construct the \$500 billion megacity known as NEOM, to be built on the Red Sea Coastline adjacent to Jordan and Egypt's Sinai Peninsula. The project will be paid for by the Public Investment Fund and will reportedly be subject to a relaxed set of regulations. The International Monetary Fund (IMF) has said that the project would stimulate trade and that it signals a move towards greater cooperation in the region.

SMEs

As of 2017, small and medium enterprises (SMEs) contribute 20 percent to the country's GDP. As a key element of Vision 2030, SMEs will have a growing role to play in Saudi Arabia's construction industry.

Breakdowns by firm size reveals much about the supply for contractors. As shown in **Figure 11**, in 2016, 46.8 percent of firms involved in the construction of buildings had fewer than 5 employees, 34.6 percent had 5-19 employees, and only 18.6 percent had 20 or more employees.

Yet, if SMEs are to expand their role in the sector, access to financing and capital will prove pivotal. If even flow of finance and capital resumes to large companies, medium and small ones may face greater challenges. SMEs have potential to contribute to infrastructure but access remains an obstacle. Lenders depend on the right incentive to increase the flow of capital and the tools to properly manage risk within their lending portfolios.

An industry executive noted that *"the problem is that SMEs in the construction sector are not getting any funding, but the sector needs them. The main business in the private sector is housing and construction of villas. People have been saving money. There are reduced prices of materials – and small contractors best service this market."*

Restarting Stalled Projects

As an indication that the construction market will pick up again, many government projects are resuming course. Given a clear picture of Saudi Arabia's finances, the Saudi Government has allocated a slice of its budget towards completion of strategic projects.

Construction on the Abraj Kudai in Makkah, one of the world's largest hotel projects (\$3.5 billion), is set to resume course after construction halted in 2015. Upon completion, the hotel will include accommodations for 10,000 rooms, 70 restaurants, helipads and a section exclusive for the royal family.

Construction of Social Facilities

In recent years, there has been a trend towards construction of new medical facilities as the Ministry of Health has prioritized greater access to healthcare and new private sector opportunities.

The following are examples of new infrastructure projects in the medical space:

- King Abdullah Medical City - \$2 billion project planned for completion in 2018.
- King Khalid Medical City - \$1.2 billion project planned for completion in 2018.
- King Abdullah Project Security Forces Medical Complexes located in Riyadh and Jeddah – each project costing \$3.5 billion.

Education infrastructure also presents an opportunity to attract private investment, and with emphasis on P3s going forward, there is a noticeable shift in investment model from the Engineer Procure Construct (EPC) deployed in the past.

Joint ventures can be an effective means to support social infrastructure. In May 2017, Jacobs and Saudi Aramco announced a joint venture to provide professional program and construction management (PMCM) services for social infrastructure projects in the Kingdom and throughout the MENA region. Jacobs Chairman and CEO Steve Demetriou said, *“our joint venture exemplifies the power of bringing together Saudi Aramco and Jacobs as an effective economic catalyst to support the Kingdom’s Vision 2030. The new company combines Jacobs’ industry-leading capabilities and our joint project delivery skills to help transform social infrastructure in this rapidly changing region.”*

Commercial Construction

In 2016, Majid Al Futaim of the U.A.E. announced that it was building two malls in Saudi Arabia for a combined investment of \$3.7 billion. The Mall of Saudi, which will be the largest mall in Saudi Arabia once completed, will include a ski slope, a hotel and serviced apartment building. City Centre Ishbilyah will be Saudi Arabia’s first city center mall. Riyadh’s office space is a buyers’ market, expected to increase in space over the coming years.

In the second quarter of 2017, local Saudi Arabian developer Al-Khozama Management Company awarded a contract worth \$300 million to Italy’s Salini Impregilo for the Al-Faisaliah District Redevelopment Project in Riyadh. The entire project is expected to be completed within three years. The project will begin with a \$53 million upgrade of Al-Faisaliah Mall and demolition of the Seyahiah buildings. The project will be executed one section at a time.

Saudi Construction Company Highlights

Saudi Binladin Group (SBG)

The largest construction firm in Saudi Arabia, SBG has over 180,000 employees within Kingdom.

The Saudi Binladin Group has worked on construction projects within the Kingdom such as roadways and on diversified projects internationally. SBG’s Saudi Arabian projects include the King Abdulaziz International Airport, the Holy Mosque expansion project, Al-Jamarat Bridge, King Abdullah Economic City, and King Saud University, among others. The firm’s international portfolio of projects includes Malaysia’s Kuala Lumpur Airport, the Cairo Airport, the U.A.E.’s Sharjah International Airport, and the Four Seasons Hotel in Jordan.

The Abraj Kudai hotel complex in Makkah was previously stalled by the government. The Saudi Binladin group is reportedly resume work on this \$3.5 billion project by the end of 2017.

El Seif Engineering Contracting Company

The firm has been involved with a variety of design and build projects in the healthcare sector. Kingdom Hospital was built according to the highest international standards and specifications. The scope of the project included all construction works including medical and IT systems, furniture and fittings. Other key hospital projects undertaken by El Seif are Beirut Government University Hospital, Zahle Government Hospital, Saida Government Hospital, Al Qatif Central Hospital, Public Security Forces Hospital, and the Military Hospital at Wadi Al Dawaser.

El Seif is one of the leading contracting companies in the construction of high-rise towers as well as a host of other physical structure complexes. Some

of the firm's landmark projects are the iconic Kingdom Tower in Riyadh, which stands at over 300 meters high, several towers at King Abdullah Financial District in Riyadh, and towers and high-rise buildings in Dubai, Doha and Beirut.

In recent years, the Ministry of Interior awarded a SR5.2 billion (\$1.38 billion) project to El Seif Engineering Contracting to construct a residential compound in Najran including 337 apartment buildings with expected completion in Q2 2018. In 2015, El Seif Engineering Contracting was also awarded two contracts worth over \$2 billion to build nearly 4,500 residential units in Jizan.

Recently awarded projects also include residential complexes in the southern region and the design and construction of the Ministry of Interior Headquarters in Jeddah. The scope of the latter project consists of two administrative buildings, a facilities building, a 5 star hotel, a mosque, and three security entrances and support facilities. El Seif is responsible for the detailed design, engineering, procurement, civil and electromechanical works, finishing, furniture, fixtures, equipment of the buildings and facilities as well as project site development, utilities, networks, security installations, surveillance equipment, landscaping and all other infrastructure works.

El Seif has constructed a number of diversified projects across the power, utilities, and infrastructure spaces. These projects range from ICT complex infrastructure and the Sadara Petrochemical Complex to the Riyadh Power Plant No. 8 and Sadaf Co-Generation IPP. El Seif has also completed design and build of a number of aircraft and airbase facilities, rail projects, roadworks and landbridges.

Al Rajhi Construction Group

Al Rajhi Advanced Construction LLC & Al Rajhi Infrastructure Works Co. was established in 2009. Al Rajhi continues to have a broad and diversified presence throughout the Gulf Cooperation Council (GCC) with office headquarters in Jeddah, Saudi Arabia and satellite offices in Dammam, Madinah, Riyadh, as well as the United Arab Emirates. The firm has worked on contracts across a diverse set of subsectors including utilities, infrastructure, roads and interchanges, telecommunications, and civil projects. The company has been awarded

infrastructure projects for the 450 km Haramain High Speed Rail Project (a high-speed rail currently under construction between Jeddah, Madinah, and Makkah) involving blasting and structure building. Al Rajhi has won contracts for projects including Riyadh's Strategic Water Plan and the Al-Marina Project.

Al Rajhi Construction has worked on the Dubai Waterfront, supporting the building of districts B and D of Madinat Al Arab.

Abdullah A.M. Al-Khodari Sons Company

The construction firm is involved with contracting activities spanning civil engineering, roads, bridges, railways, and oil and gas pipelines. Established in 1966, the firm has served a range of clients including the Royal Commission for Jubail & Yanbu (RCJY), the Ministry of Finance, Ma'aden, and Saudi Aramco.

The firm is currently underway with multiple contracts for the Ministry of Transport for the construction and expansion of roads. Buildings for King Faisal University, Taibah University as well as pumping stations for RCJY are examples of other current building contracts.

Table 4: Tadawul Listed Companies in Infrastructure: Sector Financial Highlights

Company Name	Industry	Revenue (USD billions)*	Revenue (SAR billions)*	Market Cap (USD billions)	Market Cap (SAR Billions)	PE Ratio (TTM)
Saudi Electricity Co	Utilities	13.31	49.91	26.65	99.96	10.83
Makkah Construction & Development	Real Estate	0.16	0.60	3.71	13.91	46.64
Saudi Cement Co	Materials	0.47	1.76	1.99	7.47	11.57
Southern Province Cement Co	Materials	0.47	1.76	1.87	7.01	13.22
Dar Al Arkan Real Estate Development Co	Real Estate	0.50	1.87	1.81	6.77	40.58
Taiba Holding Co	Real Estate	0.14	0.52	1.70	6.38	27.3
Yanbu Cement Co	Materials	0.34	1.28	1.23	4.60	11.59
Qassim Cement Co	Materials	0.23	0.86	1.10	4.12	14.05
Arabian Cement Co	Materials	0.34	1.26	0.89	3.36	9.12
Yamama Cement Co	Materials	0.30	1.13	0.87	3.25	19.97
Arriyadh Development Co	Real Estate	0.33	1.24	0.71	2.65	10.51
Saudi Real Estate Co	Real Estate	0.08	0.31	0.68	2.54	22.13
City Cement Co	Materials	0.16	0.60	0.55	2.08	16.24
Eastern Province Cement Co	Materials	0.23	0.86	0.55	2.06	11.34
Northern Region Cement Co	Materials	0.20	0.75	0.45	1.69	23.17
Zamil Industrial Investment Co	Materials	1.32	4.95	0.43	1.63	8.28
Najran Cement Co	Materials	0.19	0.71	0.43	1.63	21.47
Alandalus Property Co	Real Estate	0.04	0.13	0.41	1.54	11.97
Saudi Ceramic Co	Capital Goods	0.35	1.30	0.36	1.36	<i>unavailable</i>
Al Yamamah Steel Industries Co	Materials	0.44	1.65	0.34	1.26	10.52
Al Babbain Power & Telecommunications	Capital Goods	0.33	1.25	0.33	1.24	7.85
Red Sea International Co	Real Estate	0.27	1.03	0.31	1.16	17.89
Bawan Co	Capital Goods	0.62	2.32	0.27	1.02	15.32
Al Jouf Cement	Materials	0.09	0.32	0.27	1.02	19.77
Tabuk Cement Co	Materials	0.07	0.25	0.26	0.97	19.19
Umm Al-Qura Cement Co	Materials	0.11	0.40	0.25	0.95	41.73
Hail Cement Co	Materials	0.07	0.27	0.24	0.91	16.91
Saudi Arabian Amiantit Co	Capital Goods	0.57	2.14	0.20	0.74	<i>unavailable</i>
Saudi Vitrified Clay Pipe Co	Capital Goods	0.08	0.29	0.18	0.69	16.65
Abdullah A.M. Al-Khodari Sons	Capital Goods	0.27	1.03	0.14	0.53	<i>unavailable</i>
National Gypsum	Materials	0.02	0.09	0.10	0.38	45.94

**2016 annual
Values as of August 2017 unless otherwise noted.*

Source: USSABC, Bloomberg, Company reports

United States

As the backbone of the U.S. economy, infrastructure proves to be a critical ingredient in the nation's welfare and prosperity. It is a required input for economic outputs, with a cascading influence on factors ranging from employment and GDP to international competitiveness and business productivity. The U.S. infrastructure market is the second largest in the world after only China and enjoys local flexibility for determining needs and project pipelines. However, underperforming, outdated infrastructure has national repercussions, creating higher costs for individuals and businesses through lost working hours, higher prices, and wasted resources of time and fuel.

According to research from the American Society of Civil Engineers (ASCE), there are profound economic consequences to continuing business as usual regarding investment in infrastructure as ASCE estimates \$2 trillion in infrastructure needs within the U.S.³² Potential consequences to not increasing government or private investment include \$3.9 trillion in losses to GDP from 2017 to 2025 along with \$7 trillion in lost business sales and 2.5 million lost American jobs during the same period.³³

Despite these costs of inaction, the U.S. federal government allocates less than 3 percent of its budget to infrastructure needs. Adjusting for inflation, federal infrastructure spending achieved the highest levels 60 years ago in tandem with construction of the interstate highway system. While federal spending supplements state and local funds, many economists and industry experts argue that this level of public spending is insufficient. In recent years, transportation projects – highway, aviation, and mass transit – have comprised the majority of the federal government's infrastructure investment. Investment from private sector funds, institutions, and individuals could meet an estimated one-third of the capital required to revitalize U.S. infrastructure. As of 2017, the U.S. Administration proposed multiple layers of stimulus to the nation's infrastructure, including tax credits to the private sector as a funding mechanism. The initiative includes key proposals for funding, financing, restructuring, and deregulation of infrastructure systems.

³² Infrastructure needs account for the following segments: surface transportation, water/wastewater infrastructure, electricity, airports, inland waterways & marine ports, dams, hazardous & solid waste, levees, public parks & recreation, rail, and schools.

³³ *Failure to Act: Closing the Infrastructure Investment Gap for America's Economic Future*, ASCE, 2016.

Infrastructure Segment Highlights

Transportation

The U.S. Transportation and Warehousing sector can be broken down into subsectors: air transportation; rail transportation; water transportation; truck transportation; couriers and messengers; transit and ground passenger transportation; pipeline transportation; scenic and sightseeing transportation; support activities for transportation; and warehousing and storage. Of these, we highlight a few key segments directly related to U.S. infrastructure.

Pipeline transportation

Pipeline transportation in the United States is a major industry, transporting oil and natural gas as well as other fluids like water and hydrogen. In 2017, Texas dominated the U.S.'s pipeline transportation industry. Employment directly created by pipeline transport is greatest in Texas. After Texas, Oklahoma, Louisiana, California, and Pennsylvania have the largest industries in terms of both output and employment.

Labor productivity and average earnings rate were both greatest in Nebraska, possibly to attract builders and operators to new construction of pipelines.

As current pipeline infrastructure continues to age, there will be growing demand for upgrades in oil and gas as well as power and public utilities. We estimate that demand for U.S. pipeline infrastructure will exceed 31 billion in 2018 and grow at a CAGR of 2.6 percent through 2037. We project that on a national level, pipeline infrastructure will directly add approximately 25 billion in value to the U.S. GDP.³⁴

Water

There are over 100 million miles of drinking water pipelines across the country. These pipelines continue to age, and much of this infrastructure was developed in the early 1900's with only an intended lifespan of 75-100 years. The current system proves to be wasteful as there are an estimated 240,000 main water breaks per annum, losing 6 billion gallons of treated water.

Water quality has largely improved on the national level after years of upgrades to water treatment plants and increased government regulations. As more users are connected to treatment facilities, there will be a growing demand in order to maintain the current quality and to expand the country's biogas plants.

³⁴ REMI forecast.

Aviation

Given the geographical size and location of the United States, commercial air transport is key not only in connecting internationally but also within the country. For the past three decades, air travel in the U.S. has increased by 5 percent per annum.³⁵ The U.S. Federal Aviation Administration expects a 36 percent increase in air travel over the next two decades. Along with this increase in travel, there has been an uptick in the number of airport projects nationally. Although the 60 busiest airports accommodate nearly 90 percent of all commercial travelers, these facilities only received 27 percent of financing through the federal airport improvement program in 2015, suggesting a need to recalibrate distribution of resources.

In its 2017 ‘report card’ assessment of America’s Infrastructure, the ASCE notes that airport congestion has become an increasing problem as the country’s airports service over 2 million passengers daily, yet airports are limited by federal regulations on the fees that they may charge customers to expand and renovate. In terms of aviation, there is a projected \$42 billion funding gap through 2025.

Indeed, we expect that the economic activity generated by air transport will continue to increase at a CAGR of 2.5 percent through 2037, as shown in **Figure 28**.

