



# 2016 US Investment Monitor

Tracking mobile capital  
investments during 2015



Capital investment drives economic growth, and business investment in new plants and equipment continue to shape the US economy. This report tracks corporate investment in such facilities that have a location choice. The more than 5,400 business investment announcements in 2015 that are analyzed in the *2016 US Investment Monitor (USIM)* accounted for more than \$166b of capital investment in business facilities and more than 402,000 new and retained jobs in the United States.

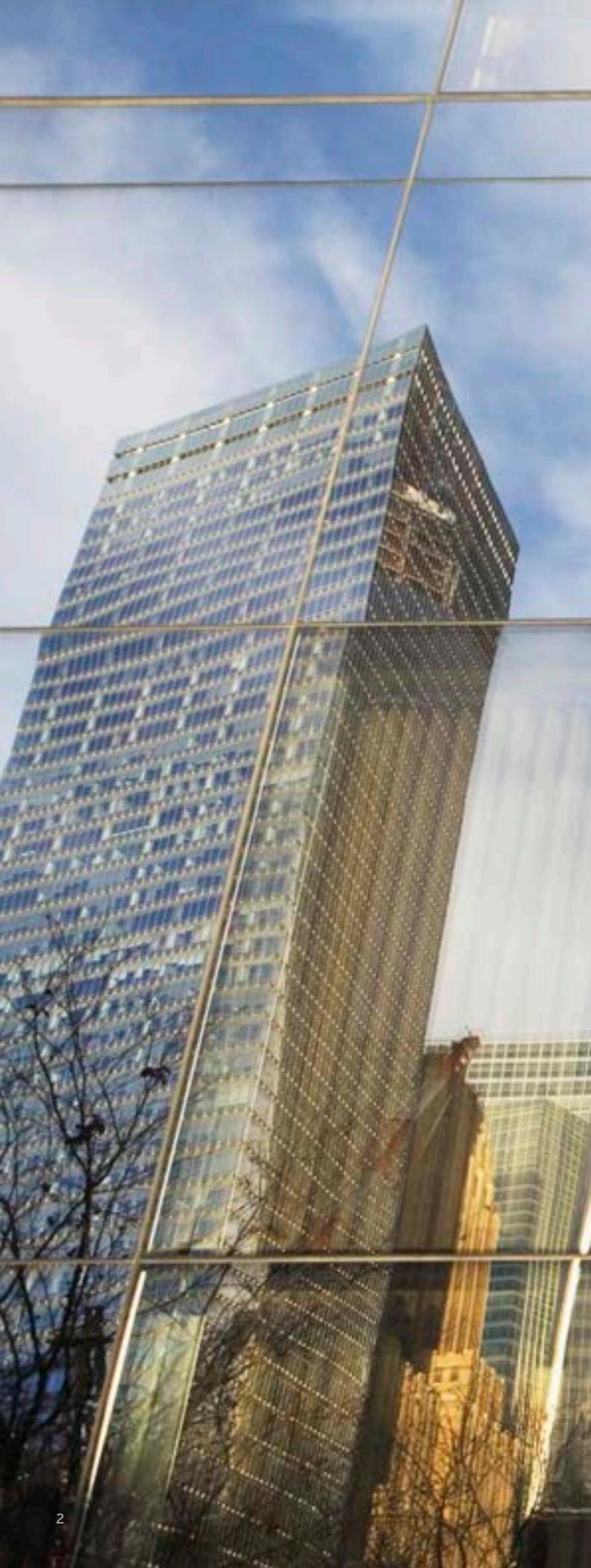


## *2016 US Investment Monitor*

States along the Gulf Coast continue to attract the greatest amounts of mobile capital investment among project types tracked in the *USIM* – for the fifth year in a row, Texas and Louisiana received more than 30% of all announced investment. In fact, these states claimed nearly half of all investment announced in 2015. As seen in prior years, the top job-creating projects were announced in a varied group of states, led by Texas, Tennessee, Ohio, California and Florida. The Southeast region of the United States continues its trend in attracting the top job-creating mobile projects across a wide range of industries, from financial and professional services to chemical manufacturing.

The *USIM* focuses on companies' mobile capital investments, which are not tied to specific markets or geographies. Mobile capital investments include headquarters facilities, data and call centers, manufacturing facilities, distribution centers, and research facilities, which have a wide range of location options. Companies investing in these types of facilities are therefore free to pursue locations with high supply chain potential, low input costs, strong business incentives, growing industry clusters and

advantageous state and local tax systems. Because companies significantly research and analyze the relative merits of different locations before deciding where to invest, these mobile capital investments serve as indicators of a region's or state's long-term economic growth potential and competitiveness. The companies' investment decisions also help inform other investors of investment opportunities and shape the decisions of state policymakers when formulating their economic development strategies.



## Stories from the 2016 US Investment Monitor

Data from the more than 5,400 project announcements that were analyzed in the 2016 USIM point to longer-term trends shaping economic development both regionally and across industries. The USIM is a leading indicator showing where new investment spending and jobs can be expected to occur over the next several years. Three stories highlighting the resilience of the US economy's rise to the top in this year's USIM:

- 1. The resurgence of automotive manufacturing.** Few industries have been as beset by challenges over the past two decades as the automotive manufacturing industry. A combination of rising foreign competition, lapses in quality and innovation, and shortsighted strategic planning led the industry to the brink of collapse amid the financial crisis in 2008. Since then, timely government intervention, a renewed focus on reliability and improved location decisions have put the industry back on a growth path. This comeback is reflected in economy-wide employment data, as well as in 2015 project announcements that will lead to new job creation through the end of the decade. Mobile capital investment decisions have led to the rise of new centers of automotive manufacturing outside the traditional stronghold of the Upper Midwest.
- 2. The manufacturing renaissance in New York's "Tech Valley."** Rural areas of the Northeast have been battered in recent decades by the decline in US manufacturing activity and the migration of Americans to warmer climates with greater economic growth. New York took concrete steps to battle this exodus in the form of its self-proclaimed "Tech Valley" in the upstate region. New York has increasingly offered incentives to attract tech companies to the state with the promise of a highly educated workforce and state support for investment. Both historical data and 2015 project announcements illustrate the success of this effort.
- 3. The continued attractiveness of the US economy for foreign investment.** While the US economy continues to produce moderate economic growth, the rest of the world has been saddled with challenges – failed attempts to stimulate the Japanese economy, asset bubbles and a halting transition to consumerism in China, austerity and uncertainty in Europe, and a sharp decline in commodity prices affecting economies the world over. Even as US project announcements by foreign investors have slowed over the past two years, the United States remains one of the top destinations for investment. Factors including relatively low regulation, a large middle class, a culture of innovation and some of the world's best educational institutions have helped maintain the United States' economic edge.

# Understanding the *USIM*

## **Project analysis criteria**

The *USIM* departs from typical analyses of aggregate business investment trends by analyzing specific projects that meet industry and announcement criteria for mobile capital investment.

The following criteria are used to identify *USIM* projects:

## **Project types**

Investments in most production and service facilities are included in the *USIM* database. Companies are categorized using the North American Industry Classification System (NAICS), but the project type is determined by the primary business activity occurring within a facility. In many cases, the company industry and project type are the same (e.g., a manufacturing facility expansion by a manufacturer), but in some cases the project type and industry are different (e.g., a headquarters or call center investment by a manufacturer). The analysis specifically excludes retail, entertainment, hospital, retirement home, museum, education, restaurant, hotel, airport and public infrastructure projects because these facilities are not considered to be highly mobile. However, headquarters, general management, back-office, call center, research, manufacturing and distribution facilities for all industries are included because these facilities are generally mobile with a location choice.

## **Announcement or construction date**

Projects by large firms involving significant capital investment or job creation are often announced when a site is officially chosen. Other project types (including expansion projects, machinery and equipment upgrades, and smaller projects) may not be publicized until they occur and are captured in the *USIM* database during that year. This 2016 *USIM* report includes projects that were announced in 2015 or began construction in 2015 without an announcement. Announced projects may have been, or may be, delayed or canceled.

## **Data sources**

Statistics on new projects were obtained from Conway Data's New Plant database, corporate press releases and independent research by Ernst & Young LLP.





## Top 20 capital investment announcements

Every year, a large share of the total capital investment of monitored mobile projects is accounted for by the top 20 capital investment announcements. Table 1 summarizes these projects, which totaled nearly \$70b and accounted for 42% of capital investment announced in this year's *USIM*.

The largest capital investment announcement in 2015 was, for the fifth straight year, a natural gas liquefaction facility. In fact, all of the top six project announcements in 2015 related to chemical manufacturing and liquefied natural gas (LNG). US natural gas resources are often converted to petrochemicals like ethylene for use in the manufacturing of plastics, textiles, gasoline additives and other chemical products.

Another prominent industry among the top 20 investment announcements in 2015 was automobile manufacturing, with 6 projects totaling \$8.6b. Large semiconductor, metal and aircraft manufacturing investments were also announced in 2015.