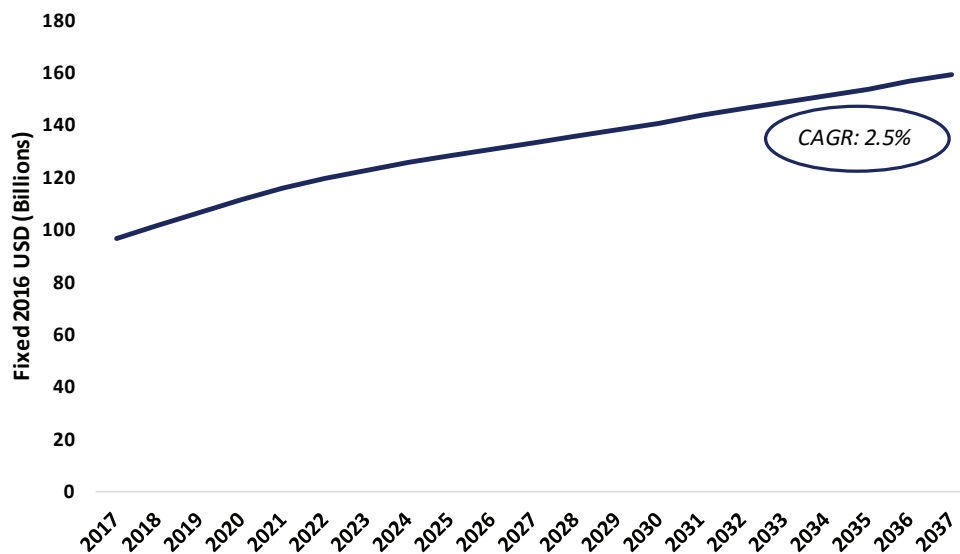
States with the greatest value added for air transport are Texas, California, Georgia, Illinois, Florida, and New

York. Across the U.S., California and New York have the greatest demand for air transport.

In the U.S., airports are largely owned by regional and public authorities, compared with national government ownership of airports in Canada and across European nations. As a result of this structuring, airport operations are not always broadly focused on long-term outcomes, and predominant airlines in each city may exert a skewed amount of influence city by city. Although the private sector generates a large share of commercial revenue from ownership and operation of airlines, and much of airport maintenance is delegated to the private sector, private sector participation in the management and operation of airport facilities has proven more difficult.

As part of the U.S. Airport Privatization Pilot Program in 1996, the Luis Munoz Marin International Airport in Puerto Rico and the Steward International Airport were privatized, however the latter eventually returned to public ownership. Without proper incentives, initiatives to attract the private sector are unlikely to succeed. For instance, privatized airports have reduced federal grants in-aid regardless of the importance of improvement for the national aviation system. With the pilot program, there were high regulatory risks for bidders related to permitting processes and requirements to attain approval from two-thirds of airlines. Costs also increase for bidders because of “obligation to discharge outstanding tax-exempt debt upon the execution of a long-term lease.”³⁶

Figure 28: Contribution of Air Transport Activities to United States GDP
National Forecast, 2017-2037



Source: USSABC, REMI

³⁵ Smoothed rate factors in external shocks such as security concerns and oil prices.

³⁶ Engaging Civic Capital for U.S. Infrastructure, UBS.

Surface Transportation (rail, truck, transit and ground passenger transport)

Rail networks continue to be a critical component of surface transportation, delivering approximately one-third of U.S. exports. On a daily basis, approximately 5 million tons of freight and 85,000 passengers are transported by rail, which is owned primarily by the private sector. Like rail systems, U.S. road systems are under funded but heavily utilized. American roads are highly congested with two out of five urban interstates experiencing daily congestion, costing the country an estimated \$160 billion in lost time and fuel. Also, one out of five paved highways has been assessed as in ‘poor condition.’

Nationally, Texas, Illinois, Nebraska, Pennsylvania, and California have the greatest economic activity in rail transport. Rail transport is expected to contribute nearly \$50 billion to U.S. GDP in 2018.

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Eighty percent of Americans live in metropolitan areas that often experience high levels of congestion, and this move towards urbanization has led to more mass transit usage. And despite increasing demand, many communities in the U.S. lack the desired access to public transit.

Roads and highways continue to be central infrastructure to transportation of U.S. goods, as many products are delivered cross country by way of the trucking industry. The greatest economic activity surrounding truck transport is in Texas, California, Illinois, Pennsylvania, and Ohio. We expect that truck transport will contribute \$148 billion to U.S. GDP in 2018.

The average age of U.S. bridges continues to increase, with many bridges approaching the end of their design lifespan. It is estimated that 9.1 percent of U.S. bridges are structurally deficient, though this has improved from years past. Still, of the more than 600,000 bridges in the country, nearly 40 percent are older than 50 years.

Energy

As with the emergent theme of most of America’s infrastructure, aging energy framework creates losses in efficiency, as these systems are unable to meet increased demand and deliver at the capacity required. The U.S. Department of Energy (DOE) reports that 4.7 percent of all produced energy is lost due to inefficiencies in the power

grid. With regards to power, there is a threat to experiencing elongated interruptions due to increasing frequency and severity of storms. It is estimated that the cost of power interruptions to businesses is nearly \$150 billion per year in losses to productivity.

The American power grid is currently at full capacity, and a majority of electric transmission and distribution lines were constructed in the mid 1900’s, with an expected lifespan of only 50 years. ‘Smart grid’ technology, that would decentralize energy generation, presents an opportunity to improve reliability, efficiency, and power distribution capacity. This system would allow for greater energy efficiency and would allow for the dynamic direction of capacity to meet consumer needs. To begin this path, the U.S. Government would need to, along with utilities producers, deploy standards for design and implementation of the smart grid.

As the trend in recent years, natural gas and renewable energy sources will undoubtedly gain attention in the country’s future.

Ports

Ports serve as the main conduit through which U.S. exports are transported to global markets. By tonnage, 76 percent of U.S. exports are delivered through maritime ports, and by value, 42 percent of exports are transported to foreign markets. The U.S.’s largest container ports in Los Angeles and Long Beach, CA comprise approximately one-third of U.S. containerized cargo trade.³⁷ The Port of Baltimore is the most productive port in the U.S., with a rating of 71 containers moved per hour. However, the U.S. trails in terms of competitiveness because shipping companies are attracted to the speed at which a container ship can be berthed, unloaded and returned to sea. In comparison, the world’s most productive port is the Port of Yokohama with a ranking of 186 containers moves per hour.

Expansion of the Panama Canal might allow for increased competitiveness, now accommodating 90 percent of the liquefied natural gas (LNG) tankers. Prior to the expansion, the canal could only accommodate 6 percent of tankers.

The Construction Industry

Construction activities are a major contributor to the U.S. economy, with nearly \$1 trillion spent on structures annually. In the U.S., construction is also a key customer of manufacturing and mining, helping to drive these industries forward.

³⁷ Alliance of Ports Authorities, NAFTA Container Port Ranking.

Construction activities are a major contributor to the U.S. economy, with nearly \$1 trillion spent on structures annually.

Of U.S. nonresidential segments, building in power, office and educational facilities have the highest forecasted increase in 2017 versus 2016. For power, we expect continued growth into 2018, driven by an uptick in solar and wind power as well as increases in the number of gas-fired plants and natural gas pipelines.

Productivity of Construction

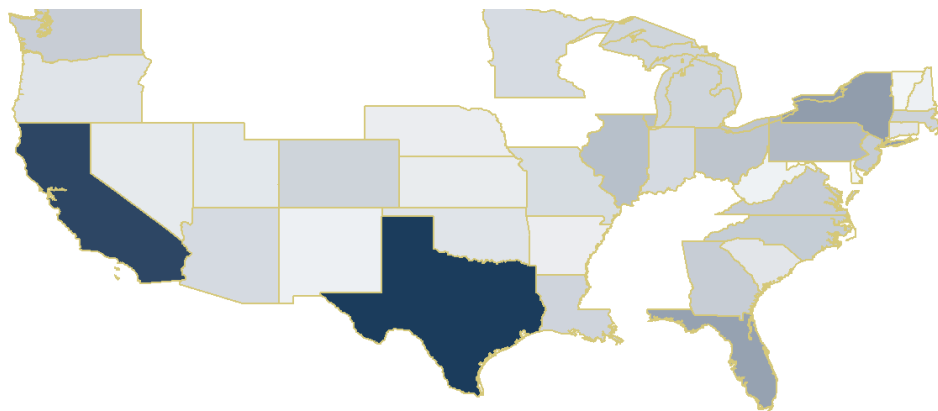
According to McKinsey, construction productivity per hour in the United States has fallen by approximately 50 percent since the 1960's. The structure of the construction industry may contribute to this issue. First, the industry is highly cyclical with economic downturns. Also, in the United States, large construction firms with over 10,000

completion of projects, many firms have no interest to invest more, and the high number of SMEs makes change difficult. There are some firms that have begun to invest in technologies such as 3D printing, drones, and high-tech cranes.³⁹ **Figure 30** shows which U.S. states have the most productive construction industries.

Employment and Demand

The U.S. construction industry has over 660,000 employers, and over six million employees. Nationally, construction wages and salaries totaled \$381 billion in 2015. By 2020, we expect that construction wages and salaries will total \$460 billion.⁴⁰ We expect that the contribution of construction to national GDP will increase at a CAGR of 2.4 percent between 2017 and 2037. This trend is shown in **Figure 31**. Presently, construction activities are approximately 4 percent of total national GDP.

Figure 29: Relative Construction Output 2017



Notes: This figure shows relative construction output, where output is the amount of production, including all intermediate goods purchased as well as value added. Darker colors represent higher output. White areas represent states where no data is available.

Source: USSABC, REMI

workers employ fewer than 5 percent of builders.³⁸ To put into perspective the role of small businesses in the U.S. construction industry, over 90 percent of firms employed less than 20 workers. And, with the exception of retailing, the profit margins are the lowest of any sector. For these reasons taken together, firms are often hesitant to invest in new technologies because of high fixed costs that make smaller firms vulnerable should the market take a downturn shortly after investing.

While it is in the best interest of clients to gain speedy

³⁸ In comparison, large firms employ 23 percent of business service workers and 25 percent of manufacturing workers.

One study found that “an extra \$1 billion in nonresidential construction spending adds about \$3.4 billion to Gross Domestic Product (GDP), about \$1.1 billion to personal earnings, and creates or sustains 28,500 jobs.”⁴¹

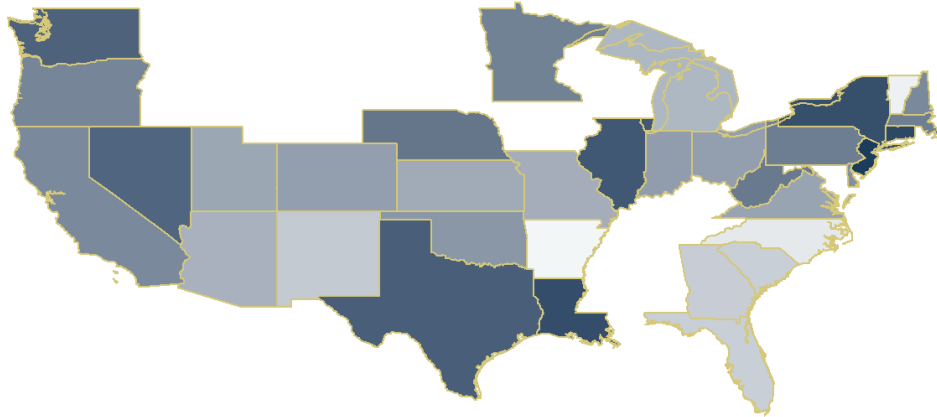
Regionally, California and Texas employ the most workers. Employment by key states is shown in **Figure 32**. REMI forecasts suggest that there will be

³⁹ *The Construction Industry – Least Improved. The Economist, August 19 2017.*

⁴⁰ REMI U.S. National Forecast. Fixed 2016 USD.

⁴¹ Study conducted by George Mason University and the Associated General Contractors of America.

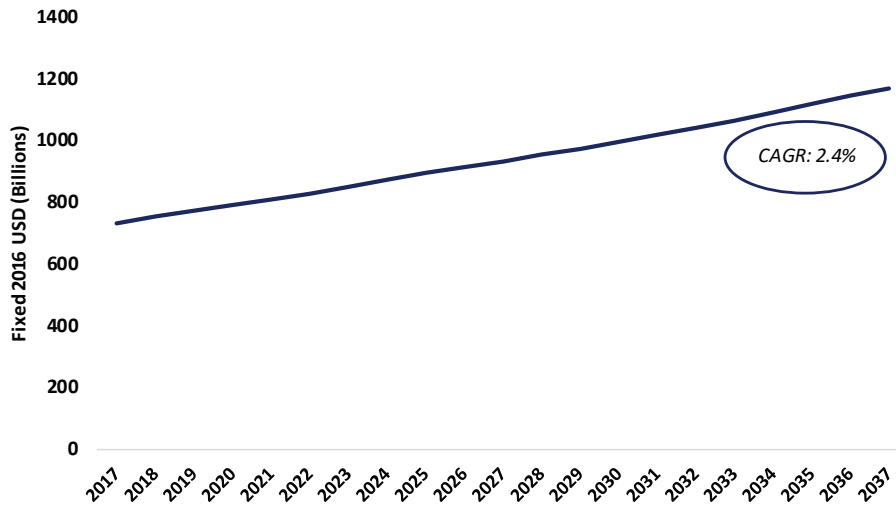
Figure 30: Relative Construction Labor Productivity 2017



Notes: This figure shows relative construction labor productivity. Darker colors represent higher productivity. White areas represent states where no data is available.

Source: USSABC, REMI

Figure 31: Contribution of Construction Activities to United States GDP National Forecast, 2017-2037



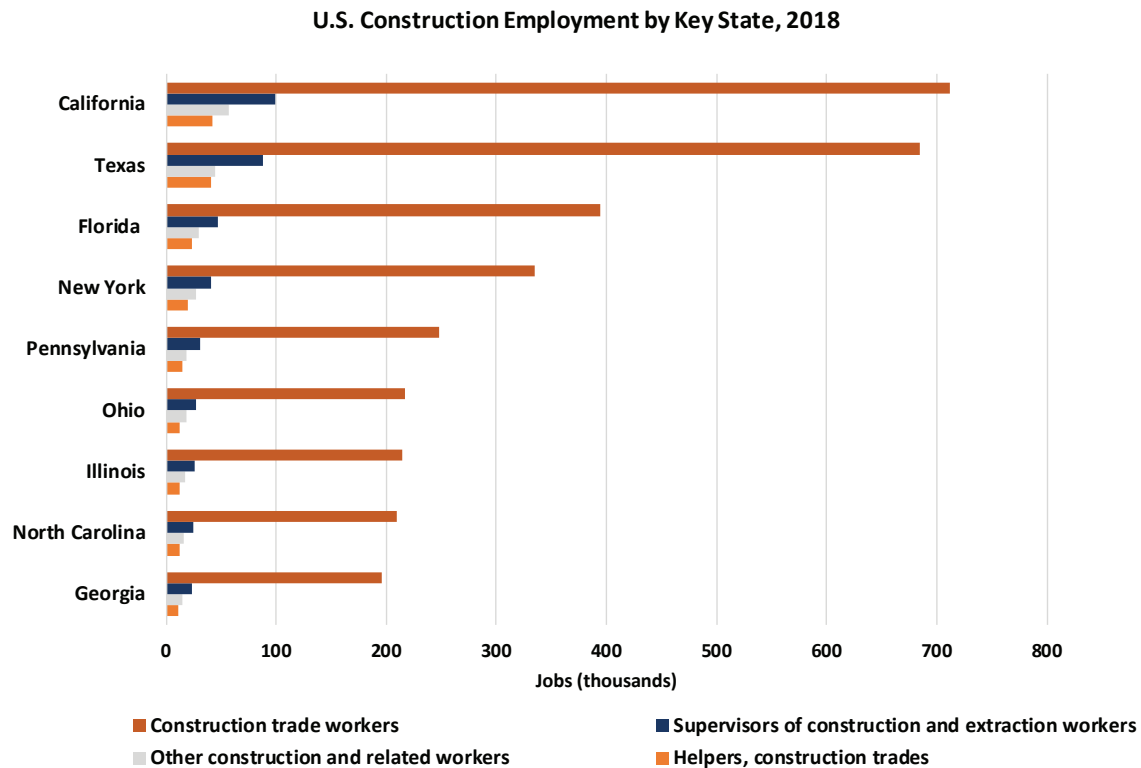
Source: USSABC, REMI

approximately 867,000 jobs in Texas in the construction sector in 2018. Of these 2018 jobs, a projected 685,000 will be for construction trade workers.