## Natural gas-related investments lead the pack

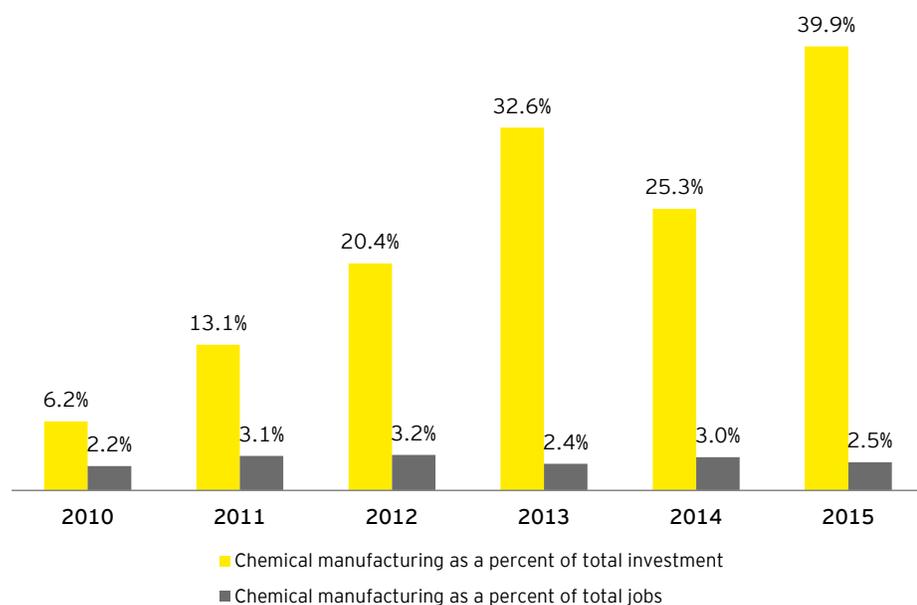
The list of the top 20 mobile capital investment projects announced is again dominated by natural gas-related investments in 2015. Five of the top 20 announced facilities will produce chemicals such as ethylene from natural gas feedstock. Another four facilities are centered on LNG exports and include both the conversion of natural gas to liquid form and the port facilities needed to load LNG into oceangoing tankers. These natural gas-related investments together represent capital investment spending of nearly \$53b and will create more than 2,500 jobs. Three such facilities are described below:

- ▶ The largest single investment announced in 2015 was \$11b to build an LNG export facility in Cameron Parish, LA. This investment is larger than any other included in the USIM since the 2007-2009 recession. Further, the facility will be large enough to liquefy nearly 2.1b cubic feet of US-produced natural gas per day. This would represent a large portion of the daily LNG exports of 7.0b cubic feet that the US Energy Information Administration expects by 2022. After a construction period involving 3,500 construction workers, the facility is expected to employ 250 workers annually. The facility is to be located three miles from the Gulf of Mexico and is expected to export LNG to the Caribbean, Europe and Asia.

- ▶ The second-largest investment announced in 2015 is Formosa Petrochemical's planned \$9.4b ethylene manufacturing facility. Formosa, based in Taiwan, plans to construct the facility in St. James Parish, LA, on the Mississippi River. Formosa has been promised significant state incentives to support the investment, which would create 1,200 jobs. Ethylene is widely used in the production of plastics, polyester, packaging, rubber and cleaning agents.
- ▶ Unique among the top natural gas-related projects is Phillips 66's combined fractionator and liquefied petroleum gas (LPG) export facility in Freeport, TX. LPG is similar to crude oil and is largely a mixture of propane and butane. LPG can be used as a relatively environmentally friendly alternative for vehicle fuel, refrigerant and cooking fuel.

In total, chemical manufacturing investments account for nearly 40% of all investment spending monitored in this study and more than 2% of the jobs created or retained by these projects. As shown in Figure 1, chemical manufacturing investment spending continues to increase as a percentage of all investment spending announced in the USIM.

Figure 1. Chemical manufacturing as a percent of total investment, 2010-2015



Source: Ernst & Young LLP research; Conway data.

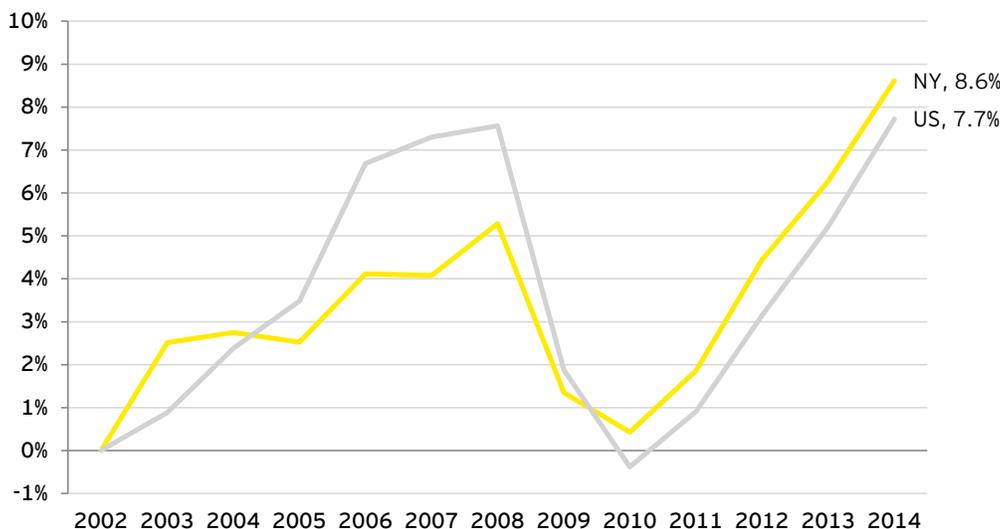
## Investment in New York's Tech Valley continues to expand

"Tech Valley," a moniker given to the Hudson Valley that has since expanded to other areas of upstate New York, is represented by several projects in this year's USIM. Tech Valley is anchored by companies such as IBM and GlobalFoundries and colleges such as Rensselaer Polytechnic Institute near Albany and the State University of New York (SUNY) Polytechnic Institute in Utica. Large Tech Valley projects announced in 2015 are described below. Each of these projects is related to SUNY Polytechnic Institute, demonstrating the use of public-private partnerships to encourage companies to locate high-tech facilities in areas with a skilled labor force.

- ▶ AMS, formerly Austriamicrosystems, announced a \$2b investment in a new manufacturing facility in Marcy, NY, near Utica. The factory will manufacture semiconductor wafers and employ 700 workers. The building will be publicly owned, with spaces available for other companies. Construction will be carried out by a not-for-profit organization affiliated with SUNY Polytechnic Institute.
- ▶ The GE Global Research arm of General Electric announced plans to invest \$200m to expand its operations in Marcy, NY. GE expects to create 500 new jobs as it moves into SUNY Polytechnic Institute's Computer Chip Commercialization Center. The company plans to develop a power electronics manufacturing plant for computer chips.
- ▶ SUNY Polytechnic Institute announced the opening of the Zero Energy Nanotechnology (ZEN) building, a \$191m investment, at its Albany site. This investment – and the jobs it is expected to attract to New York – are described further below.

New York's support for new manufacturing investment is reflected in US Census data, as shown in Figure 2. Since US manufacturing employment bottomed out at 112.4m in 2002, in the wake of the 2001 recession, New York manufacturing employment has grown by 8.6%, compared with 7.7% nationally. While not performing as well as the rest of the country during the 2002-2007 economic expansion, New York's manufacturing industry weathered the 2007-2009 recession relatively well. Since the post-recession employment bottom in 2010, New York manufacturing employment growth has outpaced that of the country at large. New York's support for investment in cutting-edge research and development and manufacturing technologies in the Tech Valley may be a template for other states to follow as they seek to stem long-running declines in manufacturing employment.

Figure 2. Change in manufacturing employment in New York and the US since 2002



Source: US Census Bureau, County Business Patterns.



## Foreign investments decline

The top 20 investment announcements in 2015 include 6 projects announced by foreign-headquartered companies. This is slightly higher than the average of 5.4 foreign investments seen in the top 20 each year from 2010 through 2014. Still, the \$36.0b of foreign investment included in this year's *USIM* is the lowest amount since 2011. Further, foreign investment as a percentage of total investment was 22% in 2015, which is the lowest level since the 2007-2009 recession.

A number of factors may have contributed to lower announced foreign investment in 2015, including the stronger US dollar, new economic headwinds in China and Brazil, and the continued downturn in commodity prices, including oil and various metals. Foreign investment announcements in 2015 are discussed on page 23.

**Table 1. Top 20 projects ranked by capital investment, 2015**

Company name	State	Product/facility use	Investment (in \$m)	Jobs
G2 LNG	LA	LNG export facility	\$11,000	250
Formosa Petrochemical	LA	Ethylene manufacturing facility	9,400	1,200
Sasol	TX	Ethylene manufacturing facility	8,000	500
Rio Grande LNG	TX	LNG export facility	8,000	200
Sempra Energy	TX	LNG export facility	8,000	100
Phillips 66	TX	Ethylene and LPG manufacturing facility	3,000	70
American Specialty Alloys	LA	Aluminum products manufacturing facility	2,400	1,450
Tesla Motors	CA	Automobile manufacturing facility	2,389	1,900
AMS	NY	Semiconductors manufacturing facility	2,000	700
Live Oak LNG	LA	LNG export facility	2,000	100
Total Petrochemicals	TX	Ethylene manufacturing facility	2,000	45
Essar Steel Minnesota	MN	Iron ore mining facility	1,800	-
General Motors	TX	Automobile manufacturing facility	1,400	600
Shintech Louisiana	LA	Ethylene manufacturing facility	1,400	100
Ford Motor	KY	Automobile manufacturing facility	1,300	2,000
Daimler	AL	Automobile manufacturing facility	1,300	300
Lockheed Martin	TX	Aircraft manufacturing facility	1,200	1,000
Novo Nordisk	NC	Pharmaceutical manufacturing facility	1,200	691
General Motors	IN	Automobile manufacturing facility	1,200	-
Faraday Future	NV	Automobile manufacturing facility	1,000	4,500

Note: Faraday Future is tied with several other projects for the 20th rank, with \$1b in investment. Announced jobs is used as a tie-breaker, and Faraday Future has the most number of announced jobs out of these projects with the same investment amount.

Source: Ernst & Young LLP research; Conway data.

# Top 20 job announcements

The projects included in this year's *USIM* are expected to create or retain more than 402,000 jobs across the United States. The 20 largest job-creating projects accounted for more than 43,500 jobs across a wide range of industries and facility types. These projects, summarized in Table 2, accounted for 11% of the total jobs announced in 2015.

## Automotive industry's comeback with new technologies

Automotive manufacturing has shown continuing growth since the end of the recession in 2009, although employment still hasn't returned to its pre-recession level. In 2014, total employment in the motor vehicle manufacturing sector was 172,000, a 9% increase from 2013. Investments in automotive manufacturing projects in this year's US Investment Monitor suggest a continuation of the growth trend shown in Figure 3, with 17,000 new or retained jobs announced, equivalent to 10% of total sector employment in 2014.

Significant announcements of jobs and investments in new auto manufacturing projects will continue to propel industry employment higher in 2015 and 2016. Of this year's top 20 job announcements, 6 major job-creating projects were in the automotive manufacturing industry, a prominent increase compared with last year's one major job-creating project announced by Volkswagen. The top projects in automobile manufacturing demonstrated an investment trend focusing on R&D and IT facility upgrades to support innovative car designs and future business needs, especially among the traditional automotive manufacturers such as General Motors, Ford Motor Company and Daimler. Next-generation car models designed to enhance efficiency and capabilities are being produced at US manufacturing facilities.

- ▶ Based in California, Faraday Future is a start-up company that focuses on the design and manufacturing of electric vehicles. The company announced that it will invest \$1b to open its first electric vehicle manufacturing facility in North Las Vegas, NV, and hire 4,500 workers. This facility investment, largely supported by a Chinese billionaire, will help the company implement its planned launch of first production electric vehicle in 2018. The state of Nevada has agreed to provide tax incentives and help with on-site infrastructure needs. This complements a previously announced investment by Tesla in Nevada to produce batteries.

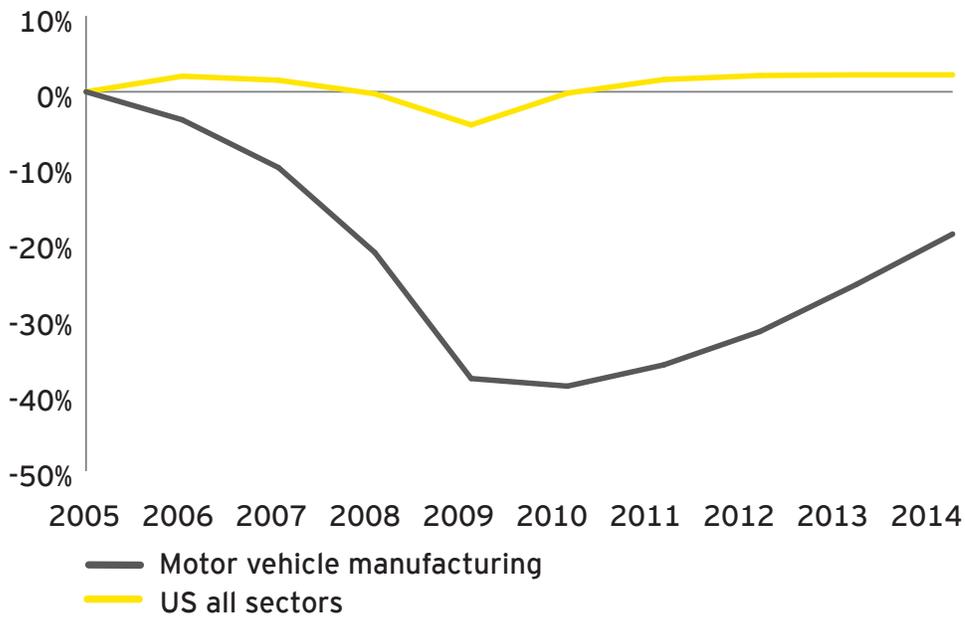
- ▶ General Motors announced a \$1b investment on upgrading its Warren Technical Center in Michigan to support future business growth. Warren Technical Center has long played a key role in facilitating the company's car design and engineering. This facility upgrade will bring 2,600 new salaried jobs. Highlights of this upgrade investment include construction of new design studios, rebuilding and renovating existing R&D and IT facilities, and construction to accommodate additional testing areas.
- ▶ The Ford Motor Company continued to expand its operations in Kentucky by investing \$1.3b and adding 2,000 jobs in its existing truck plant. The investment will be spent on facility upgrades and help the company prepare for the launch of a new truck series. The next-generation Super Duty truck series is designed to improve capacity and power by using a lighter material for body parts. The company's president of the Americas region, Joe Hinrichs, expressed in a statement that the company's truck leadership will continue to grow with the introduction of the new truck line.

## Automotive industry growing in nontraditional locations

In total, motor vehicle manufacturing investments account for 6% of all investment spending monitored in this study and 4% of the project-related jobs. Figure 4 demonstrates by state the relationship between overall employment location quotient and *USIM* announced location quotient in the motor vehicle manufacturing sector. Location quotients measure the employment concentration of a certain industry. States with yellow markers have *USIM* location quotients that are greater than that indicated by historical employment data, meaning that 2015 motor vehicle manufacturing job announcements are more concentrated in the state than the industry's employment footprint was historically. The size of the marker indicates the number of total jobs announced in the state for 2015.



Figure 3. Employment growth, indexed at 2005 – motor vehicle manufacturing vs. all sectors



Source: Quarterly Census of Employment and Wages (QCEW), Bureau of Labor Statistics (BLS). Data for 2015 is not yet available.

States in the Great Lakes region, such as Michigan, Ohio and Indiana, have historically been attractive to automotive manufacturers. While Michigan, Kentucky and Indiana are still leading in employment concentration for motor vehicle manufacturing and attracting new investments (both state and *USIM* location quotients are greater than 1), Nevada, South Carolina, Missouri, Georgia and West Virginia all rose above the average *USIM* location quotient and exceeded their statewide industry employment location quotient shown in historical data, suggesting industry growth. Of these states that witnessed new growth in motor vehicle manufacturing, South Carolina took the lead in total jobs announced in the state with 13,800 total jobs for 2015. A comparison in Figure 5 of growth rates between states that historically have had strong employment in auto manufacturing (as noted in Figure 4) shows that South Carolina and Kentucky are growing at rates of 38% and 48%, respectively, both of which exceed the average growth rate in the US since 2010.

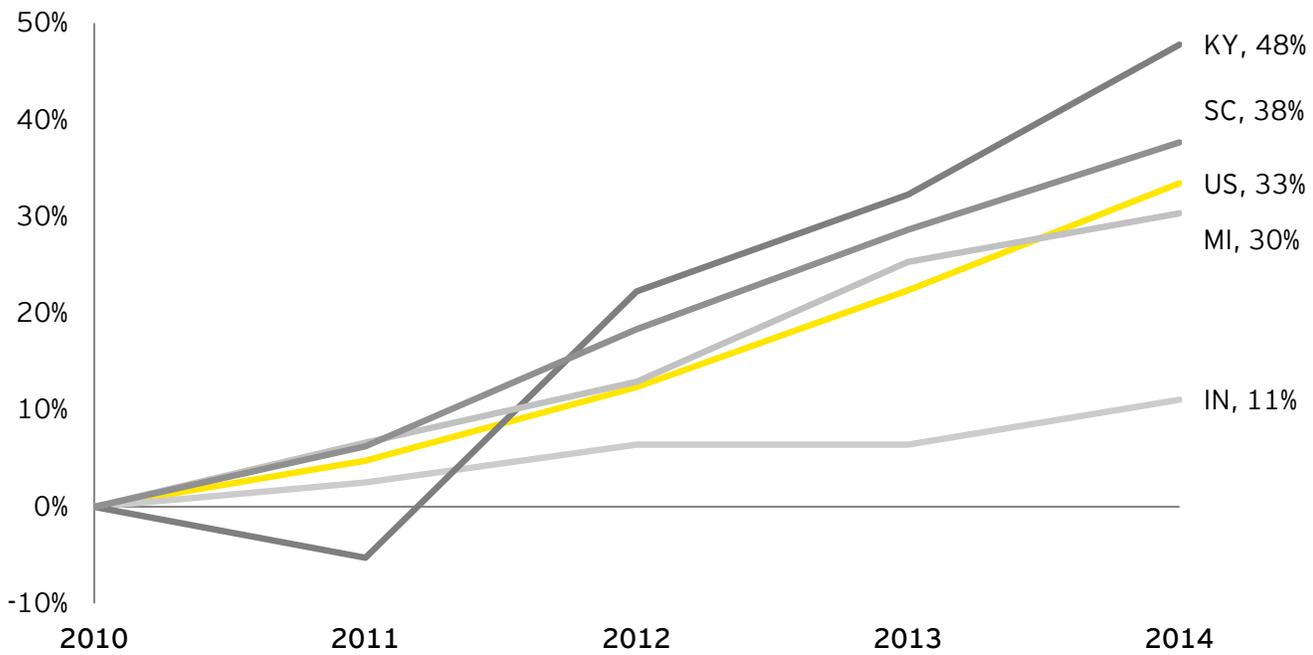
**Figure 4. USIM announced employment location quotient (LQ) vs. overall motor vehicle manufacturing employment location quotient, by state**



Note: Data points are graphed on logarithmic scales. The figure includes only those states where motor vehicle manufacturing capital investment projects were announced in 2015 and the sector employment data were available from BLS QCEW and US Census Bureau, County Business Pattern. The size of the marker indicates the number of total jobs announced in the state for 2015. The color of the marker indicates whether the *USIM* LQ is higher than the statewide industry employment LQ; states with yellow markers have a higher *USIM* LQ than their statewide industry employment LQ; gray markers indicate otherwise.