While Texas and California lead the way in terms of number of construction jobs, we expect Florida to lead the way in terms of growth among the key states. Employment for construction and trade workers in the state of Florida is expected to grow at a CAGR of 2.2 percent. Georgia is second in terms of growth rate with a CAGR of 1.1 percent for construction and trade workers compared with a less than one percent growth rate for the remaining top ten states. This pattern is mirrored for supervisor of

construction positions, Florida with a 2 percent CAGR. Florida also has the largest growth rates among the states for employment of ‘other construction and related workers’ and ‘helpers in construction trades’ with a 1.3 CAGR and 2.5 CAGR, respectively. According to an AGC survey, construction firms in the U.S. experienced a labor shortage in 2016. Respondents especially noted difficulty filling hourly craft positions as well as carpenter and electrician positions. To cope with labor shortages, contractors are deploying strategies – the most popular of which were raising base pay to attract new workers, increasing overtime for workers, and providing in-house training.

Figure 32: Construction Employment 2018 (thousands of jobs)
National Forecast, 2017-2037



Source: USSABC, REMI

In California, construction contributed \$87 billion, or 3.6 percent to the state’s GDP of \$2.5 trillion, and construction wages and salaries totaled \$47 billion on an annual basis. In Texas, construction contributed \$85 billion, or 5.4 percent of the state’s GDP. Meanwhile, annual wages and salaries totaled \$42.7 billion. These figures are shown for key states in **Table 5**.

Demand for construction activities is greatest in California, Texas, New York, Florida, Illinois, and Pennsylvania, aligning with value-added figures at the state level. **Figure 33** shows contribution of construction activities to GDP.

Impact of Hurricanes

Following severe storms in North America there will likely be a future uptick in the U.S. construction sector. Moody Analytics reported that damage from storms recently impacting the U.S. is estimated to be between \$150 billion and \$200 billion, and the U.S. could lose an additional \$20 billion to \$30 billion in output initially. In turn, Moody’s projects that U.S. GDP will decline in Q3 to 2.5 percent though expects that Q4 2017 and 2018 GDP could get a boost from rebuilding activities.

According to experts, Hurricanes Harvey and Irma caused significant distress to metropolitan areas because real estate costs are higher, and there is limited physical space to establish temporary housing.

Hurricane Harvey displaced thousands of citizens residing in Texas, as many homes and other infrastructure were completely destroyed by flooding. Over 50,712 homes were severely damaged, and another 14,952 were entirely destroyed. The Wall Street Journal reported that over 66,000 people were living in hotels using FEMA vouchers, and nearly another 50,000 were forced to relocate using FEMA financial assistance for housing payments.

Sources of Capital

Most of the existing infrastructure has been financed through direct, federal, state, and local spending. However, in the future it will be important to mobilize private capital in this sector given limitations from the public sector.

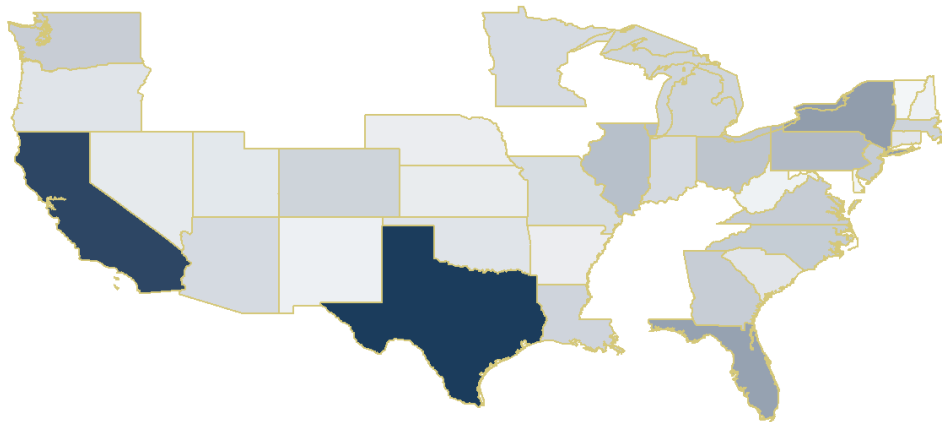
Between 1956 and 2014, the U.S. Government spent \$18.2 trillion on infrastructure, of which 73 percent was state and

Table 5: Construction Figures by Key State

State	Contribution to State GDP (\$ Billions)	Contribution to State GDP (%)	Annual Wages and Salaries (\$ Billions)
California	\$87	3.6%	\$47
Texas	\$85	5.4%	\$42.7
Florida	\$41	4.6%	\$20.7
New York	\$45	3.1%	\$25.1
Pennsylvania	\$27	4.0%	\$14.6
Ohio	\$22	3.6%	\$11.7
Illinois	\$27	3.5%	\$15.2
North Carolina	\$17	3.5%	\$9.4
Georgia	\$18	3.7%	\$9.2
Virginia	\$20	4.2%	\$10

Source: USSABC, AGC of America, Bureau of Labor Statistics, 2016

Figure 33: Relative Construction Value Added by State 2017



Notes: This figure shows relative construction value added. Darker colors represent a higher contribution to GDP. White areas represent states where no data is available.

Source: USSABC, REMI

local spending while 27 percent was federal spending.⁴² Federal funding sources include grants, revolving loan funds, and municipal bonds. As reduction of the national deficit and increasing pension liabilities remain concerns for government, private capital will play an increasing role. American citizens are expected to continue purchasing tax-exempt municipal bonds, a market that has historically been a major pillar of infrastructure funding. Other sources of private funding are charitable giving and environmentally conscious impact investing. Still other potential investors may be high net worth individuals and institutions such as pension funds, endowments, insurance companies, and sovereign wealth funds. P3s are also options, allowing for

⁴² Public Spending on Transportation and Water Infrastructure, Congressional Budget Office.

greater private participation in the construction industry and management of public infrastructure.

In 2015 and 2016, the sum of U.S. private, federal, state and local spending on infrastructure construction exceeded \$1 trillion annually. Of this spending at the national level, the share of private spending has increased steadily since 2011, notching up from 3.5 percent of GDP in 2011 to over 5 percent in 2016. Comparably, state and local spending on infrastructure accounts for approximately 1.5 percent of GDP while federal spending accounts for only 0.1 percent of GDP. In value terms, private spending increased from approximately \$500 billion to over \$800 billion during this period.⁴³

⁴³ United States Census Bureau.

The share of private spending has increased steadily since 2011, notching up from 3.5 percent of GDP in 2011 to over 5 percent in 2016. Comparably, state and local spending on infrastructure accounts for approximately 1.5 percent of GDP while federal spending accounts for only 0.1 percent of GDP.

As shown in **Figure 34**, across various assets, U.S. states greatly outspend the federal government as these assets are locally owned. Even though infrastructure funds are spent locally, federal sources also pay for nearly one-third state and local spending.

Cutting red tape through eliminating redundant permitting requirements and prioritizing review of projects that have central importance in U.S. infrastructure is one strategy that could be deployed to attract private wealth. Another strategy is increasing the maximum size of bank-qualified bonds issued for new money infrastructure investments.

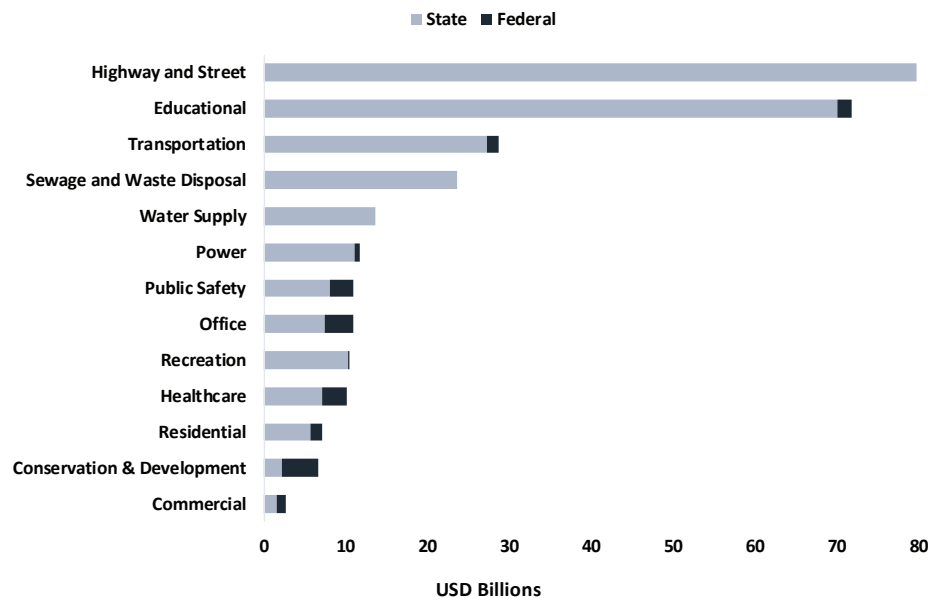
Thus far, many states have begun efforts to improve management of P3s through creation of program offices, knowledgeable staff, and structure contracting methodologies, thereby boosting private sector confidence in feasibility of large-scale infrastructure projects. Successful states have also altered course shifting the market towards competitive bidding rather than unsolicited proposals. For instance, Fluor has recently been involved on civil projects, including Virginia’s 95 and 495 Express Lanes. Other projects include \$1.8 billion construction of the East Span of the San Francisco-Oakland Bay Bridge, built by the

American Bridge/Fluor Joint Venture (ABFJV). The New York State Thruway Authority and the NY DOT have created a P3 to complete the Tappan Zee Hudson River Crossing bridge, expected to be completed in 2018. The consortium of firms involved on the project include Fluor, American Bridge, URS, GZA, Granite, Traylor Bros., HDR, and Buckland & Taylor.

The U.S. Department of Transportation (DOT) has set up a P3 program through its Center for Innovative Finance Support. These P3s are structured as design-build-finance-operate-maintain (DBFOM) concessions that bundle together and transfer responsibilities to a private sector partner for design, construction, finance, and long-term operations and maintenance over the concession period. The map as shown in **Figure 35** highlights P3 projects across the U.S., organized by new build facilities – both operational and under construction/financial close.

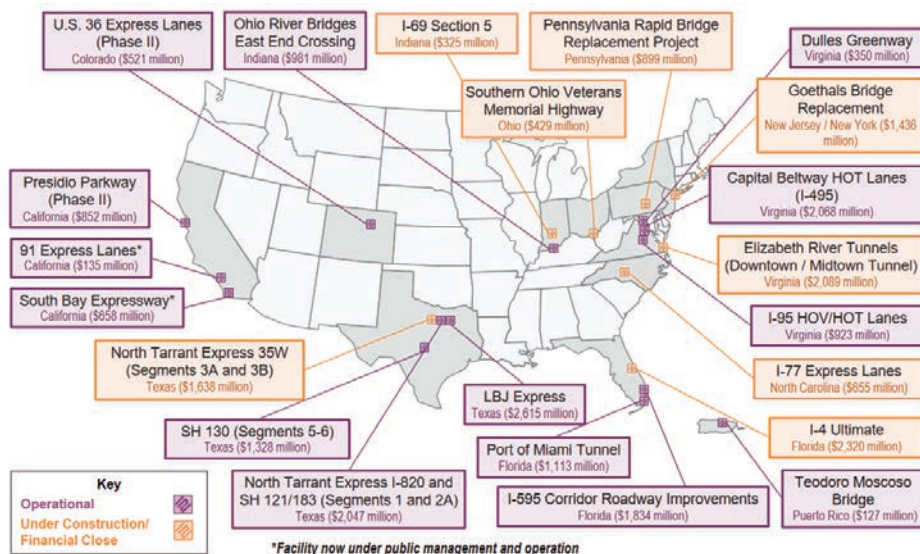
According to investment trends by infrastructure asset, there will be a gap between U.S. infrastructure spending and U.S. infrastructure needs with the current trajectory. **Table 6** shows that the gap between trends and needs during 2016-2040. Under the current trends, the U.S. is likely to invest \$8.5 trillion; however, Oxford Economics estimates that the U.S. infrastructure needs during this period are 45 percent higher, at an estimated total of \$12.4 trillion. The U.S. tends to dedicate a greater share of infrastructure spending towards roads and airports than other countries around the globe, and this is reflected in the investment figures, while investment in rail is much lower than the global average.

Figure 34: U.S. Federal and State Infrastructure Spending, Annual*



*Averaged spending per category, 2008 - 2016.
Source: USSABC, U.S. Census Bureau

Figure 35: U.S. P3 Highway Projects – New Build 2017



Source: U.S. Department of Transportation Federal Highway Administration, August 2017

Table 6: United States Cumulative Infrastructure Investment (\$Billions)

Asset Class	2016-2040 (Current trends)	2016-2040 (Investment need)	2016-2040 (Gap between trends and needs)
Road	3,418	6,779	3,361
Rail	353	469	116
Airports	642	667	26
Ports	182	350	168
Telecoms	601	636	35
Electricity	3,150	3,251	100
Water	197	198	2
Total	8,543	12,351	3,808

Notes: 2015 prices and exchange rates

Source: USSABC, Oxford Economics, World Economic Forum

Saudi Arabian Investment in U.S. Infrastructure

In early 2017, Blackstone announced plans to establish a \$40 billion infrastructure investment vehicle, with plans to invest up to \$100 billion in infrastructure projects, mainly in the United States. Blackstone stated that it had already invested over \$40 billion in infrastructure projects over the past 15 years and that “across its investment strategies, infrastructure investing has been one of Blackstone’s most successful and active areas.” Blackstone announced that Saudi Arabia’s Public Investment Fund has committed \$20 billion to the investment vehicle.

H.E. Yasir Al Rumayyan, Managing Director of the Public Investment Fund of the Kingdom of Saudi Arabia, said: “The Public Investment Fund’s

international investment strategy is built upon establishing strong global partnerships and identifying opportunities to maximize sustainable returns for the people of Saudi Arabia. We look forward to partnering with Blackstone, a recognized leader with a strong record of achievement across its extensive infrastructure projects. This potential investment reflects our positive views around the ambitious infrastructure initiatives being undertaken in the United States as announced by President Trump, and the strategic opportunity for the Public Investment Fund to achieve long-term returns given historical investment shortfalls.”