Automobile investments were also announced in states with below-average *USIM* location quotients. Alabama and Tennessee have historically seen a high concentration of motor vehicle manufacturing employment, and their location quotients are still higher than that of this year's *USIM*. North Carolina, Nebraska and Texas all have a location quotient slightly below the average of both *USIM* and statewide employment.

Figure 5. Employment growth of motor vehicle manufacturing in selected states, indexed at 2010



Source: BLS' QCEW; 2015 data is not yet available.



## Green growth

Besides the new LNG export facilities that have a prominent place in the USIM's top investment projects, several renewable energy companies are growing quickly and have announced projects with large job impacts in 2015. More and more states have provided incentive programs to attract renewable energy companies and support their growth. According to the Database of State Incentives for Renewables and Efficiency (DSIRE), leading states with incentives for renewables and efficiency include California, Texas, Oregon, Washington, Minnesota, Colorado and New York.

- ▶ Vivint Solar, Inc., a solar energy company based in Lehi, UT, announced a capital investment of \$91m in expanding headquarters operations. The expansion will generate more than 3,000 new jobs. The company designs, installs and maintains solar residential systems and distributes solar electricity through its system. Initially launched in 2011 by its parent company Vivint, Inc., the company became publicly traded in 2014 and has operations in 12 states. The Utah Governor's Office of Economic Development (GOED) has provided the company with a 10-year incentive in the form of a post-performance tax credit rebate.
- ▶ The SUNY Polytechnic Institute plans to spend \$191m on the construction of the ZEN building in Albany. The vice president of entrepreneurship at SUNY Polytechnic Institute commented that this is the largest mixed-use clean energy facility in the world that will be generating its own power. The ZEN building is designed to sustain energy itself using renewable resources and will be a living research and development laboratory for clean energy. As part of the building's financing plan, private revenue will be generated from corporate tenants that include state data operations, the CNSE Children's Museum of Science and Technology, and CommerceHub, an Albany software company. In addition, the building has received funding from the Japanese government through a \$25m partnership to display leading Japanese technology. This is the second-largest construction project ever in Albany after GlobalFoundries' \$2b investment in a technology development center for computer chip manufacturing.

## Headquarters facilities

Headquarters and office facilities continue to expand and attract many new jobs to states in this year's *USIM*. Overall, office and research facilities accounted for more than \$17b (11% of total spending) of the investments tracked and nearly 140,000 new and retained jobs (34% of total jobs), averaging 8 new jobs per million dollars spent on investment. Three of 2015's top office investments were announced by financial companies, namely Liberty Mutual, Navy Federal Credit Union and Lending Club; the other two include General Motors' investment on its Warren Technical Center, discussed above, and Community Health Systems' new office in Nashville, TN.

Each company announcing new headquarters projects in 2015 had a set of motivations that reflected its own balancing of location drivers. Headquarters projects locating in the suburbs are increasingly embracing the concept of transit-oriented development with locations that cater to employees who walk, bike or take public transit to work – an important consideration given that the number of these

non-driving employees has grown by 10% over the past decade and includes a disproportionate share of the young workers that employers hope to attract.

Decisions on headquarters locations remain driven by the bottom line – taxes, incentives and real estate costs. Liberty Mutual chose Plano, TX, to build its first significant campus outside of the Northeast. The facility is located down the road from Toyota Motor's North American headquarters campus – a top headquarters project announced in last year's *US Investment Monitor*. Both companies received a cash grant from the Plano City Council for their projects; in addition to its cash grant, Liberty Mutual will receive tax abatements on half of the value of its office complex. Lending Club Corporation will receive tax credit that amounts to \$1m on its \$14m investment in headquarters offices in San Francisco, CA.

**Table 2. Top 20 projects ranked by new and retained jobs, 2015**

Company name	State	Product/facility use	Investment (in \$m)	Jobs
Liberty Mutual	TX	Offices	\$355	5,000
Navy Federal Credit Union	FL	Offices	350	5,000
Faraday Future	NV	Automobile manufacturing facility	1,000	4,500
Vivint Solar	UT	Headquarters facility	91	3,000
General Motors	MI	Automobile manufacturing facility	1,000	2,600
Ford Motor Company	KY	Automobile manufacturing facility	1,300	2,000
Volvo	SC	Automobile manufacturing facility	500	2,000
Tesla Motors	CA	Automobile manufacturing facility	2,389	1,900
Lending Club	CA	Offices	14	1,644
Community Health Systems	TN	Offices	66	1,600
Daikin Industries	TX	Offices, HVAC equipment manufacturing, and distribution	417	1,500
SUNY Polytechnic Institute	NY	Renewable energy research facility	191	1,500
Red Ventures	SC	Offices	90	1,500
Barclays	OH	Offices	9	1,500
Amazon	TX	Distribution facility	-	1,500
Noribachi	CA	Lighting equipment manufacturing facility	16	1,495
American Specialty Alloys	LA	Aluminum products manufacturing facility	2,400	1,450
Northrop Grumman	CA	Aircraft manufacturing facility	520	1,359
Daimler Vans Manufacturing	SC	Automobile manufacturing facility	500	1,300
Formosa Petrochemical	LA	Ethylene manufacturing facility	9,400	1,200

Sources: Ernst & Young LLP research; Conway data.



## Industry summary

Investment in mobile capital projects and the resulting new and retained jobs created are summarized by industry in Table 3.

As noted previously on Table 1, projects capturing high amounts of investment include LNG export facilities, chemical manufacturing facilities and motor vehicle manufacturing facilities. Chemical manufacturing alone accounts for nearly 40% of all investment, and nondurable manufacturing as an industry overall is more than half of 2015's announced capital investment. Additionally, durable manufacturing plays a strong role; industries including machinery, motor vehicle and semiconductor manufacturing continue to be important investments in the US, accounting for approximately \$40b in investment announcements.

Over the 10 years of the USIM, there has been a general shift away from labor-intensive projects as technology has made significant strides, especially in the manufacturing sectors. However, durable manufacturing and office facilities for business support and professional services were still key job creators, according to 2015 project announcements. Other industries poised to add significant employment include wholesale and retail trade, as well as food, beverage and tobacco product manufacturing. These industries are generally more labor-intensive than industries such as chemical manufacturing.

**Table 3. Announced capital investment and jobs in US facilities, 2015**

Sector	Industry	Investment (in \$m)	Jobs
Agriculture, mining, construction	Agriculture, forestry, fishing and hunting	\$471	772
	Construction	766	4,016
	Mining, including oil and gas extraction	2,673	1,842
	<b>Subtotal: Agriculture, mining, construction</b>	<b>3,910</b>	<b>6,630</b>
Durable manufacturing	Machinery and fabricated metal manufacturing	13,571	35,114
	Motor vehicle and parts manufacturing	19,029	48,466
	Other durable manufacturing	7,236	23,383
	Semiconductor and electronic component manufacturing	5,229	14,798
	<b>Subtotal: Durable manufacturing</b>	<b>45,066</b>	<b>121,761</b>
Financial and professional services	Business support services	1,466	29,310
	Finance, insurance and real estate services	2,691	39,156
	Health care and social assistance	230	5,425
	Management of companies and enterprises	294	4,266
	Other services	129	1,356
	Professional services	2,473	34,500
	<b>Subtotal: Financial and professional services</b>	<b>7,283</b>	<b>114,013</b>
Information	Data centers	7,478	4,771
	Information	503	14,634
	<b>Subtotal: Information</b>	<b>7,981</b>	<b>19,405</b>
Nondurable manufacturing	Chemical manufacturing	66,272	10,154
	Food, beverage and tobacco product manufacturing	6,838	22,636
	Other nondurable manufacturing	5,247	14,495
	Petroleum and coal products manufacturing	4,782	567
	Pharmaceutical manufacturing	2,737	8,542
	Rubber and plastics manufacturing	1,865	10,819
	<b>Subtotal: Nondurable manufacturing</b>	<b>87,740</b>	<b>67,213</b>
Trade and transport	Transport, storage and logistics	4,787	17,006
	Wholesale and retail trade	9,288	56,053
	<b>Subtotal: Trade and transport</b>	<b>14,075</b>	<b>73,059</b>
<b>Total</b>		<b>\$166,055</b>	<b>402,081</b>

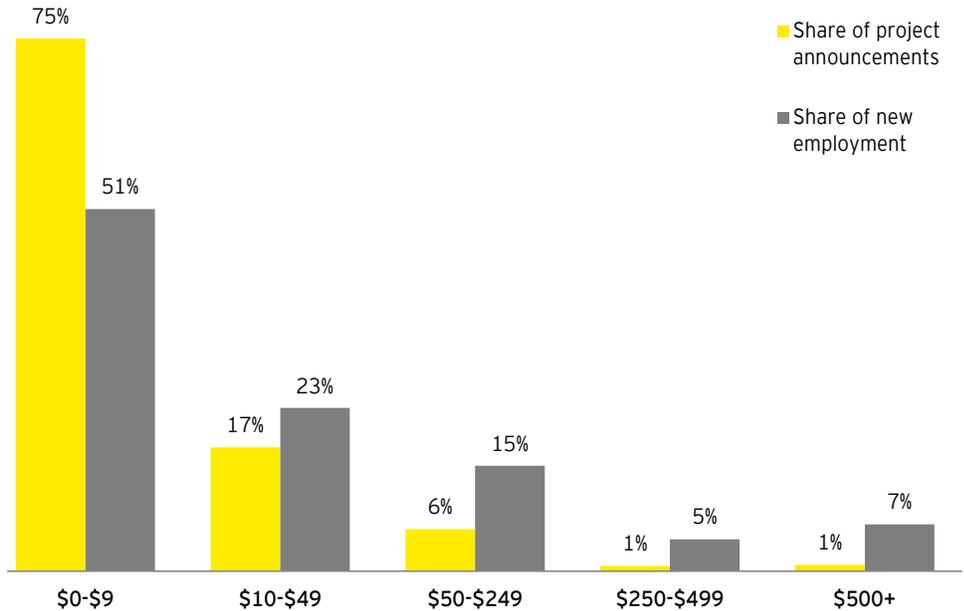
Note: Figures may not appear to sum due to rounding.

Sources: Ernst & Young LLP research; Conway data.

# Project size

While attention is often focused on megaprojects in any given year, projects under \$250m in capital investment accounted for 98% of project announcements and 89% of total jobs announced in 2015. The 1% of projects announced in 2015 involving \$500m in investment accounted for 7% of total announced employment (see Figure 5).

**Figure 5. Share of project announcements and total new employment by project capital investment size (\$m), 2015**

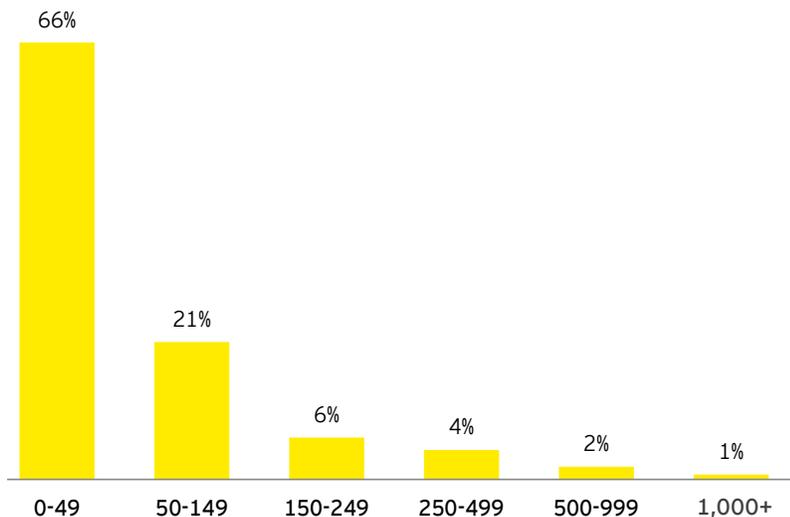


Note: Figures may not appear to sum due to rounding.

Sources: Ernst & Young LLP research; Conway data.

Figure 6 shows the distribution of projects by the number of new or retained jobs. Only 142 project announcements (nearly 3% of total projects) in 2015 involved 500 or more jobs, of which only 39 projects (less than 1% of total projects) supported 1,000 or more jobs. Sixty-six percent of projects announced fewer than 50 jobs created or retained, up from 51% in 2015.

**Figure 6. Share of project announcements by total jobs created or retained, 2015**

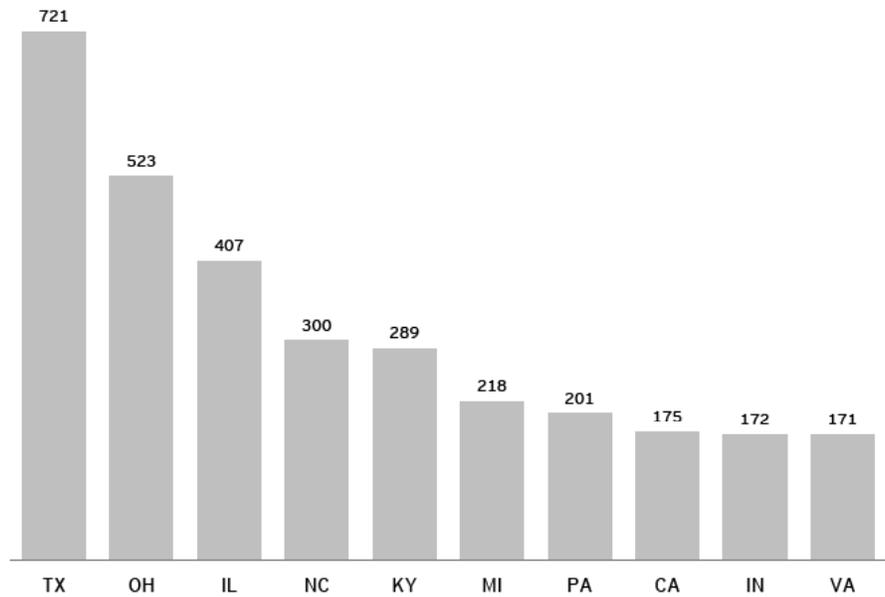


Note: Chart includes only projects with disclosed employment information. Figures may not appear to sum due to rounding.

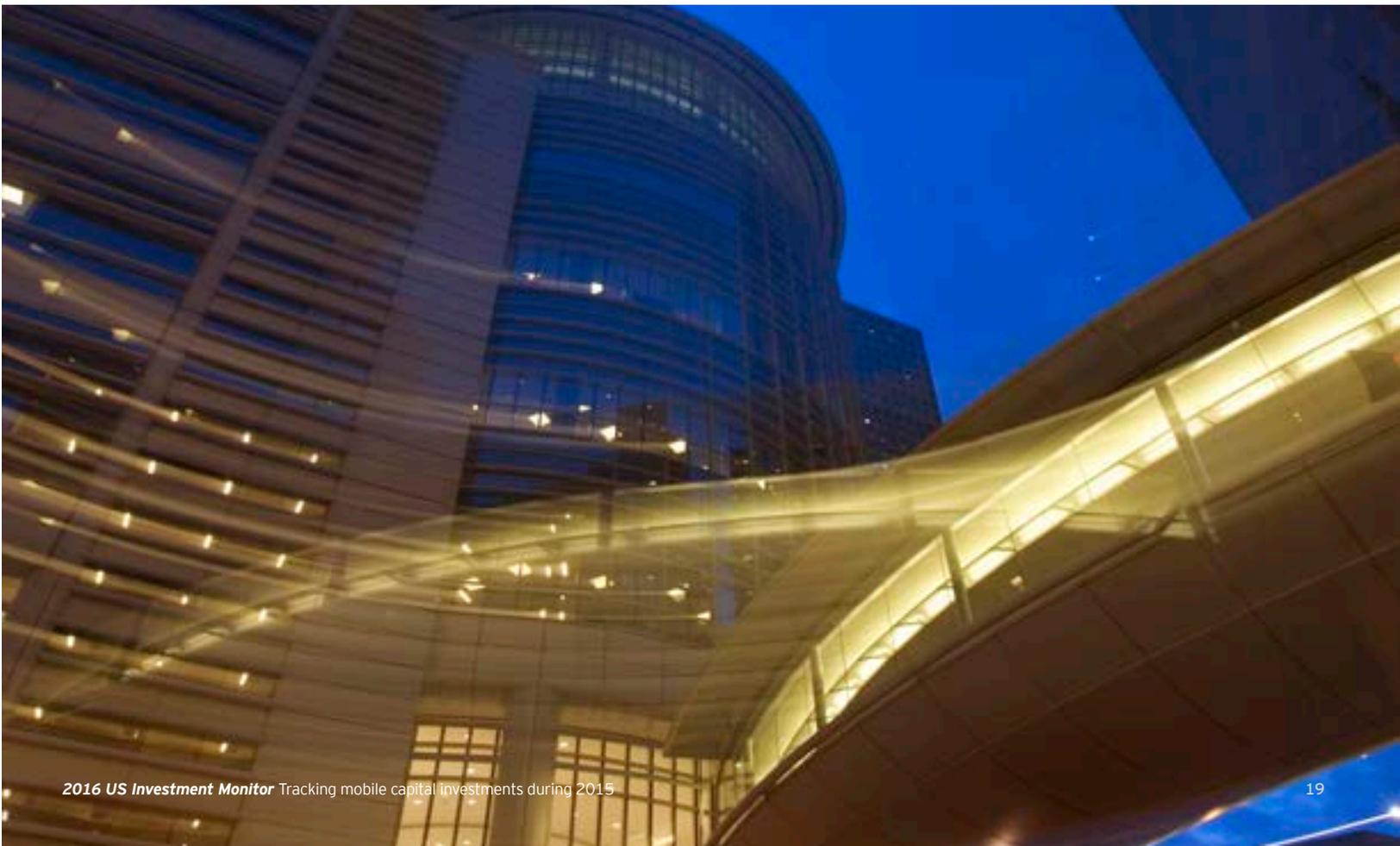
Sources: Ernst & Young LLP research; Conway data.