Appendix I: Saudi Arabian Select Major Contracts 2016-2017

Saudi Arabian Selected Major Engineering & Construction Contracts Awarded Globally 2016

Industry	Project	Client	Contractor	Value SR Millions	Contract Date
Oil & Gas	Shale Gas Development: System B	Saudi Aramco	SNC Lavalin	3,000	2016 Q1
Oil & Gas	MGSE Phase 2: Western Region Pipeline (Package 1)	Saudi Aramco	Saudi KAD Construction LLC	2,625	2016 Q1
Oil & Gas	Fadhili Gas Plant: Package 4	Saudi Aramco	Saudi KAD Construction LLC	1,688	2016 Q1
Oil & Gas	MGSE Phase 2: Eastern Region Pipeline (Package 3)	Saudi Aramco	Saudi KAD Construction LLC	1,313	2016 Q1
Residential/Real Estate	Ajyal Residential Development: Package 3 & 4	Saudi Aramco	Azmeel/Sinohydro Joint Venture	1,575	2016 Q1
Residential/Real Estate	Ajyal Residential Development: Package 2	Saudi Aramco	Khonaini International	1,069	2016 Q1
Hospitality	Pilgrim City: Four Star Hotels - Group 4A	Dar Al Hijrah Co.	Posco E&C Saudi Arabia	3,188	2016 Q1
Hospitality	Four Seasons Hotel in Jeddah	Midad Real Estate Investment & Development Company	Al Bawani	2,250	2016 Q1
Commercial Real Estate	Headquarters Building in Riyadh	Saudi Electricity Company	Shaporji Pallonji & Company	1,800	2016 Q1
Power	Jizan Refinery IGCC Power Plant: Industrial Facilities	Saudi Aramco	Al Yamama Company	799	2016 Q1
Oil & Gas	Hasbah Sour Gas Field Expansion	Saudi Aramco	Larsen & Toubro/ Emas JV	6,488	2016 Q2
Healthcare	Abha Private Hospital	Abha Private Hospital	Al Mahmoudia contracting	600	2016 Q2
Petrochemical	Sahara Petrochemicals	Sahara Petrochemicals	Jacobs	1,500	2016 Q2
Petrochemical	Clean Fuels Project	Petro-Rabigh	Amec Foster Wheeler	2,070	2016 Q2
Petrochemical	Ethylene Oxide/Ethylene Glycol Unit (EOEG)	Saudi Basic Industries Corporation	Wison (Shanghai) Chemical Engineering Company Limited	750	2016 Q2
Petrochemical	Clean Fuels Project: Sulphur Recovery Unit	Petro-Rabigh	Kinetic Technology	555	2016 Q2
Urban Development	Riyadh Techno Valley	Riyadh Valley Co	Al Bawani	1,088	2016 Q2
Residential/Real Estate	Sulaiman Al Rajhi University: Accommodation	Sulaiman Al Rajhi Colleges	Al Mehanya Real Estate Investment and Housing Co.	1,594	2016 Q2
Residential/Real Estate	Single Female Housing Phase 4	King Faisal Specialist Hospital	Al Bawani	563	2016 Q2
Residential/Real Estate	Ramla Tower	Naif Saleh Al-Rajhi Investment	First Saudi Contracting	495	2016 Q2
Power	133MW captive power plant, Riyadh cement facility expansion	Yamama Cement Company	Finland's Wartsila	480	2016 Q2
Power	132/13.8 kV Substations	Saudi Electricity Company	Trading & Development Partnership	296	2016 Q2
Power	Fadhili Independent Power Project	Saudi Aramco/Saudi Electricity Company	Engie	1,300	2016 Q3
Oil & Gas	Reroute Pipelines in Ras Tanura Area	Saudi Aramco	China Petroleum Pipeline Engineerin	450	2016 Q3
Urban Development	Riyadh Techno Valley Commercial Center	Riyadh Valley Co	Al-Hokair	500	2016 Q3
Residential/Real Estate	Residential Camp in Fadhili	Saudi Aramco	Nesma & Partners	1,200	2016 Q3
Oil & Gas	Yanbu-North Jeddah Products Pipeline	Saudi Aramco	Tekfen Construction and Installation Company Inc.	300	2016 Q3
Oil & Gas	Uthmaniyah: Gas Treatment Units	Saudi Aramco	Hyundai Engineering & Construction	727	2016 Q4
Power	Saudi Egypt Power Interconnection: Submarine Cable/ Land Cable	Saudi Electricity Company	Prysmian Group	95	2016 Q4
Healthcare	Clemenceau Medical Center: Medical Tower	Rana Investment Company	Al-Saad General Contracting	120	2016 Q4
Oil & Gas	Safaniya Phase 4 Project - Package 1	Saudi Aramco	Sapiem	650	2016 Q4
Oil & Gas	Marjan & Zuluf Fields: Pipelines & Cables	Saudi Aramco	Sapiem	350	2016 Q4
Oil & Gas	Safaniya Phase 4 Project - Package 2	Saudi Aramco	Sapiem	500	2016 Q4
Oil & Gas	Ras Tanura Refinery Clean Fuel Project: Package 1	Saudi Aramco	Tecnicas Reunidas	900	2016 Q4
Oil & Gas	Ras Tanura Refinery Clean Fuel Project: Package 2	Saudi Aramco	Tecnicas Reunidas	900	2016 Q4
Healthcare	Saudi German Hospital Dammam	Middle East Healthcare Company	International Hospital Construction C	89	2016 Q4
Oil & Gas	Hasbah & Berri Fields: Jackets & Observation Platforms	Saudi Aramco	Larsen & Toubro, Emas Chiyoda Sut	350	2016 Q4
Oil & Gas	Safaniya Phase 5 Project	Saudi Aramco	Sapiem	500	2016 Q4

Source: USSABC, MEED Projects, NCB, Various

Saudi Arabian Selected Major Engineering & Construction Contracts Awarded Globally 2017

Industry	Project	Client	Contractor	Value SR Millions	Contract Date
Oil & Gas	Upgrade of Platforms (17 nos.)	Saudi Aramco	LT Hydrocarbon Engineering, Emas Chiyoda Subsea	100	2017 Q1
Oil & Gas	Marjan Field: Installation of Jackets	Saudi Aramco	McDermott	110	2017 Q1
Oil & Gas	Berri Field: Installation of Jackets	Saudi Aramco	McDermott	110	2017 Q1
Hospitality	Swissotel Jeddah	Sisban Holding Company	Specialized Contracting Company (SCC)	120	2017 Q1
Oil & Gas	Berri Field: Installation Of Pipelines	Saudi Aramco	Dynamic Industries	150	2017 Q1
Residential	South Dhahran Apartment Buildings 2c (Package 1&2)	Saudi Aramco	Al-Kifah Contracting	108	2017 Q1
Chemicals	Yanbu Ethylene Glycol Plant Debottlenecking	YANSAB	eTEC E&C	99	2017 Q1
Water	Desalination Plants for Haql - 3,Duba - 4,Al Wajh - 4	SWCC	Hyflux	183	2017 Q1
Hospitality	Luxury hotel and apartments: Jabal Omar Development	Jabal Omar Development	Foster + Partners	undisclosed	2017 Q1
Industrial	Ras Al Khair: Fabrication Yard	Saudi Aramco	McDermott	175	2017 Q1
Real Estate	United States Embassy in Dhahran	U.S. Department of State	Skidmore, Owings & Merrill, LLP and Caddell Construction Co.	32	2017 Q1
Water	Jeddah Desalination Plant: Phase 4	SWCC	Doosan Heavy Industries & Construction	464	2017 Q1
Residential	Nargis Village	Al Akaria	NA	31	2017 Q1
Chemicals	Chlorine & Derivatives Complex	Basic Chemical Industries Co.	ThyssenKrupp Uhde Chlorine Engineers	111	2017 Q1
Transport	Development of King Faisal Road (Tender No. 1437/17)	Al Madinah Al Monawarah Development Authority	NA	25	2017 Q1
Transport	Prince Abdulmohsin Bin Abdulaziz Airport Expansion	General Authority of Civil Aviation (GACA)	TAV Airports and Al Rajhi Group	280	2017 Q1
Chemicals	Yanbu LAB / n-Paraffin Plant	Farabi Petrochemical Company	Honeywell and other developers	600	2017 Q1
Water	Expansion of Shoaiba 3 Desalination Plant: Phase 2	SWCC	Acwa Power led consortium	375	2017 Q1
Power	380 kV OHTL from Dhahran South, New Dhahran Central	Saudi Electricity Company	Wartsila	90	2017 Q1
Transport	Construction of a Commercial Port at Jizan Economic City	Saudi Aramco	China Harbour Engineering Company	91	2017 Q1
Building	Al Naim Compound	Bazel El Kahir Foundation	Mohamed Harasani Architects	39	2017 Q2
Transport	Taif International Airport	GACA	Consortium of Lebanon's Consolidated Contractors Company (CCC), Munich Airport, and the local Asyad Holding	800	2017 Q2
Industrial	In-Plant & Interface Works at Yanbu Distribution Hub	Saudi Aramco	NA	300	2017 Q2
Oil & Gas	Clean Fuels Interfacing Facilities Project	Yasref	Punj Lloyd	48	2017 Q2
Transport	Hail Domestic Airport	GACA	Consortium of Turkey's TAV and the local Al-Raihi Holding Group	400	2017 Q2
Transport	Ras AlKhair Industrial City (RIC): Subdivision & Development: Phase 1	RCJY	SNC-Lavalin	66	2017 Q2
Oil & Gas	Safaniya, Zuluf & Berri: Installation of Decks	Saudi Aramco	SNC-Lavalin	225	2017 Q2
Transport	Prince Nayef bin Abdulaziz Regional Airport Expansion	GACA	Zuhair Fayez Partnership	224	2017 Q2
Building	Darb Al-Haramain Development	Tanweer Real Estate Company	Saqifat Al Safa Property Development & Management	120	2017 Q2
Building	Al Faisaliah Redevelopment Project: Phase 1 & 2	Al Khozama Management	Salini Impregilo	293	2017 Q2
Hospitality	Aqua Raffles Hotel Jeddah	Gemstone Investment	Al Arrab Contracting	116	2017 Q2
Water	District Cooling Plant in Jeddah	KFSH&RC	Saudi Tabreed	140	2017 Q2
Industrial	Bottling Plant in Sudair City	Coca Cola	Amana Contracting & Steel Buildings Company	12	2017 Q2
Water	Water Transmission System from Shoaiba to Mina: Line B	SWCC	Yas Consulting Engineers LLC	224	2017 Q2
Transport	King Khalid International Airport Expansion: Terminals Upgrade	GACA	Turkey's IC Ictas and local Al-Rashid Trading & Contracting	2,900	2017 Q2
Power	Marafiq - Yanbu Power Plant: Phase 3	SWCC	Sepco 3	2,000	2017 Q2
Transport	Industrial Valley : Infrastructure works: Phase 3 (Package 1A)	Emaar - KAEC	Saudi Binladin Group	22	2017 Q2
Oil & Gas	Rehabilitation & Maintenance of Pipelines	Saudi Aramco	National Petroleum Construction Company	120	2017 Q2
Transport	Al-Wajh Domestic Airport Renovation & Upgrade	GACA	Almabani General Contractors	undisclosed	2017 Q2
Transport	Jeddah Mecca Highway: Phase 3	MOT	NA	80	2017 Q2
Oil & Gas	Offshore Maintain Potential: Upgrade Tanajib Pier	Saudi Aramco	WorleyParsons	280	2017 Q2
Building	Boss Office Tower	Anan Real Estate Company	Opal	40	2017 Q2
Building	Information Technology Center	KACST	Huawei Technologies Company	35	2017 Q2
Building	Saudi Housing Project: East Riyadh (462 Villas)	Ministry of Housing	Al Tahaluf Real Estate	100	2017 Q2
Building	Jubail Industrial College: Apartments Phase 2 (097-C74R)	RCJY	NA	103	2017 Q2
Oil & Gas	Installation of 9 Jackets	Saudi Aramco	Sapiem	150	2017 Q3
Healthcare	Mouwasat Hospital In Dammam	Mouwasat Medical Services	Project Build Co. Ltd	40	2017 Q3
Oil & Gas	Installation of 10 Jackets	Saudi Aramco	Sapiem	150	2017 Q3
Building	King Salman Int Maritime: Dredging & Reclamation	Aramco Bahri Lamprell HHI	Saudi Archirodon Company, Huta Hegerfeld AG Saudia	800	2017 Q3
Oil & Gas	Offshore Maintain Potential: Upgrade West Pier Facilities	Saudi Aramco	NA	280	2017 Q3
Power	380 kV Cable from Airport BSP (9089) to PNAU BSP (9024)	SEC	National Contracting Company	47	2017 Q3

Source: USSABC, MEED Projects, NCB, Various

Appendix II: U.S.-Saudi Arabian Business Council Members Involved in the Infrastructure Sector

U.S. Members

Aquatech International Corporation

Website: www.aquatech.com

Email: aic@aquatech.com

Business Profile: Aquatech operates in water purification technology for industrial and infrastructure markets with a focus on desalination, water recycle and reuse, and zero liquid discharge (ZLD).

Aquatech is based in Canonsburg, Pennsylvania and has offices throughout North America, and has a significant presence worldwide through subsidiaries in Europe, the Middle East, India and China. Through its network and worldwide operations, Aquatech has executed more than 1,000 water management projects in over 60 countries around the globe.

Aquatech has a strong presence within the Kingdom. Notable projects include a seawater reverse osmosis system for supplying potable water for the airport in Jeddah; a seawater distillation system for Saudi Arabian Oil Company's Ras Tanura Refinery; and a demineralization plant (repeat order) for IBN Rushd, a Saudi Arabia Basic Industries Corporation (SABIC) affiliate petrochemical facility, in Yanbu.

Bechtel Corporation

Website: www.bechtel.com

Email: info@bechtel.com

Business Profile: Bechtel Corporation provides engineering, procurement, construction, and project and construction management services. The company was founded in 1898 and is headquartered in San Francisco. It has completed more than 25,000 projects across 160 countries on all seven continents. Bechtel operates through four global businesses: Infrastructure; Nuclear, Security & Environmental; Oil, Gas & Chemicals; and Mining & Metals.

Bechtel has supported Saudi Arabia in implementing several key infrastructure projects. In the mid-1970s, the company began overseeing the construction of Jubail Industrial City's core infrastructure. More recently, Bechtel has built housing, retail space, mosques, schools, clinics, and fire stations. Notably, Bechtel was awarded a contract in 2013 to head a consortium to develop six lines, including all tunneling and stations for the Riyadh Metro.

Black & Veatch

Website: www.bv.com

Email: info@bv.com

Business Profile: Black & Veatch is a global engineering, procurement, construction (EPC) and consulting company specializing in infrastructure development in power, oil and gas, water, telecommunications, government, mining, data centers, smart cities and banking and finance markets. Black & Veatch was founded in 1915. The firm's headquarters are in Overland Park, Kansas, and the company has more than 100 offices worldwide with projects completed in more than 100 countries on six continents.

Black & Veatch has had an active role in enhancing the Kingdom's water infrastructure, including serving as engineering and design consultants for a major desalination scheme to augment water supply in Saudi Arabia's second largest city. Black & Veatch was selected by Saudi Arabia's National Contracting Company to perform engineering and project management work for an eight-unit power plant addition in Jeddah.

BurkettDesign, Inc.

Website: www.burketteua.com

Email: info@burketteua.com

Business Profile: BurkettDesign, Inc. is a professional firm offering architectural and interior design services. Based in Denver, Colorado, BurkettDesign has extended its services across the U.S. and the Middle East. The firm now has offices in Dubai, with a presence in Egypt and Jordan. BurkettDesign's areas of expertise include corporate offices, healthcare centers, education facilities, hotels, data centers, and aerospace. In 2017, Eppstein Uhen Architects (EUA) acquired the firm.

Cameco Corporation

Website: www.cameco.com

Business Profile: Cameco Corporation produces and sells uranium worldwide. It operates through three segments: Uranium, Fuel Services, and NUKEM. The Uranium segment is involved in the exploration, mining, and milling, as well as purchase and sale of uranium concentrates. The Fuel Services segment engages in the refining, conversion, and fabrication of uranium concentrate, as well as the purchase and sale of conversion services. This segment also produces fuel bundles and reactor components for CANDU reactors. The NUKEM segment trades in uranium and

uranium-related products. The company sells its uranium and fuel services to nuclear utilities. Cameco Corporation was founded in 1987 and is headquartered in Saskatoon, Canada.

CBRE

Website: www.cbre.com

Email: info@cbre.com

Business Profile: CBRE Group, Inc. operates as a commercial real estate services and investment company worldwide. It operates throughout the Americas; Europe, Middle East and Africa; Asia Pacific; Global Investment Management; and Development Services segments. The company offers strategic advice and project execution to owners, investors, and occupiers of real estate in connection with leasing; integrated property sales, and mortgage and structured financing services under the CBRE Capital Markets brand. It also provides facilities management, project management, transaction management, and strategic consulting services to occupiers of real estate; and property management services comprising construction management, marketing, building engineering, accounting, and financial services for owners and investors in office, industrial, and retail properties.

Emerson

Website: www.emerson.com

Email: info@emerson.com

Business Profile: Emerson was established in 1890 and offers a wide range of products and services in the areas of process management, climate technologies, network power, storage solutions, professional tools, appliance solutions, motor technologies, and industrial automation. Emerson products and services are utilized in a number of industries including agriculture, chemicals manufacturing, and telecommunications. The company is based in St. Louis, Missouri and maintains a workforce of over 140,000 and 265 manufacturing facilities worldwide.

In partnership with Saudi FAL, Emerson opened a process management facility in the Saudi city of Jubail in 2011. The facility allows Emerson to produce, test and service pressure reducing regulators from within the Kingdom.

Exelon Nuclear Partners, LLC

Website: www.exeloncorp.com

Email: inquiries@exeloncorp.com

Business Profile: Exelon Nuclear Partners, LLC owns and operates nuclear power plants in the United States. The company was established in 2000 and offers

nuclear operating services, performance improvement services, and fuel procurement services. The company also provides new nuclear development services, such as site selection, technology selection, contracting and commercial support, infrastructure planning and optimization, business requirements finalization, construction oversight, organization design, turnover planning, and operations support and plant operation. The company is based in Kennett Square, Pennsylvania.

Fluor Corporation

Website: www.fluor.com

Email: info@fluor.com

Business Profile: Fluor Corporation is a multinational engineering and construction firm headquartered in Irving, Texas. The company, which was founded in 1912, provides services through its subsidiaries in the following areas: oil and gas, industrial and infrastructure, government and power. It has offices in 25 countries in 6 continents.

Fluor currently manages and provides engineering, procurement and operations services for several massive projects in Saudi Arabia, including the \$8 billion ‘Umm Wu’al Phosphate Project’. The company also recently signed a MoU with Saudi Arabian Mining Company (Ma’aden) to support all its future projects within and outside of the Kingdom.

Amec Foster Wheeler

Website: www.amecfw.com

Business Profile: Amec Foster Wheeler was established in 2014 as a result of AMEC’s \$3.2 billion acquisition of Foster Wheeler AG. The company designs, delivers and maintains strategic and complex assets for its customers across the global energy and related sectors. Employing around 35,000 people in more than 55 countries, the company operates across the oil and gas industry – from production to refining, processing and distribution of derivative products – and in the mining, power and process, pharma, environment and infrastructure markets.

The company has provided design, procurement, and construction management services for numerous Saudi Arabian-based projects, including the world-scale packaging center at the heart of the Sadara mega-complex. In 2016, Amec Foster Wheeler signed a five-year contract with Saudi Aramco to deliver front end engineering design, overall program management, and other support services for an additional 300,000 barrels per day gas and oil separation train, a world scale greenfield gas processing plant, a cogeneration facility and modifications to an existing facility.

General Electric Company

Website: www.ge.com

Email: info@ge.com

Business Profile: General Electric Company is an American multinational conglomerate corporation incorporated in New York and headquartered in Boston, Massachusetts. The company was founded in 1892 and operates within the following segments: Aviation, Digital, Energy Connections, Global Research, Healthcare, Lighting, Oil and Gas, Power, Renewable Energy, Transportation, and Capital which cater to the needs of Financial Services, Medical Devices, Life Sciences, Pharmaceutical, Automotive, Software Development and Engineering industries.

General Electric Company services several of the Kingdom's sectors. Recently, the company supplied four new electricity substations on a turnkey basis to Saudi Arabia's southern region in order to meet the growing demand for electricity. General Electric Company is also in the process of building a \$400 million forging and casting factory and a maintenance facility for aviation engines in the Kingdom.

Honeywell International Inc.

Website: www.honeywell.com

Email: info@honeywell.com

Business Profile: Honeywell International Inc. is an American multinational conglomerate company based in Morris Plains, New Jersey that produces a variety of commercial and consumer products, engineering services and aerospace systems for a wide variety of customers, from private consumers to major corporations and governments. The company was established in 1906 and operates four business units, known as Strategic Business Units – Honeywell Aerospace, Home and Building Technologies (HBT), Safety and Productivity Solutions (SPS), and Honeywell Performance Materials and Technologies.

The company manages and provides engineering services for key domestic and global projects, including a gas processing plant in Colorado and an oil and natural gas platform in Vietnam. Honeywell International Inc. also works with Saudi companies such as the Saudi Farabi Petrochemicals Company to provide catalysts, adsorbents, licensing and basic engineering design.

Matrix PDM Engineering

Website: www.matrixpdm.com

Business Profile: Matrix PDM Engineering, formerly known as Houston Interests Group, provides process

design, engineering, and construction services to customers across North America. The company offers engineering and drafting services to the above-ground storage tank industry; design and engineering services for turnkey bulk storage terminals, including storage tanks, impoundment systems, ship loading and off-loading systems, boil off compression and vaporization facilities, foundations, insulation systems, pumping systems, and piping and fire protection systems for export, import, or peak shaving.

Jacobs Engineering Group Inc.

Website: www.jacobs.com

Business Profile: Jacobs Engineering Group Inc. is a global provider of technical, professional, and scientific services, including engineering, architecture, construction, operations and maintenance. Jacobs Engineering Group was founded in 1947 and maintains over 54,000 employees in more than 230 locations across the globe. The company's headquarters are in Dallas, Texas.

Jacobs Engineering Group Inc. has been present in the Kingdom for more than 40 years and has provided its engineering services to several Saudi companies, including Sahara Petrochemicals, Saudi International Petrochemical Company and InoChem. In 2017, the company entered into an agreement with Saudi Aramco to form a Saudi Arabian-based joint venture company to provide professional programs and construction management (PMCM) services for social infrastructure projects throughout the Kingdom and across the Middle East and North Africa.

JENSEN HUGHES, Inc.

Website: www.jensenhughes.com

Email: info@jensenhughes.com

Business Profile: Founded in 1980, JENSEN HUGHES, Inc. is a global company which operates in fire protection and life safety engineering with offices worldwide. The company's headquarters are in Baltimore, Maryland. The firm provides services including code consulting and architectural support, commissioning and construction management services, and fire protection systems design. The firm services sectors including corporate real estate, industrial and manufacturing, transportation and telecommunications.

JENSEN HUGHES has worked extensively with Saudi Arabia. In addition to providing specialty-consulting services for the Kingdom Tower in Jeddah, JENSEN HUGHES developed a comprehensive fire protection plan for the King Abdulaziz International Airport's

terminal buildings and connected structures, and designed smoke control systems for the large atrium-type spaces in the airport, the Automatic People Mover (APM) subway system, and the adjacent railway station.

Leo A. Daly

Website: www.leoadaly.com

Email: info@leoadaly.com

Business Profile: Leo A. Daly, established in 1915, is an American architecture, planning, engineering, interior design and program management firm headquartered in Omaha, Nebraska. The firm's portfolio includes projects in 91 countries, all 50 U.S. states and the District of Columbia. The firm currently employs approximately 800 architects, planners, engineers and interior designers in 30 offices.

Leo A. Daly is engaged across the Gulf region, offering full-scale architecture and engineering services. The company's history with Saudi Arabia dates back to 1972, where they designed and constructed significant projects, including the headquarters of the Saudi Arabian National Guards, the Diplomatic Quarters, and the Al-Jubail Petrochemical headquarters.

Motorola Solutions Inc.

Website: www.motorolasolutions.com

Business Profile: Motorola Solutions, Inc. provides mission-critical communication infrastructure, devices, accessories, software, and services in North America, Latin America, the Asia Pacific, the Middle East, Europe, and Africa. The company operates in both products and services. The products segment offers a portfolio of infrastructure, devices, accessories, and software for government, public safety and first-responder agencies, municipalities, and commercial and industrial customers. The services segment provides integration services, such as implementation, optimization, and integration of networks, devices, software, and applications. The company was formerly known as Motorola, Inc. and changed its name to Motorola Solutions, Inc. in January 2011. Motorola Solutions, Inc. was founded in 1928 and is headquartered in Chicago, Illinois.

Motorola Solutions, Inc. works with its Saudi partners to build critical communications infrastructure. In 2016, the company partnered with Bravo, the critical communications arm of Saudi Telecom Company (STC), to build a nationwide public safety network based on Terrestrial Trunked Radio (TETRA) across the Kingdom.

Nalco Champion, an Ecolab Company

Website: www.ecolab.com/nalco-champion

Business Profile: Nalco Champion LLC provides sustainable chemistry programs and services to the upstream and midstream oil and gas industry, refineries, and petrochemical operations. Based in Sugar Land, Texas, the company's products and services include asset integrity, custom equipment and facilities, drilling, completion and stimulation, and enhanced oil recovery. The company serves energy exploration and production; oil and gas midstream; and refining, additives, and petrochemical industries.

Nalco Champion LLC currently operates in the Kingdom through its Damman-based subsidiary, Champion Arabia Co. Ltd.

Parsons

Website: www.parsons.com

Business Profile: Parsons Corporation is an engineering, construction, technical, and professional services firm that services the infrastructure, defense, security, and construction sectors. Founded in 1944, the company delivers design and design-build, program and construction management, and other professional services packaged in innovative alternative delivery methods to federal, regional, and local government agencies as well as to private industrial customers worldwide.

Parsons has offices in the UAE, Oman, Qatar, Saudi Arabia, and Bahrain. Parsons' portfolio of ongoing projects in the Gulf region include major highways, bridges, rail and transit, airports, ports, water infrastructure, hospitals, public schools, universities and mosques. In 2011, Saudi Arabian Parsons Limited partnered with the Saudi Arabian Ministry of Housing to undertake data collection, urban master planning, complete technical design, and full construction supervision of all infrastructure and landscaping of assigned sites, for a project designed to provide up to 500,000 housing units throughout the Kingdom.

Pennoni Associates Inc.

Website: www.pennoni.com

Email: info@pennoni.com

Business Profile: Pennoni Associates Inc. is a multidiscipline engineering and design-consulting firm that provides personalized services and solutions. The company provides services to local, state, federal, and international governments, private, commercial, industrial, and construction clients as well as to other

professional firms. Professional disciplines include civil, structural, MEP, environmental, geotechnical, and transportation engineering, as well as construction services, surveying, lab testing, and water and wastewater design. The firm was established in 1966.

Pennonni Associates Inc.'s core focus is on civil infrastructure. Their range of projects include design and construction of airports, roads and bridges, streetscapes, dams, ports, railroads, parking garages, storm water infrastructure and utilities. The company has also worked within the Kingdom to ensure the safety of the city of Makkah's three main bridges while mitigating any potential issues.

Skidmore Owings & Merrill LLP

Website: www.som.com
Email: info@som.com

Business Profile: Skidmore Owings & Merrill LLP (SOM) provides services in architecture, building services and MEP engineering, digital design, graphics, interior design, structural engineering, civil engineering, sustainable design and urban design and planning. It was formed in Chicago in 1936 and has since expanded globally, with regional offices in San Francisco, Los Angeles, Washington DC, London, Hong Kong, Shanghai, Mumbai and Dubai.

With a portfolio spanning thousands of projects across 50 countries, SOM is one of the largest architectural firms in the world. The firm's primary expertise is in high-end commercial building. Some of SOM's most notable projects in Saudi Arabia include the design of the Park Hyatt hotel in Riyadh, the design and structural engineering of King Abdulaziz International Airport Hajj Terminal, and the design of the National Commercial Bank in Jeddah.

Stellar Energy Americas, Inc.

Website: www.stellar-energy.net
Email: kbeezley@stellar-energy.net

Business Profile: Stellar Energy Americas, Inc. provides energy and utility solutions, including turbine inlet air chilling, district cooling, and central utility plants. The company is based in Jacksonville, FL, and maintains offices in Beijing, China and Dubai, United Arab Emirates. Stellar Energy Americas, Inc. conducts business in Saudi Arabia and many other countries across five continents.

Stellar Energy has completed numerous projects meeting a wide variety of energy needs. The firm has provided construction, engineering and equipment procurement

services to many globally recognized companies, including those in the Kingdom. Working with Saudi Electricity Company, Stellar Energy designed and built a turbine inlet air chilling (TIAC) system to increase power output during off-peak consumption times. The company also delivered 16 water-cooled modules for a massive air chilling system that will produce a total of 92,000 tons of chilling in order to increase efficiency and power output of the Qurayyah Independent Power Plant.

System Studies & Simulation (S3)

Website: www.s3inc.com
Email: info@s3inc.com

Business Profile: S3 provides technical products and services through two diversified business units: SETA Services and Training & Systems Support (TSS). The Alabama-based company has three wholly-owned subsidiaries: Kachemak Bay Flying Services (KBFS), Global Logistics Support Services, and S3 International, Inc. (S3I). S3 supports the US Department of Defense (DoD), other US Government (USG) agencies, Partner Nation militaries, and commercial customers.

The Dow Chemical Company

Website: www.dow.com
Email: info@dow.com

Business Profile: The Dow Chemical Company manufactures and supplies products that are used as raw materials in the manufacturing of customer's products and services worldwide. The company's agricultural sciences segment provides crop protection as well as seed and plant biotechnology products, urban pest management solutions, and healthy oils. Its consumer solutions segment offers customized materials using technology and chemistries for specialty applications. The company's more than 5,000 products are manufactured at 214 sites in 37 countries across the globe.

The Dow Chemical Company's presence in the Kingdom dates back to 1995. The company partnered with E.A. Juffali & Bros. to establish Arabian Chemical Company (Latex) Ltd. which manufactures latex at its plant in the Eastern Province of Saudi Arabia. The company also entered into a joint venture with Saudi Aramco to establish Sadara Chemical Company, a world scale integrated chemicals complex in Jubail Industrial City II in Saudi Arabia consisting of 26 world scale manufacturing plants deploying state-of-the-art technologies.

Tvsdesign

Website: www.tvdesign.com

Business Profile: Tvsdesign is a design firm that provides architecture, interior design and planning services. The firm has full service offices in Atlanta, Chicago, Dubai and Shanghai. Founded in 1968, the firm has steadily expanded its practice and currently employs over 150 professionals.

The firm has designed projects for various Saudi Arabian entities. In the city of Jeddah, tvsdesign planned a 30-story luxury residential tower overlooking the Red Sea, inclusive of three custom duplexes and 50 luxury flats. The firm also designed the plans for the massive expansion of a hotel located in the Jabal Al Kaaba region in Makkah.

USAA Real Estate Company

Website: www.usrealco.com
Email: info@usrealco.com

Business Profile: USAA Real Estate Company provides co-investment, acquisition, build-to-suit and development services for corporate and institutional investors. The USAA portfolio consists of office, industrial, retail and hotel properties as well as investments in real estate operating companies. USAA Real Estate Co. is a subsidiary of USAA, a financial services company.

Through their partnership with USAA Real Estate Company, Saudi Arabian-based Al-Khabeer Capital acquired office buildings and other investments in the U.S. such as the Lake Pointe Center III and IV in Indianapolis and the Park Ten Plaza in Houston.

ValvTechnologies, Inc.

Website: www.valv.com

Business Profile: ValvTechnologies, Inc. designs and manufactures zero-leakage metal-seated ball valve solutions for severe service applications. The company offers a series of valves. It also provides aftermarket solutions, including OEM service engineer support, testing cycle isolation measurement, and welding and machine services. The company serves fossil power, nuclear generation, upstream oil and gas, downstream and chemical processing, mining and minerals processing, pulp and paper, and petrochemical. The company was founded in 1986 and is based in Houston, Texas.

W.R. Grace & Co.

Website: www.grace.com

Business Profile: W.R. Grace & Co. is a global supplier of catalysts and other products to petroleum refiners, catalysts for the manufacture of plastics, specialty materials for a wide-range of industrial applications, and building materials for commercial and residential construction. W.R. Grace & Co. is based in Columbia, Maryland and maintains operations in over 40 countries.

In 2010, W.R. Grace & Co. partnered with Khalid Ali Alturki & Sons Co. in a joint venture to establish Grace Saudi Arabia LLC, which operates in concrete admixture manufacturing facilities in Jeddah and Dammam. Grace Saudi Arabia LLC was later fully acquired by Alturki Holding and was renamed to Arkaz, but continues to produce and sell concrete admixtures under licenses of W.R. Grace & Co.