These small but numerous projects are important drivers of economic development in most states. The average project size was less than \$30m for 8 of the 10 states with the most project announcements shown in Figure 7. Of these states, only Texas and Ohio had an average project size of greater than \$30m – the average project size in these states was \$67m in Texas and \$65m in Ohio. For the fourth straight year, Texas led the nation and Ohio placed second in the number of announcements of new capital investment projects.

**Figure 7. Top 10 states by number of project announcements, 2015**



Sources: Ernst & Young LLP research; Conway data.

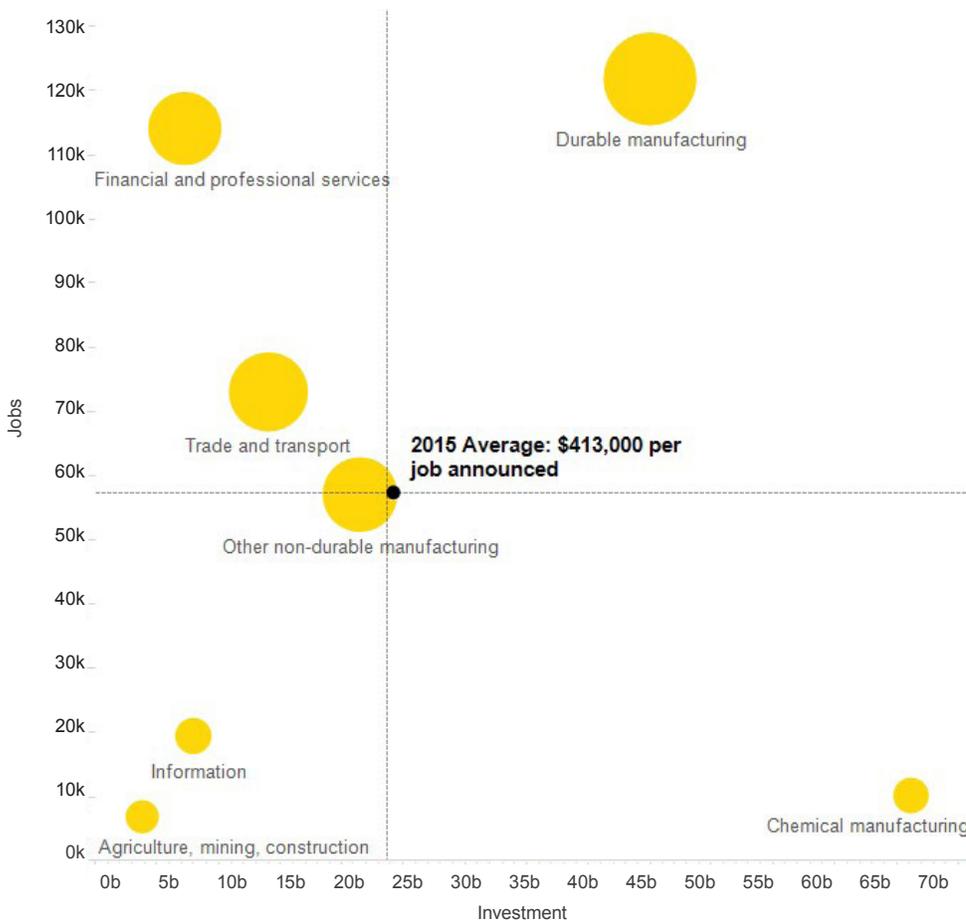


# Capital intensity

As Figure 8 shows, capital expenditure per job for projects announced in 2015 varied widely across sectors. Chemical manufacturing projects were by far the most capital-intensive, averaging \$6.5m per job, approximately 16 times more than the average capital intensity of \$0.4m across all 2015 project announcements. Capital intensity for other nondurable manufacturing projects were less capital-intensive, averaging \$380,000 per job, consistent with prior-year levels.

Durable manufacturing projects were less capital-intensive, averaging only \$370,000 per new or retained job. These projects tend to be accompanied by large workforces, particularly in the transportation, machinery and fabricated metal manufacturing sectors. Financial and professional services continued to be the least capital-intensive industry monitored in the *USIM*, with \$64,000 of fixed investment per job, a 37% decrease from \$101,000 in 2014. The top 20 projects ranked by capital expenditure are among the most capital-intensive projects, with an average \$4.4m of capital investment per job, compared with an average of \$3.1m per job for all projects announced in 2014.

Figure 8. Capital intensity of projects by sector, 2015 (announced capital investment vs. jobs announced)



The size of each marker indicates the number of projects announced in that sector in 2015.

Sources: Ernst & Young LLP research; Conway data.

# Investment by type of facility

Table 4 summarizes mobile capital investments in 2015 by type of facility. Investments in new or expanded industrial facilities accounted for the majority of announced projects, representing 76% of announced investments (\$127m) and 42% of jobs (167,561). In 2014, industrial facilities accounted for 77% and 50% of investment and jobs, respectively. Investments in expensive LNG export and chemical manufacturing facilities and new jobs at transportation manufacturing facilities led industrial facility project announcements in 2014. Industrial facilities have consistently represented more than 60% of project announcements in the *USIM*.

Office and research facilities (including corporate headquarters) accounted for 11% of total announced investments and 34% of

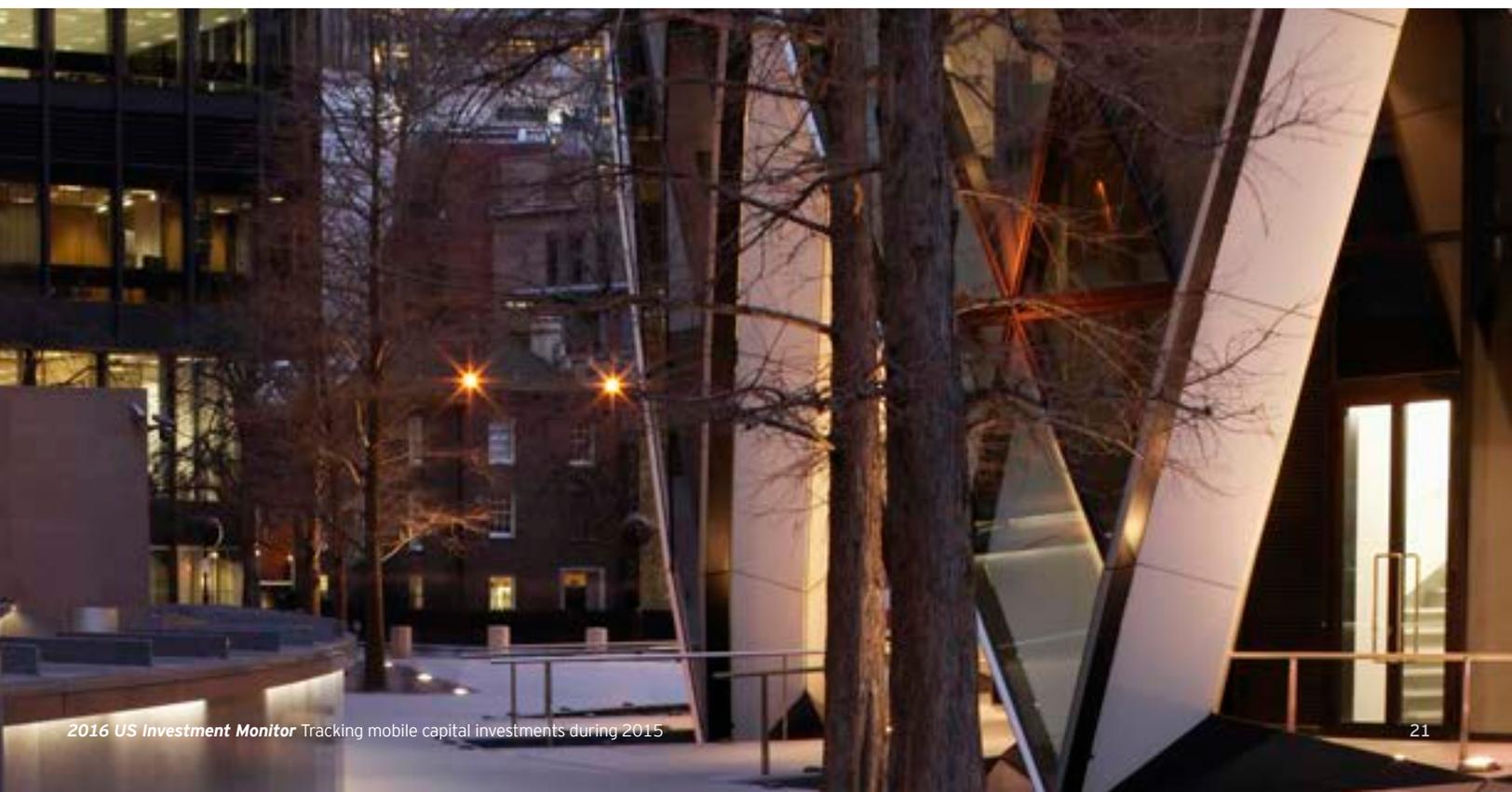
jobs, compared with 16% of investment and 31% of jobs last year. Large investments in office and research facilities include Liberty Mutual offices in Plano, TX, and expanded Navy Federal Credit Union operations in Pensacola, FL.