Wamar International, LLC

Website: www.wamarinc.com
Email: info@wamar.com

Business Profile: Wamar International (Wamar) is a global provider of premium services and products in the fields of power generation, oil and gas, aviation, real life support, and defense and security. Since its establishment in 1983, Wamar has expanded its global footprint with the opening of offices in Amman, Jordan; Baghdad, Iraq; Munich, Germany; Belfort, France; Johannesburg, South Africa; Jupiter, Florida; and Reading, Pennsylvania.

Wamar International entered into a joint venture with United Technologies International Corporation (parent company of Pratt & Whitney), Saudi Arabian Airlines, Al Mohawarean, and MTU Aero Engines to establish Middle East Propulsion Company (MEPC), a Saudi Arabian engine maintenance company.

WorleyParsons

Website: www.worleyparsons.com
Email: info@worleyparsons.com

Business Profile: WorleyParsons delivers projects, provides expertise in engineering, procurement and construction and offers a wide range of consulting and advisory services. The firm covers the full lifecycle, from creating new assets to sustaining and enhancing operating assets, in the hydrocarbons, mineral, metals, chemicals and infrastructure sectors.

In Saudi Arabia, WorleyParsons delivers a broad range of engineering services, from straight-forward minor plant modifications to leading project management contracting on mega projects such as the mine and associated chemical plants at Al-Jalamid and Ras Azzour for Ma'aden, and the delivery of improved services through contracts such as the "Maintain Potential Program" for Saudi Aramco's offshore facilities. WorleyParsons' Saudi operation has five Eastern Province offices located in Al-Khobar, one office in Yanbu, and a newly opened offshore office in Bahrain.

Saudi Arabian Members

Aal Taher Group

Email: info@aaltaher.com

Business Profile: Aal Taher Group, based in Jeddah, Saudi Arabia was established in 1975. The company's activities include high-technology maintenance, chemical manufacturing, poultry farming, food processing, hotel and property management, industry, oil additives and lubricants, construction and contracting services, insurance, and general trading.

Ahmad Hamad Algozaibi & Bros.

Website: www.ahalgozaibigroup.com

Business Profile: Ahmad Hamad Algozaibi & Bros. operates in manufacturing, trading, shipping, construction, real estate, agriculture, banking, insurance, tourism and travel services, and media. Ahmad Hamad Algozaibi is headquartered in Al-Khobar, Saudi Arabia. The company maintains 25 subsidiary and joint venture companies and is a major shareholder in another 25 companies.

Alfanar Construction

Website: www.alfanar.com

Business Profile: Alfanar Co. is based in Riyadh, Saudi Arabia, with branches in Jeddah and Dammam. It runs a wide range of activities related to the manufacturing, marketing and sale of low voltage and medium voltage electrical distribution, installation and protection equipment. Alfanar is active as a turnkey contractor for the construction of power houses, substation and transmission lines, including design, interface, supply of equipment, construction at site, testing, commissioning and warranty coverage.

Alkhorayef Group Company Ltd.

Website: www.alkhorayef.com

Business Profile: Alkhorayef Group Company operates in the oil and lubricants, machinery systems, contracting services, and printing and paper industries. The company manufactures pumping systems and components, including downhole electric submersible pumps to transform offshore and onshore oil production; supplies new pump components and services engineered units; and distributes oils and lubricants. The company was founded in 1957 and is based in Riyadh, Saudi Arabia with operations in Europe, North America, South America, Australia, Africa, and China.

Hamad Bin Mohamed Bin Saedan & Sons Co.

Business Profile: Hamad M. Bin Saedan & Sons manufactures center pivot and linear irrigation systems, ERW steel pipes, wrought iron products, plastics, and furniture. The company also maintains portfolios in the areas of galvanization, mechanical and electrical engineering, and real estate. Hamad Bin Mohamed Bin Saedan & Sons Co. was established in 1967. The company maintains investment interests in Tunisia, Sudan, Syria, Geneva, Turkey, Egypt and Bahrain.

Jash Technical Services LLC

Website: www.jash.com.sa

Email: info@jash.com.sa

Business Profile: Jash Technical Services LLC is a subsidiary of Jash Holding. The company operates in various activities such as oil and gas, building and construction of roads, bridges and railroads, power generation, and water desalination.

3M Saudi Arabia

Website: www.3m.com.sa

Business Profile: 3M Company operates as a diversified technology company with business in a variety of segments including, consumer, industrial, safety and graphics business, healthcare, and electronic and energy. The company's headquarters are in St Paul, Minnesota and maintains offices in over 65 countries.

A.K. Al-Muhaidib & Sons Group of Companies

Website: www.muhaidib.com

Email: info@muhaidib.com

Business Profile: A.K. Al-Muhaidib & Sons Group of Companies was founded in 1946 in Dammam and operates in building materials. The company has over 20 affiliated companies related to industries such as construction, power generation, real estate development, telecommunications, food and beverage, agriculture, trading, and transportation.

A.K. Al-Muhaidib & Sons undertakes large contracting projects including sewer and water lines, education facilities, banks, housing projects, shopping malls, warehouses, and office buildings, as well as projects pertaining to gardening and outdoor living.

Abdel Hadi Abdullah Al-Qahtani & Sons Group of Companies

Website: www.ahqsons.com

Email: info@ahqsons.com

Business Profile: Abdel Hadi Abdullah Al-Qahtani & Sons Co. supplies materials, equipment, engineering services, and other products to oil, gas, construction, petrochemical, water, and power industries in Saudi Arabia and the other GCC member countries.

Abdul Hadi H. Taher & Partners Co. Ltd (CIC)

Website: www.cictg.com

Email: info@cictg.com

Business Profile: Abdul Hadi H. Taher & Partners Co. Ltd, (CIC) is a part of the Al-Taher Group of Companies. The Jeddah-based company was established in 1975 and has since diversified into a variety of national markets. Activities cover chemical manufacturing, hotels and property management, oil additives and lubricants, construction, contracting, insurance and general trading.

Abdul Mohssen Al-Sahli Holding Co.

Website: www.alsahliholding.com

Business Profile: Abdul Mohssen Al-Sahli Holding Co. operates in trading, construction, metal fabrication, manufacturing and development of poultry-related projects. The company comprises five interlinked subsidiaries and has carried out more than 400 projects in the Kingdom.

Abdulaziz & Faisal Sons of Abdullah Al-Rashed Company Ltd.

Website: www.afalrashed.com.sa

Email: info@afalrashed.com.sa

Business Profile: Abdulaziz & Faisal Sons of Abdullah Al Rashed Company Ltd. (A&F), based in Riyadh, Saudi Arabia, is a multi-faceted company with business operations in construction, engineering, manufacturing, trading, real-estate and investments. The group is divided into three core businesses: A&F General Contracting, A&F Water & Environmental Advanced Technologies, and A&F Furniture.

Abdulaziz Abdulhadi Al Judee & Sons Holding

Website: www.aljudee.com

Email: info@aljudee.com

Business Profile: Based in Al-Khobar, Saudi Arabia, Abdulaziz Abdulhadi Al Judee & Sons Holding is a diversified company which was founded in 1979. The company operates in multiple sectors and industries including: fire prevention and rescue services, plant automation and support services, water treatment, environmental services and food services.

Abdulhadi A. Al Qahtani Sons Group Holding

Website: www.aqh.com.sa

Email: info@aqh.com.sa

Business Profile: The Al-Qahtani Group of Companies (AHQ) is a large conglomerate company in Saudi Arabia which serves the petrochemical, power generation, oil and gas, mining, real estate and F&B production and distribution industries in the Kingdom and other countries throughout the Middle East. Abdulhadi A. Al Qahtani Sons Group Holding also operates across the maritime and aviation industries, wherein 2013, the company established Saudi Arabia's third domestic airline, Saudi Gulf Airlines.

Abdulla Fouad Holding Co.

Website: www.abdulla-fouad.com

Email: info@abdulla-fouad.com

Business Profile: Abdulla Fouad Holding Co. (AFHCO) encompasses multiple divisions in the commercial, service, real estate, and construction sectors. AFHCO has several subsidiaries that operate in information and communications technology, medical supplies, industrial safety and security, petrochemicals, travel and tourism, and real estate. The company is headquartered in Dammam and has over 1,500 employees.

Abdulla I. Albaijan Trading Est.

Website: www.ab-albaijan.com.sa

Business Profile: Abdulla I. Albaijan Trading Est. (ABT), based in Dammam, is a supplier of industrial pipes, fittings, valves, ceramics, and has a complete range of sanitary and construction materials. ABT is the authorized distributor for many U.S. companies such as Conbraco-Apollo Ind. Inc., Bonney Forge Inc., Spears Mfr. Co., Dresser Piping Specialty, GSR, and Lasco Fittings.

Abdullah & Saeid M.O. Binzagr Co. Ltd.

Website: www.binzagr.com.sa

Email: bzho@binzagr.com.sa

Business Profile: Abdullah & Saeid M.O. Binzagr Co. Ltd. specializes in the distribution and logistics of a wide range of Consumer Products, spanning Food and Drink, Personal & Beauty Care, Home Care and Automotive Tires. The company's headquarters are in Jeddah, Saudi Arabia and the firm maintains offices across the Kingdom.

Abdullah A.M. Al-Khodari Sons Co.

Website: www.alkhodari.com

Email: info@alkhodari.com

Business Profile: Abdullah A.M. Al-Khodari Sons Co. (KSC) is a multifaceted general contracting company. KSC operates as a general contractor for a variety of industries, ranging from general civil construction, oil and gas, water and sewage, electrical works, open cast mining, transportation infrastructure, and heavy steel and metal fabrication, as well as being active in the operation and maintenance of various industrial plants and facilities.

Aggad Investment Company (AICO)

Website: www.aico.com.sa

Email: info@aico.com.sa

Business Profile: Aggad Investment Company (AICO) is a diversified Saudi investment-holding company which operates in manufacturing, contracting, healthcare, distribution, service, and consumer products. Some of AICO's subsidiary companies are Arabian Tile Co. Ltd., MediServ, National Advanced Systems Co. Ltd., Sanad Cooperative Insurance and Reinsurance, Gulf Motors Company, and United Motors Company.

Al Abdulkarim Holding Co.

Website: www.akh.com.sa

Email: info@akh.com.sa

Business Profile: Al Abdulkarim Holding Co. (AKHC) is a Saudi distributor of petrochemical, electrical, communication, instrumentation, automation and control, piping, and oilfield supplies and engineered systems. The company's headquarters are in Dammam, Saudi Arabia and has a network of 30 branches and distribution centers with major warehousing facilities throughout the Kingdom.

Al Dhahry Group of Companies

Website: www.al-dhahry-group.com

Email: hala@al-dhahry-group.com

Business Profile: Al Dhahry Group's General Contracting Branch specializes in the construction and maintenance of tunnels, tunnel lighting systems, major building construction, road preparation and construction, pavement installation and repair, installation of water and drainage pipes systems, excavation and backfill, solar energy systems, and electrical and lighting works. Al Dhahry Group also deals in commercial transactions and agencies, military and security installations, and supermarket and restaurant management.

The company has an active presence in the United States through its subsidiary Al Dhahry Brown. Based in Texas but also operating in Louisiana and Tennessee, Al Dhahry Brown leases and operates medium capacity refineries.

Al Foadia Group General Trading, Contracting & Industry

Website: www.alfoadia.com.sa

Business Profile: Al Foadia General Trading, Contracting & Industry is a multi-disciplinary group involved in the operation and maintenance of buildings, janitorial and allied services, renovation and refurbishment, carpentry, electrical and mechanical workshops, and general trading and textiles manufacturing. In addition, the company's General Construction Department designs, develops, installs, and commissions all types of civil, architectural, plumbing, and electro-mechanical systems in commercial and industrial buildings.

Al Kholi Group

Website: www.alkholi.com

Email: info@alkholi.com

Business Profile: Al Kholi Group's business activities are in facilities operation, maintenance and management, construction project management, rubberizing indoor and outdoor surfaces for courts and running tracks, general trading, information management and technology operations and management. The group consists of four companies: Saudi Building Technic Maintenance Co. Ltd. (SBTMC), United Projects Maintenance and Operation Co. Ltd. (UPMOC), Arabian Maintenance Operations Services Co. Ltd. (AMOS), and Hamza Al Kholi Trading Establishment (HAKTE).

Al Kifah Holding Company

Website: www.alkifah.com.sa

Business Profile: Al Kifah Holding Company was founded in 1980 in Hofuf, Saudi Arabia. Through its subsidiaries, the company operates various services and manufacturing businesses in Saudi Arabia and the GCC countries. Its divisions include construction solution, contracting, education and knowledge, and property development.

Al Misehal Company Ltd.

Website: www.almisehal.com

Email: info@almisehal.com

Business Profile: Al Misehal Company Ltd., founded in 1992, is a limited liability information technology company. The main activities of the company are precise positioning systems, vehicle tracking systems, communications and military systems, industrial security systems, navigation and survey, and marine and shipbuilding systems. The firm also designs, engineers, and implements civil construction work for telecommunications, and offers specialized solutions for niche requirements, such as environmentally-friendly towers and mast, and rapid deployment solutions.

Al Rushaid Investment Group

Website: www.al-rushaid.com

Email: corporate@al-rushaid.com

Business Profile: Al Rushaid Investment Company was founded in 1978 and is headquartered in Al-Khobar. The company is a trading and industrial conglomerate with activities including manufacturing and trading in oil and gas field equipment and services, switches, and

valves, as well as real estate, hotel, telecommunications, and construction. Al Rushaid Investment has several affiliated companies with multinational partners such as AMEC Foster Wheeler, Baker Hughes, Halliburton, Dresser Industries, Weatherford, Cleveland Bridge, and Intercontinental Hotels and Resorts.

Al Tahaluf Real Estate

Website: www.al-tahaluf.com

Email: info@al-tahaluf.com

Business Profile: Al Tahaluf Real Estate is an international home building firm in Saudi Arabia. The company develops livable communities within the Kingdom and does its own land planning, infrastructure, and product designs along with managing all aspects of development internally including the build out, marketing, selling and warranty of homes.

The company currently maintains a partnership with K. Hovnanian Homes, a U.S. based and NYSE publicly listed company.

Al Yamama Company

Website: www.yc.com.sa

Email: info@yc.com.sa

Business Profile: Al Yamama Company offers construction, operation and maintenance, facilities management, landscaping and irrigation, trading, and waste management and environmental protection services. Its services include construction and maintenance of roads, highways, railway tracks, and office towers. The company's clients include Shell, Chevron, National Water Company, Saudi Electricity Company, Ministry of Water and Electricity, Eastern Cement, High Commission for Development Arriyadh, Bechtel, and ExxonMobil.

Al Zaid Engineering Consultants

Email: info@zec.com.sa

Business Profile: Riyadh-based Al Zaid Engineering Consultants (ZEC) is a wholly-owned Saudi consultancy group with offices in both Saudi Arabia and the U.S. The company provides a wide range of services in the fields of water and irrigation, engineering, and energy, as well as planning and community development and project management. In addition, the company has completed demand forecasting and economic feasibility studies, as well as funding options and implementation strategies for sites, neighborhoods, cities, and regions, especially in Saudi Arabia and the Gulf countries.

Al-Afandi Trade, Industry & Contracting Est.

Website: www.afandimedical.com

Email: info@afandimedical.com

Business Profile: Al-Afandi Trade, Industry & Contracting Est. operates in large construction, cement production, electrical, mechanical, security, and electrical works with investments in several factories. The company engages in the marketing and international trade, environment, medical equipment, traffic control, agriculture, and solar energy sectors.

Al-Jawdah Industrial Group

Website: www.aljawdahgroup.com

Business Profile: Al-Jawdah Industrial Group (Al-Jawdah) is a subsidiary of Omran M Al Omran Corporation. Established in 1996, Al-Jawdah is primarily engaged in the manufacturing and marketing of ceramic decoration and floor tiles.

Al-Minwal Trading Est. for Investment

Business Profile: Headquartered in Jeddah, Saudi Arabia, Al-Minwal Trading Est. for Investment operates in education management (private college and international school); tourism; real estate; and mass media. Within the construction and hardware industry, Al-Minwal deals in the sale of air conditioners. Al-Minwal has also released a magazine titled Entrepreneur that focuses on small firms in Cairo.

Al-Mobty Contracting Co.

Website: www.almobty.com.sa

Email: info@almobty.com.sa

Business Profile: Al-Mobty Contracting Co. (Al-Mobty) was founded in 1970 and represents a group of companies operating globally and within the Kingdom. The company specializes in the construction and maintenance of roads, highways, bridges, dams, airports, railways, buildings, water and sewage networks, and electrical and mechanical works. The company's activities also include real estate, engineering and consulting services, and concrete production. Al-Mobty has a number of international partners, such as PSP Engineering, CMEC, Saif International Trading Group, Gate Elektronik Inc., ENVICON, MGE, Mecano Export & Import S.A., Speno International, and Voestalpine.

Al-Murjan Trading & Industrial Co. Ltd

Website: www.almurjan.com

Business Profile: Al-Murjan Trading & Industrial Co. Ltd. engages in trading, industry, franchising, mining, manufacturing, facial tissues, wipes, water treatment, sewage, medical equipment, real estate, computer software, furniture and home accessories, food, and hazardous waste treatment businesses. The company is based in Jeddah, Saudi Arabia.

Al-Qussie International

Website: www.alqussie.com.sa

Email: alqussie@alqussie.com.sa

Business Profile: Al-Qussie International (Al-Qussie) was founded in 1981. The company manufactures electrical, mechanical, and agricultural products and builds residential complexes, hospitals, commercial centers, gardens and playgrounds. Some of the company's maintenance contracts have been in the areas of landscaping, irrigation, green areas maintenance, pest control, auditorium maintenance, and maintenance and operation of large-scale agriculture projects.

Al-Rashid Trading & Contracting Company

Website: www.rtcc.com.sa

Business Profile: Al-Rashid Trading & Contracting Co. (RTCC) operates in civil and electro-mechanical works and establishing and managing shopping malls. The company is also involved in the manufacturing of masonry products such as concrete pre-stressed products, as well as real estate investment in Saudi Arabia and abroad. RTCC has two sister companies, Saudi Services for Electro-Mechanical Works Co. and Al-Rashid Abetong Co. Ltd.

Al-Sulaiman Group (Rolaco)

Website: www.rolaco.com.sa

Email: info@rolaco.com.sa

Business Profile: Al-Sulaiman Group (Rolaco) has several divisions and subsidiaries in the areas of civil construction, steel manufacturing and production, lighting and electrical installation, medical and hotel supplies, tourism, and animal feed. Major subsidiaries include Arabian Steel Manufacturing and Production, a service center which produces various types of flat steel; Muzun Tourism and Travel, a sales agent providing ticketing services, hotel reservations, and seminars; and Rolaco for Animal Feed Trading and Packing, which

supplies animal feed such as barley, soya, corn, and other seeds. The company is also in the trade of industrial equipment and services.

Aldrees Industrial & Trading Co. (ALITCO)

Website: www.alitcogroup.com

Email: info@alitcogroup.com

Business Profile: Aldrees Industrial & Trading Co. (ALITCO) is a diversified company with activities in trade and contracting for construction equipment, spare parts, and oil and petrochemical equipment, as well as inland transportation services, gas stations, engineering, and automotive workshops. Founded in 1938, the company also manufactures glass and hollow metal doors, deals in scrap metal, and is involved in farming and agriculture.

Ali Zaid Al-Quraishi & Brothers Co. Ltd.

Website: www.alquraishi.com

Email: info@alquraishi.com

Business Profile: Ali Zaid Al Quraishi & Brothers Company Ltd. markets and distributes leisure goods, household products, timepieces, office furniture, telecommunication equipment, electronics, electrical equipment, and motor vehicles. It also provides after sales services, cash, leasing, and installments for used cars and trade-in operations. Ali Zaid Al Quraishi & Brothers Company Ltd. was founded in 1958 and is based in Dammam, Saudi Arabia with additional offices worldwide.

Aljomaih Holding Company

Business Profile: Aljomaih Holding Company operates in the import and distribution of agricultural equipment, automobiles, spare parts, tires, lubricating oil, earth moving equipment, construction equipment, and bottling of soft drinks. The company was founded in 1956 and has branches in all major cities in the Kingdom.

Alkafi Holding Co. Ltd.

Website: www.alkifah.com.sa

Business Profile: Based in Jeddah, Saudi Arabia, Alkafi Holding Co. Ltd. is a diversified group which operates in education, technology, telecommunications, general auditing, real-estate and pharmaceuticals.

Almojel Trading & Contracting Co.

Website: www.almojelgroup.com

Email: corporate@almojelco.com

Business Profile: Almojel Trading & Contracting Co. operates in the wholesale and distribution of steel products in the Kingdom and is the authorized dealer of Saudi Iron & Steel Co. (HADEED), an affiliated company of Saudi Basic Industries Corporation (SABIC), and Qatar Steel Co. Ltd. (QASCO). Almojel Trading & Contracting Co. also trades in cement, water insulating products, and other miscellaneous products such as plastic sheets, burlap cloth, and G.I. wires, which are used in making fences. Almojel Trading & Contracting Co. is a subsidiary of Al-Mojel Group of Companies.

Alujain Corporation

Website: www.alujaincorp.com

Business Profile: Alujain Corporation, through its subsidiary, National Petrochemical Industrial Company, manufactures and sells propylene and its derivatives in the Kingdom of Saudi Arabia and internationally. The company was founded in 1991 and is headquartered in Jeddah, Saudi Arabia.

Atheeb Holding Company

Website: www.atheeb.com

Business Profile: Atheeb Trading Co. Ltd. (Atheeb) is a major diversified company that operates across the Middle East region. With international offices in Washington, D.C., and London, the company's activities span a variety of fields, including shipping, stevedoring, information technology, operations and maintenance, medical services, construction, and investment banking.

Audah Al Ahmadi Trading Est. (ATE)

Website: www.al-ahmadi.com.sa

Business Profile: Audah Al Ahmadi Trading Est. (ATE) specializes in material supply and service related to oil, gas, petrochemicals, and other industries. The company offers engineering services for civil works including buildings, infrastructure, roads, and bridges. ATE's subsidiaries provide products such as valves, centrifugal pumps, filtration and water systems, and industrial training. It has a large offering of construction vehicles and tools. ATE provides its goods and services to a wide variety of international and local firms.

Bassam Trading Company

Website: www.bassamtrading.com

Business Profile: Bassam Trading company operates in the sale of heavy construction equipment and supplies. Other areas of activities are supplies to the oil and gas, utilities, and petrochemicals industries; heavy engineering fabrication; engineering services; healthcare and hospital management services; projects and joint ventures; kitchen and laundry equipment; and real estate development and investments. The company was established in 1955.

Dallah Albaraka Holding Co.

Website: www.dallah.com

Email: prd@dallah.com

Business Profile: Dallah Albaraka Holding Company (DBHC) is a multinational private corporation based in Jeddah, Saudi Arabia. DBHC has a broad-based investment portfolio with holdings throughout the Middle East, North Africa, North America, Far East and Europe. It invests across many industries including financial and banking services, health care, manufacturing, real estate, transportation and operations and maintenance.

Dar Al-Khubara Contracting Est. & Branches

Website: www.dar-alkhubara.com

Email: dar_alkhubara@yahoo.com

Business Profile: Dar Al-Khubara Contracting Est. & Branches (Dar Al-Khubara) is engaged in a variety of activities, including industry, trade, real estate, healthcare, wood working, telecommunications, security, technical maintenance, education, and the promotion of international trade. Associated businesses are separated into seven strategic business units for each of Dar Al-Khubara's activities.

Delmon Co. Ltd.

Website: www.delmon.com.sa

Email: info@delmon.com.sa

Business Profile: Delmon Co. Ltd. is a manufacturing, engineering, trading, and marketing conglomerate that is a part of the Al Ghunaim Brothers Group. Founded in 1981, the company is based in the major port city of Dammam. Delmon has six divisions that operate in the transportation, silica, petrochemicals, media, masterbatch, and industrial minerals industries. Some of Delmon's notable clients are Saudi Aramco, Saudi Basic Industries Corporation, Halliburton, Dowell Schlumberger, Amiantit Fiberglass Ind., and Baroid S.A. Ltd.

DNJ Corp. for Information Technologies

Website: www.dnj.com.sa

Email: alrobaish@dnj.com.sa

Business Profile: DNJ Corp. for Information Technologies was established in 2009 and is a subsidiary of DNJ Holding Group. The company builds and serves the datacenters engaged in site construction, power grid & management, power & UPS systems, backup generators, precession cooling, datacenter site security, environment monitoring and fire alarm & protection. DNJ is also involved in structured cabling encompassing data & fiber cabling, cabinet & racks, patching services and cable containments.

E.A. Juffali & Brothers

Website: www.juffali.com

Email: juffali@ejb.com.sa

Business Profile: E.A. Juffali & Brothers (Juffali) operates in passenger cars, commercial vehicles, trucks, and accessories; household appliances and equipment, including all types of air-conditioning equipment; chemicals and petrochemicals industries; and information technology. Several multinational corporations such as IBM, Siemens, Ericsson, Massey-Ferguson, Kelvinator, Carrier, and The Dow Chemical Company are business partners of Juffali.

El Seif Group

Website: www.el-seif.com.sa

Business Profile: The El Seif Group is a Saudi conglomerate that is involved in power plant construction and construction machinery. El Seif was founded in 1951 and represents major U.S. corporations in Saudi Arabia such as GE Medical Systems, Becton Dickinson, Space Lab, and Beckman. Other major activities include hospital management, medical equipment, pharmaceuticals, security and defense systems, commercial representation, and investment.

Enany Group of Companies (FAMCO)

Website: www.enanygroup.com

Email: hme@enanygroup.com

Business Profile: The Enany Group of Companies' (FAMCO) business portfolio includes real estate ownership and development, commercial activities, multi-discipline construction, planning, trading, project financing, investments, and facility maintenance. FAMCO's activities are primarily in the fields of

construction, industry, maintenance, and operations, but also include general trading, imports and exports, hospitality, commercial and industrial complexes, real estate, and software.

Globe Group

Website: www.globeksa.com
Email: info@globeksa.com

Business Profile: Globe Marine Services Co. (Globe) was founded in 1976. The company operates in land transportation, shipping, maintenance and operation of seaports and other strategic installations, travel, catering, trade, automotives, retail, petrochemicals, real estate and logistic services.

Hadeem Contracting Co. Ltd.

Website: www.hadeem.com
Email: info@hadeem.com

Business Profile: Based in Riyadh, Saudi Arabia, Hadeem Contracting Co. operates in the field of contracting. The company was established in 1993 and carries out housing, commercial and administrative projects. Past work includes the design and construction of health centers for the Ministry of Health and educational institutions for the Ministry of Health.

Hajjan Trading & Industrial Services Co. Ltd.

Website: www.hatcon.com
Email: info@hatcon.com

Business Profile: Hajjan Trading Establishment (HATCON) is a distributor of equipment and materials for the oil, gas, and petrochemicals industries; power and desalination plants; and offshore and marine sectors. The Al-Khobar based company also specializes in the distribution of products related to surface coatings and linings, sandblasting and painting, and blasting abrasives.

Hoshan Company Limited

Website: www.hoshangroup.com

Business Profile: Hoshan Company Limited operates as a distributor of office equipment, integrated communication systems, furniture, and other accessories. The company was founded in 1964 and is based in Riyadh, Saudi Arabia.

KFB Group of Companies

Website: www.kfbgroup.com.sa
Email: santhosh.kumar@kfbgroup.com.sa

Business Profile: KFB Group of Companies (KFB) is a Saudi firm engaged in manufacturing, trading, contracting, and operation and maintenance. KFB has several sister companies involved in these activities, such as the Middle East Electric Meter Factory (MEMF), Environment Protection Systems and Equipment Co. (ENVIQUIP), Radya International, Power Telecom and Technologies (PTT), KFB Trading Establishment (E-Mart), KFB Contracting, and Saudi-DOL Electric Company (S-DEC).

Khalid Ali Alturki & Sons Co.

Website: www.alturkiholding.com
Email: info@alturkiholding.com

Business Profile: Khalid Ali Alturki & Sons Co. (Alturki Group) operates in the construction and oil and gas sectors and provides information and communication technologies and environmental services. The firm has over 20 subsidiaries and joint venture companies that are involved in contracting, trading, manufacturing, consulting, and investment in the country's construction, energy, petrochemicals, water, power, telecommunications, environment, and real estate sectors.

Kingdom Holding Co.

Website: www.kingdom.com.sa
Email: media&info@kingdom.com.sa

Business Profile: Kingdom Holdings Company is a private equity firm specializing in banking investments and financial services, real estate, luxury hotels and hotel management, hospitality, petrochemicals, energy, manufacturing, and industrial sectors. The firm seeks to invest primarily in Saudi Arabia and developing markets within the Middle East and Africa but also invests internationally. Kingdom Holdings Company was founded in 1980 and is based in Riyadh, Saudi Arabia.

M. & A. Albawardi Group of Companies

Website: www.albawardi.com
Email: info@albawardi.com

Business Profile: M. & A. Albawardi Group of Companies' (Albawardi) main activities are trading, industry, services, real estate, and investment. Albawardi has over 15 affiliated companies active in these sectors throughout the Gulf region. Albawardi trades in building materials, tools, and hardware and implements sales and marketing programs on behalf of principals at the growing number of hypermarkets in Saudi Arabia and Bahrain. Other areas of activity include steel, metal alloying, woodworking, marine survey, recycling, and transportation and logistics.

Midad Holding Co. Ltd.

Website: www.midadholdings.com

Email: info@midadholdings.com

Business Profile: Midad Holdings Company, through its subsidiaries, offers oil and gas services and supplies chemicals. It also provides electromechanical construction and maintenance services, designs and manufactures combustion solutions, and produces and supplies industrial gases. The company was founded in 2007 and is based in Alkhobar, Saudi Arabia. Midad Holdings Company operates as a subsidiary of Al Fozan Holding Company.

Mohamed A. Alhamrani & Co. Intertrade (Ltd.)

Website: www.intertrade.com.sa

Business Profile: Mohamed A. Alhamrani & Co. Intertrade (Ltd.) operates in a number of different sectors, including automotive, building materials, information technology, industrial packaging, real estate, and finance. The company has forged global partnerships with international companies, such as Diebold, Nissan, and Infiniti. The company is based in Jeddah, Saudi Arabia.

Nesma Holding Co. Ltd.

Website: www.nesma.com

Business Profile: Nesma Holding Co. Ltd. is a holding company, which through its subsidiaries focuses on telecommunications, power and electrical, oil and gas, engineering and construction, real estate and property management, and hospitality and tourism sectors. The company also focuses on support services and supplies, logistics and marine, information and communication technology, and consumer products and retail sectors. Its subsidiaries include Nesma & Partners Contracting Ltd., Al Faris Food Industries Ltd., Nesma Trading, Nesma Medical Supplies Co., Namma Suna Shipping Co. Ltd., and Nesma Electric. Nesma Holding Co. Ltd. was founded in 1979 and is based in Jeddah, Saudi Arabia.

Omar K. Al-Esayi Co. Ltd.

Website: www.alesayi.com

Email: info@alesayi.com

Business Profile: Omar K. Al-Esayi & Co. operates in investment, real estate development, trading, engineering and technology, services, and manufacturing. Some of these activities include plastic and carton production, food products and packaging manufacturing, heavy and agricultural equipment, motor technical inspection systems, travel services, textiles, marketing, and traffic control systems.

OZCO

Website: www.ozco.com

Business Profile: The Jeddah-based Ahmed Zainy & Sons Company Ltd. was established in 1956. The company is engaged in electrical, air conditioning, and electro-mechanical products. It is a diversified trading and manufacturing group whose activities include trade in foods, marine transportation, petroleum products, agriculture, cold storage facilities, shipping, catering and meat processing, and aviation services.

Palace Consulting Engineers

Website: www.palaceconsult.com

Email: info@palaceconsult.com

Business Profile: Palace Engineering Consultants offers construction and engineering consulting services. The Riyadh-based company was established in 1983 and provides architectural consulting, interior design, feasibility studies, tender evaluation, site supervision, and project management services.