Distribution and warehousing facilities' 8% share of new and retained jobs marks a decline from recent years. Announced data center projects totaled \$7.5b in 2015 (5% of total investment) – a fivefold increase from 2014. Call center investment announcements doubled from 2014 to 2015, with \$489m of new investment announced. With more than 60 jobs created or retained for every \$1m invested, call centers accounted for 8% of all new and retained jobs announced.

**Table 4. Announced mobile capital investments by facility type, 2015**

Facility type	Investment (in \$m)	% of total	Jobs	% of total
Industrial facilities	\$126,919	76%	167,561	42%
Office and research facilities	17,718	11%	138,699	34%
Distribution and warehousing	13,444	8%	61,857	15%
Data center	7,486	5%	2,750	1%
Call center	489	0%	31,214	8%
<b>Total</b>	<b>\$166,055</b>	<b>100%</b>	<b>402,081</b>	<b>100%</b>

Note: Figures may not appear to sum due to rounding.





# Foreign investment

In 2015, total capital investment in new and expanded US facilities announced by foreign companies exceeded \$36b, accounting for 22% of the investment monitored. Table 5 summarizes the sources of foreign investment based on the global ultimate parent company of an announced project.

The manufacturing industry remained the top industry among foreign investment projects with 96% of all announced foreign investment. A large majority of foreign investment (71%) was in nondurable goods manufacturing and 26% was in durable goods manufacturing. Durable goods manufacturing includes products such as semiconductor and electronic components, motor vehicles and automobile parts.

The manufacturing sector leads the ranking of new or retained foreign-parent-company jobs by industry with a 75% share. This is partially due to the sector's large share of total foreign investment. A closer look at the foreign investment projects shows that chemical manufacturing led the way with 65% of total announced investment related to foreign investors, while the motor vehicle and parts manufacturing industry was the top job-creating industry, with 29% of announced jobs by related to foreign investors.

As shown in Table 5, Taiwan was the top investing nation in 2015, with more than \$9.5b of mobile capital investment project spending in the United States – 27% of total foreign investment. Closely following Taiwan was South Africa, with \$8b of mobile capital investment. Nearly all of Taiwan's and South Africa's total investment announcements were in the manufacturing industry, specifically the chemical manufacturing industry. Partly because chemical manufacturing is less labor-intensive than other sectors, total job announcements by Taiwanese and South African companies ranked 9th and 17th, respectively.

Germany remained among the top three investing nations in 2015, with nearly \$4b in announced capital investment spending. The leading industry for German investment was motor vehicle and parts metal manufacturing. Germany also created the most jobs – more than 6,000 – of any investing nation.

The rest of the top five investing nations in 2015 included Austria and Japan, which each accounted for \$2.8b of capital investment spending announcements. Almost 73% of Austria's investment came from the semiconductor and electronic component manufacturing industry, and more than half of Japan's announced investments came from the chemical manufacturing industry. Despite Japan being fifth in announced investment, it was second in 2015 for announced jobs, driven largely by the machinery and fabricated metal manufacturing, wholesale and retail trade, and motor vehicle and parts metal manufacturing industries.

- ▶ **The largest capital investment** made by a foreign company was by Formosa Petrochemical Corporation, headquartered in Taiwan. Formosa Petrochemical Corporation will invest \$9.4b to build a large ethylene and other downstream chemicals production facility at St. James Parish, LA, creating 1,200 new direct jobs.
- ▶ **Chinese-owned Volvo Cars claimed this year's top job-creating foreign investment** with the announcement of a new assembly plant just outside Charleston, SC. The factory will make the latest-design models for sale in the US, as well as cars for export, and plans to create 2,000 jobs with its \$500m investment.
- ▶ **South Africa-based petrochemicals company Sasol announced a manufacturing investment of \$8b in 2015.** The petrochemical complex planned for Westlake, TX, is projected to create more than 5,000 construction jobs and more than 500 full-time positions after completion in 2018. This one project was the only investment by a South African company in the United States and pushed South Africa up to the position of second-highest announced foreign capital investment.
- ▶ **Both USIM and Bureau of Economic Analysis (BEA) data show a sharp upward trend of Asian investment spending in the United States in recent years.** According to the BEA, Asian parent companies' expenditures on property, plant and equipment in the United States grew from annual levels of \$44b or less before 2009 to \$82b in 2013. This trend in Asian investment in the United States is demonstrated by the high level of Chinese investment in the United States in 2014 and Taiwan's top position for investment in the United States in 2015.

The top five states ranked by total foreign investment spending in 2015 were Texas, Louisiana, New York, Alabama and North Carolina due to the announcements of large projects by foreign chemical manufacturing, semiconductor and electronic component manufacturing, and motor vehicle and parts metal manufacturing companies. As shown in Figure 9, the East Coast of the United States received a high percentage of total investment from foreign sources. Over the past several years, the coastal regions in general have received more foreign investment than the interior of the US, a trend that continues in this year's *USIM* as well.



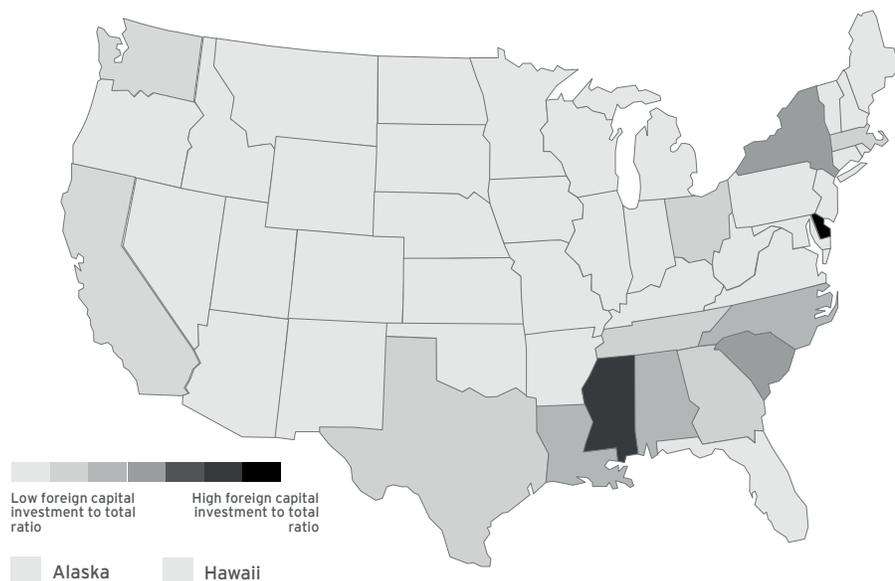
**Table 5. Announced foreign investment and job announcements in US facilities by origin country, 2015**

Investing country	Investment (in \$m)	Jobs
Taiwan	\$9,598	1,411
South Africa	8,000	500
Germany	3,964	6,646
Austria	2,805	1,376
Japan	2,796	5,029
Canada	2,160	3,997
Denmark	1,239	1,747
Netherlands	1,082	953
China	1,028	4,653
Norway	761	198
United Kingdom	562	3,758
<b>Subtotal</b>	<b>33,995</b>	<b>30,267</b>
Other countries	2,018	12,092
<b>Total foreign investment</b>	<b>36,013</b>	<b>42,359</b>
<b>Domestic investment</b>	<b>130,042</b>	<b>359,722</b>
<b>Total, all investment</b>	<b>\$166,055</b>	<b>402,081</b>

Note: The overall distribution of investment and jobs by investing country is assumed to be consistent with the distribution among projects for which we know the investing country. Figures may not appear to sum due to rounding.

Sources: Ernst & Young LLP research; Conway data.

**Figure 9. Announced foreign investment as a share of total announced investment**



Sources: Ernst & Young LLP research; Conway data.

## Exchange rates and foreign investment

The US dollar has strengthened significantly over the past three years, making investment spending by foreign companies in the United States relatively more expensive. This may have contributed to the 16% decline in foreign investment spending announced from 2013 to 2015.

Figure 10 compares trends in the value of the US dollar and foreign investment announcements from 2013 to 2015. The average annual level of *The Wall Street Journal* Dollar Index, which indexes the value of the US dollar to a basket of 16 foreign currencies, increased by 19% from 2013 to 2015. During this time, foreign investment spending announcements as a percentage of all investment spending announcements included in the *USIM* declined from nearly 30% to less than 22%.