Rashed A. Al Rashed & Sons Group

Website: www.alrashed.com

Email: corporate@alrashed.com

Business Profile: Rashed Al Rashed & Sons Co., through its subsidiaries, operates in building materials, cement and bulk materials, finishing materials, contracting, industrial products, automotive products, food products, and real estate sectors. The firm invests in and develops real estate properties. The company sells, markets, imports, exports, and distributes durable materials that includes steel, timber, mesh, wood products, and construction items.

Rawabi Trading & Contracting Co. Ltd.

Website: www.rawabiholding.com

Email: info@rawabiholding.com

Business Profile: Rawabi Trading & Contracting Company Co. Ltd. was founded in 1979. The Company's line of business includes the wholesale distribution of construction or mining cranes, excavating machinery and equipment. The company is based in Al-Khobar and is a subsidiary of Rawabi Holding.

Rezayat Group of Companies

Website: www.rezayat.com

Business Profile: Rezayat Group is a group of companies which are headquartered in Al-Khobar, Saudi Arabia. Originally called Ali Reza Group, the Rezayat Group is active in the industries of oil & gas, water, power generation, engineering and transportation with over 16,000 employees and operations in 13 countries.

Riyadh Cables Group of Companies

Website: www.riyadh-cables.com

Email: albaha-branch@riyadh-cables.com

Business Profile: Riyadh Cables Group of Companies manufactures and exports power and telecommunication cables. The firm's products include energy wires, cables, and cords; copper rods and PVC granules; telephone cables; and optical fiber cables. The company also offers HV accessories and onsite HV testing services. Riyadh Cables Group of Companies was founded in 1984 and is based in Riyadh, Saudi Arabia.

Roots Group Arabia Co. Ltd.

Website: www.arabian-roots.com

Email: info@arabian-roots.com

Business Profile: Roots Group Arabia Co. Ltd., through its subsidiaries, engages in building materials distribution, manufacturing building products, and design and construction services businesses worldwide. The company engages in the retail and wholesale of building materials, industrial supplies, and power tools; manufactures metal and wood finishes, sanitary ware, and power generation solutions; and specializes in designing, engineering, procuring, and executing the interiors of airports, resorts and hotels, hospitals, civic centers, and commercial and residential projects.

Saudi Arabian Mining Company (Ma'aden)

Website: www.maaden.com.sa

Business Profile: Saudi Arabian Mining Company (Ma'aden), together with its subsidiaries, operates in the exploration and mining of mineral properties in the Kingdom. It operates through Phosphate, Aluminum, and Gold and Base Metals segments. The company primarily mines for gold, phosphate rock, bauxite, low-grade bauxite, kaolin, and magnesite, as well as copper, lead, zinc, and nickel. The company also produces aluminum and related products as well as concentrated caustic soda, ethylene dichloride, and chlorine.

Saudi Binladin Group

Website: www.sbg.com.sa

Email: info@sbg.com.sa

Business Profile: Saudi Binladin Group is a multinational construction conglomerate and is headquartered in Jeddah, Saudi Arabia. The company operates in infrastructure works, architecture and building construction, public buildings and airports, industrial and power projects, petroleum and mining, real estate, and operation and maintenance businesses. The company develops and constructs roads, bridges, regional and international airports, mosques, hospitals, and power generation facilities. The company also develops and manages real estate, such as commercial buildings, offices, hotels, apartments, and restaurants.

Saudi Brothers Commercial Company

Website: www.saudibrothers.com

Email: info@saudibrothers.com

Business Profile: Saudi Brothers' Commercial Company Ltd. operates as an industrial conglomerate, and through its subsidiaries, the firm operates in hospitality, real estate, tourism, agriculture, food, medical, and marine sectors. The company was founded in 1970 and is based in Jeddah, Saudi Arabia.

Saudi Ceramics Company

Website: www.saudiceramics.com

Email: info@saudiceramics.com

Business Profile: Saudi Ceramics Company provides quality building solutions that include various types of ceramic products (ceramic tiles, porcelain tiles, sanitary wares and accessories), electric water heaters, bathroom fittings, including baths, shower trays, mirrors and mixers. Other products include plastics and red bricks. Saudi Ceramics Company is the largest manufacturer of its kind in Saudi Arabia and a well-recognized brand. Through its main subsidiaries, the company manufactures ceramic pipes and fittings.

Saudi Consulting Services

Website: www.saudiconsult.com

Email: sc@saudiconsult.com

Business Profile: Saudi Consulting Services provides engineering consultancy and architectural services for customers in Saudi Arabia, Lebanon, Yemen, Sudan, Sierra Leone, Mali, Djibouti, Azerbaijan, and others internationally. Saudi Consulting Services was founded

in 1965 and is headquartered in Riyadh, Saudi Arabia, with regional offices in Riyadh, Al Khobar, and Jeddah, Saudi Arabia. The firm offers architecture and building engineering services, such as construction, construction supervision, tender evaluation, feasibility studies, structural, electrical, and plumbing services, as well as heating, ventilation, and air conditioning systems design. The firm's business activities operate in commercial, residential, educational, healthcare, and public buildings.

Saudi Diyar Consultants

Website: info@diyar.com

Email: info@diyar.com

Business Profile: Saudi Diyar Consultants provides architectural and engineering consulting services. The firm's portfolio includes commercial, institutional, residential, hospitality, health care, as well as urban design projects. Saudi Diyar Consultants was founded in 1985. Its head office is located in Jeddah, Saudi Arabia with other branches located in Cairo, Beirut, Riyadh, Makkah, Madinah and Al-Khobar. Diyar Consultants works with internationally renowned consulting firms to provide clients with the most up-to-date technology and methods.

Saudi Electricity Company (SEC)

Website: www.se.com.sa

Email: mtsmrdv@se.com.sa

Business Profile: Saudi Electricity Company was founded in 2000 and is headquartered in Riyadh, the Kingdom of Saudi Arabia. Saudi Electricity Company provides electric power generation, transmission, and distribution. The company serves governmental, industrial, agricultural, commercial, and residential customers. Through its main subsidiaries, it provides telecommunications infrastructure development and project management services, issues sukuk bonds, and distributes water. SEC generates electricity through steam, gas, and combined cycle units, as well as solar energy. The company has a total power generation capacity of approximately 74.3 gigawatts. The company also leases, manages, and operates electricity and fiber optic networks to provide telecommunication services.

Saudi Steel Pipe Company Ltd.

Website: www.sspipe.com

Email: info@sspipe.com

Business Profile: Saudi Steel Pipe Company was founded in 1980 and is considered a leader among Saudi companies in the field of welded steel pipes industry. The company was the first manufacturer for steel pipes in the

Kingdom and the largest producer of welded steel pipes manufactured by high-frequency induction welding. The firm's pipes meet the needs of the oil and gas, water, and construction sectors in the region and across other markets. The current yearly production capacity of the company is 240,000 metric tons of steel pipes, that are produced by four production lines, with sizes ranging from (1/2 - 20) inches. The company owns a factory for hot induction that bends pipes produced in various diameters ranging from (2-48) inch to a thickness up to 50 mm.

Seder Group

Website: www.sedergroup.com

Email: info@sedergroup.com

Business Profile: Seder Group offers facility management, environmental, construction, telecommunication, biomedical, and technical building solutions. The company provides operation and maintenance, water supply, urban cleaning, waste-flow management, travel and tourism, and direct mail services. It caters to the government and private sectors. Seder Group was founded in 1981 and is based in Riyadh, Saudi Arabia. Today, Seder employs more than 22,000 personnel ranging from highly trained managers, engineers, technicians, and laborers in all areas of expertise. Activities range from serving the basic infrastructural needs of the country to advancing Telecom and Electro-Mechanic technologies and services.

Sherbiny Holdings

Website: www.sherbiny.com

Email: contact@sherbiny.com

Business Profile: Sherbiny's business units span industrial services, system integration, for commerce, and environmental solutions. Sherbiny Industrial Services offers a wide range of after-sales service solutions for industry aiming to support clients right from the earliest stages of planning, engineering, all the way to the desired results. The firm's services are applied across multiple sectors such as mining, renewable energy, power, water, railway, oil and gas. The firm was founded in 1986 and is headquartered in Yanbu.

Suhayl Bin Abdul Mohsin Al Shoaibi & Sons Holding Co. Ltd. (Shoaibi Group)

Website: www.shoaibigroup.com

Email: enquiries@shoaibigroup.com

Business Profile: Shoaibi Group manufactures oil products. The Company, through affiliate companies, invests, manufactures, and distributes oil, gas, and petrochemical products. Shoaibi Group operates in the

Middle East and North Africa. Established more than 30 years ago, the Shoaibi Group has an established reputation for engineering excellence and reliability in the oil, gas, power, IT and telecommunications sectors where it draws on local and international resources to benefit both its partners and customers.

Sujan Trading Est.

Email: alhamdanaah@yahoo.com

Business Profile: Sujan Trading Est. is involved in stock market investments, such as shares and bonds, and real estate. The company is additionally engaged with trading bedroom and bathroom accessories and decorative items.

Tamimi Group of Companies

Website: www.tamimiholding.com

Email: info@al-tamimi.com

Business Profile: Al Tamimi Group is a construction company, providing engineering and construction services with a focus on non-residential building construction. Tamimi Company constitutes one of the largest private organizations in Saudi Arabia, operating across diverse fields such as general construction, pipelining, import and export trading, computer hardware and software, transportation and marketing. The firm has decided to invest in the most up-to-date trenchless technique and microtunneling and has carried out projects in the most difficult soil conditions in short time periods. Tamimi Real Estate & Construction Division is a pioneering community developer, with over 60 years of experience in the local markets, offering integrated and holistic services in real estate, retail, hospitality, infrastructure, residential and commercial landscape with mixed-use master developments and destinations catering to diverse lifestyles.

The National Shipping Company of Saudi Arabia (Bahri)

Website: www.bahri.sa

Email: info@bahri.sa

Business Profile: The National Shipping Company of Saudi Arabia, together with its subsidiaries, engages in the purchase, sale, and operation of vessels for the transportation of cargo and passengers. The company also carries out other marine transportation activities within the Kingdom. The company operates in the Oil Transportation, Petrochemical Transportation, General Cargo Transportation, and Dry Bulk Transportation segments. It transports crude oil, chemical products, general cargo, and dry bulk cargo. The company offers ship management

services and provides other services comprising technical management, commercial management, sale and purchase, technical and marine consultancy, and insurance and claim handling services. The company was founded in 1978 and is headquartered in Riyadh.

The Olayan Group

Website: www.olayangroup.com

Email: osico@olayangroup.com

Business Profile: The Olayan Group, through its subsidiaries, provides product distribution, manufacturing, and services. Founded in 1947, the company is based in Riyadh, Saudi Arabia with additional offices in Saudi Arabia, Europe, and the United States. The Olayan Group operates as a subsidiary of Olayan Investments Company Establishment. The company engages in the distribution of finishing materials, building additives, and chemicals for the construction industry. Other activities include extrusion and fabrication of aluminum architectural products in Saudi Arabia as well as the engineering, procurement, construction, and operation of facilities for government, civil, industrial, and energy clients. The company also manufactures reinforcing steel for the Saudi Arabian construction market and provides products including cementing tools, stainless steel and alloy tubulars, graphite bushings, steel and alloy fittings.

Trading & Development Partnership Co.

Website: www.tdpco.com

Email: tdp@tdpco.com

Business Profile: Trading & Development Partnership, TDP, Geosynthetics Division was established in 1980, and started its activities in Geosynthetics application using PVC Membranes of Inter plastic, Italy & Geotextiles of Polyfelt GmbH, Austria. This division aims to provide specialist environmental solutions to industry, Public Sector Institutions & Private Aquaculture & Agriculture Industries. TDP construction team in the past 33 years has successfully installed Geosynthetics for giant customers including Saudi Aramco, SABIC, Ma'aden, and the Royal Commission for Jubail & Yanbu under consultants such as Bechtel and Parsons.

Xenel Group

Website: www.xenel.com

Email: communications@xenel.com

Business Profile: Xenel Industries Limited was founded in 1973 and is based in Jeddah, Saudi Arabia. The firm has expertise in energy, petrochemicals, construction, infrastructure development, healthcare, industrial

services, IT, logistics, real estate and global investing. Xenel Industries Limited is a holding company operating through its subsidiaries Saudi Cable Company, Hidada, Alujain Corporation, Safra, Al-Karam Al-Arabi, and Xentury City Development Company. The company's subsidiaries offerings include conductor, cable products, and hydrocarbon solvents manufacturing, steel fabrication, property management, office building, industrial plants, schools construction, and information technology consulting.

Yusuf Bin Ahmed Kanoo Company Ltd.

Website: www.kanoosa.com
Email: info@kanoosa.com

Business Profile: Yusuf Bin Ahmed Kanoo Company Ltd. operates as an industrial conglomerate in the areas of shipping, travel, machinery, security, and power sectors. The company was founded in 1954 and is based in Riyadh, Saudi Arabia. Yusuf Bin Ahmed Kanoo Company Ltd. operates as a subsidiary of Yusuf Bin Ahmed Kanoo W.L.L.

Zahid Group Holding, LLC

Website: www.zahid.com
Email: info@zahid.com

Business Profile: Zahid Group Holding, LLC operates as an industrial conglomerate. The company engages in car rental, real estate, power generation, lubricant oils, water desalination, finance, and building materials business. It is also operates in the insurance, education, infrastructure development, and logistics sectors. The company is based in Jeddah, Saudi Arabia. The company operates as a subsidiary of Zahid Group.

Zamil Group Holding

Website: www.zamil.com
Email: info@zamil.com

Business Profile: Zamil Group Holding Company was founded in 1930 and is headquartered in Al Khobar, Saudi Arabia. Zamil Group Holding Company, through its subsidiaries, engages in air-conditioning manufacturing, plastics, steel fabrication, paints, cranes, and heavy process equipment businesses. The company also engages in shipbuilding and repair, port operations and maintenance, petrochemicals and chemicals, banking and industrial investment, general construction, food processing, travel services, fencing systems, and packaging businesses. In addition, it offers construction and building materials, such as steel buildings, structural steel products, process equipment, towers

and galvanizing products, and concrete and insulation products, as well as HVAC, manufacturing, services, and maintenance. The company's clients include Saudi Ministries and government agencies, commissions, hospitals, petrochemical industries, among others.

Zuhair Fayez Partnership

Website: www.zfp.com
Email: zfpr@zfp.com

Business Profile: Zuhair Fayez Partnership is an architectural, engineering, project management, construction management and engineering information system consultancy established in 1975. Other areas of professional services expertise include roads, bridges, tunnels, aviation, maritime, and railways. Zuhair Fayez Partnership has firmly established itself as a pioneer in the use of Building Information Modeling (BIM) Technology throughout the design process, sustainability study, construction management (through 4D & 5D simulation), and facilities management.

Data Sources

BMI Research

The online research platform provides country-specific macroeconomic and financial market data.

General Authority of Statistics (GaStat)

In 2016, the Council of Ministers approved the General Authority of Statistics to oversee technical supervision and organization of the Saudi Statistics and Information Sector. GaStat has created and manages a system of national statistical databases through development of the central information center and aims to develop and maintain statistical information in an accurate and unified system.

IMF

The IMF publishes a range of time series data on IMF lending, exchange rates and other economic and financial indicators. It also publishes manuals, guides, and other material on statistical practices at the IMF and member countries.

MEED

MEED provides coverage of business news, data and analysis, tenders and contract awards. MEED Projects provides in-depth project tracking for the Middle East and North Africa.

Regional Economic Models, Inc. (REMI)

REMI models have been used globally for a wide range of topic areas including economic development, the environment, energy, transportation, taxation, forecasting, and planning. The model incorporates input-output (IO) tabulation, computable general equilibrium, econometrics, and new economic geography. The REMI model generates forecast data for each the U.S. and Saudi Arabia across a variety of country-specific industry sectors.

World Bank

The World Bank provides open access to global development data through a collection of indicators, compiled from officially recognized international sources. The database compiles the most current and accurate global development data available, and includes national, regional and global estimates.



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