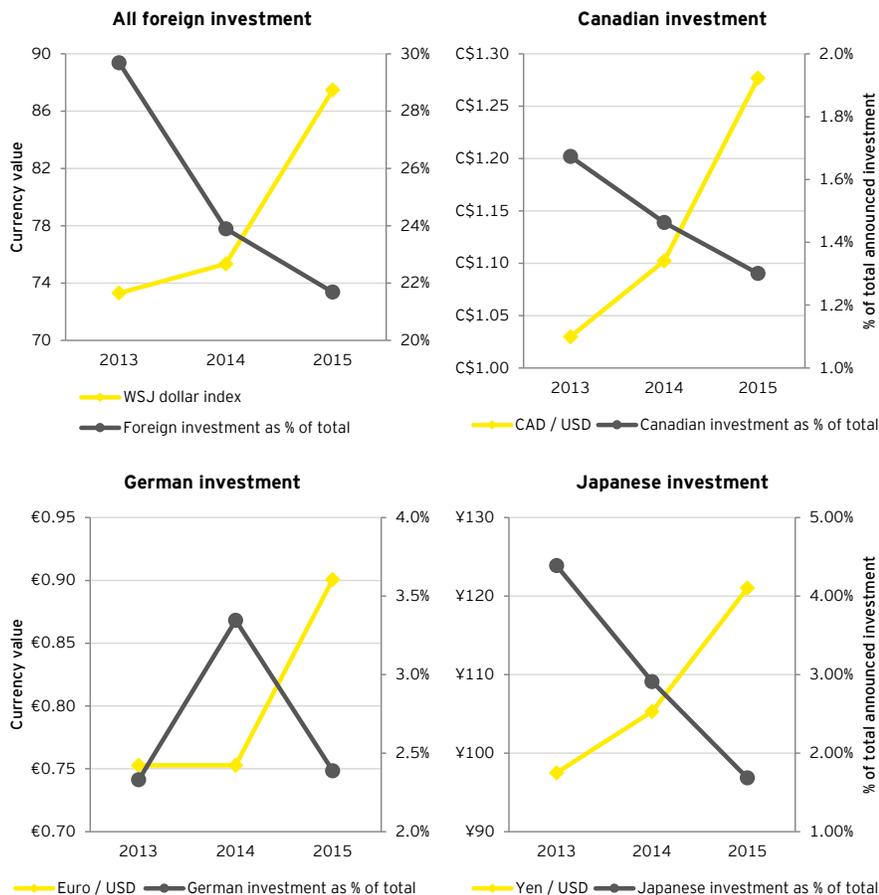
Similar trends can be seen for investment announcements by Canadian and Japanese companies. The US dollar strengthened by 24% over to the Canadian dollar from 2013 to 2015, while the

Canadian share of investment announced declined from 1.7% to 1.3%. The US dollar also gained by 24% compared with the Japanese yen during this time. Investment spending announced by Japanese companies declined from 4.4% of the total to less than 1.7%.

On the other hand, the weakened position of the euro in comparison to the US dollar – in 2015, US\$1.00 was equivalent, on average, to €0.90, up from €0.75 in 2013 – was not accompanied by a clear trend in German investment announcements. Such announced spending accounted for 2.3% of the total in 2013 before rising to 3.3% in 2014 and falling back to 2.4% in 2015. Canada, Germany and Japan are the only foreign countries to have ranked in the top 10 in investment spending announced each year from 2011 through 2015.

Foreign exchange rates are just one factor in a multinational company's decision about where to locate investment projects and how much money to invest and are difficult to predict. Other considerations include economic prospects in alternate countries, variations in labor force suitability and availability, and proximity to customers.

Figure 10. Exchange rates vs. foreign investment, by country, 2013-2015



Note: Exchange rates as shown represent the average daily exchange rate among each currency relationship in 2013, 2014 and 2015, per data from *The Wall Street Journal*. Higher foreign currency values represent a stronger US dollar.



# Top states by capital investment

Capital investment is an essential ingredient in long-run economic development, and states continued to compete for capital investments in major new facilities in 2015. The 10 states that were the most successful in attracting this investment in 2015 are shown in Figure 11. Projects announced in these states accounted for 75% of total mobile capital investment announced during 2015.

**Texas:** Texas attracted more mobile capital investment than any other state, with project announcements totaling more than \$48b. In each of the last 11 annual US Investment Monitors, Texas has ranked in the top 3 states for capital investment. Texas' natural resources, central location and proximity to the Gulf of Mexico make it a highly desirable location for capital-intensive facilities in the chemical manufacturing and LNG export industries. Data center construction also played a role.

One of the largest Texas investments (\$8b) was by Sasol. The South Africa-based company is building an ethylene manufacturing complex in Westlake. In addition, Rio Grande LNG and Sempra Energy are each investing \$8b to build LNG export facilities – Rio Grande LNG's in Brownsville and Sempra Energy's in Port Arthur.

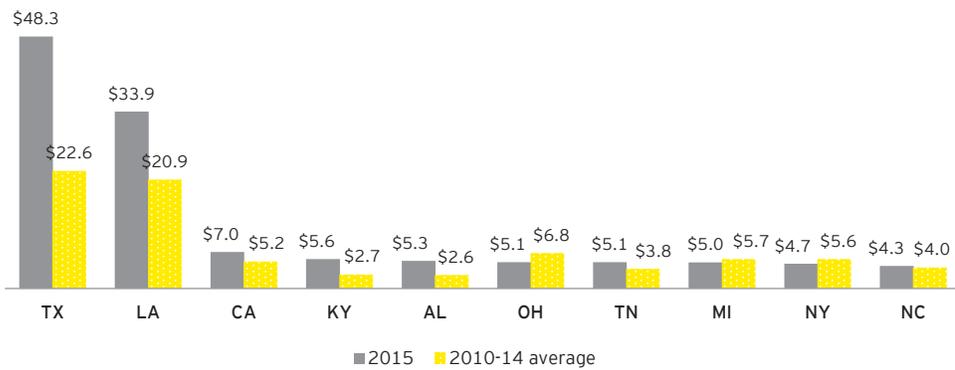
**Louisiana:** Louisiana attracted nearly \$34b in mobile capital investment, second only to Texas. For the third straight year, Louisiana claimed at least 5 of the top 20 largest projects. These five projects alone accounted for more than \$26b in investment announcements and 3,100 jobs. Despite the widespread decline in commodity prices, Louisiana continues to benefit from the US shale gas boom: with ready access to

both natural gas pipelines and shipping ports, Louisiana captured nearly \$28b in investment from the chemical manufacturing industry, or 42% of total industry investment.

**California:** For the third time in four years, California ranks in the top 10 states by capital investment. Total announced investment in California totaled nearly \$7b – well above the \$5b of investment announcements that California averaged from 2010 through 2014. This increase in investment is mostly due to two significant projects: a series of Tesla investments and a Toyota research facility, together totaling more than \$3.4b of announced investment. Tesla, with nearly \$2.4b of planned investments, intends to create 1,900 new jobs.

**Kentucky:** Kentucky ranked fourth in the amount of capital investment spending announced in 2015. The state captured nearly \$6b in investment from a variety of key projects, mostly in the motor vehicle and parts manufacturing; machinery and fabricated metal manufacturing; and transport, storage and logistics industries. The top capital investment project was a \$1.3b investment announced by Ford, which is expanding its Louisville facility. The investment will create 2,000 new jobs.

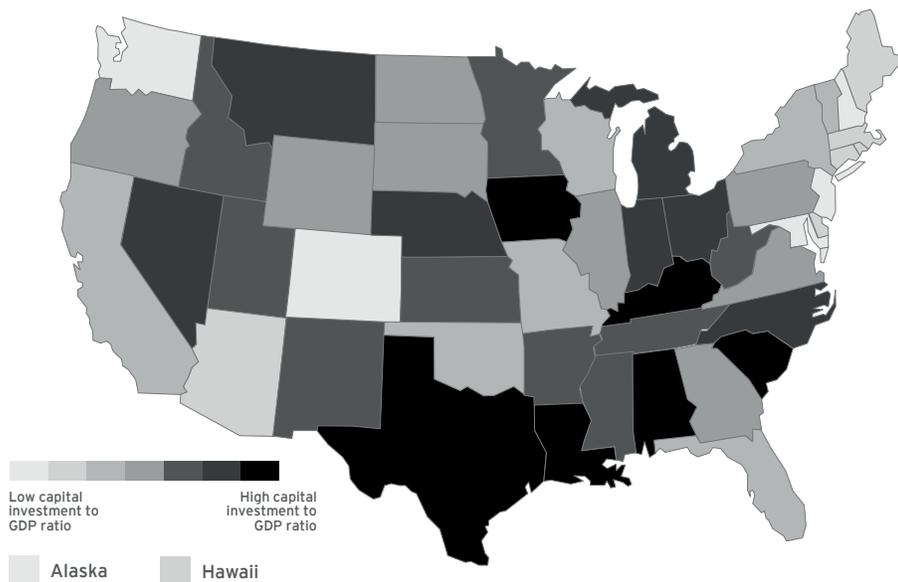
Figure 11. Top 10 states for mobile capital investment (\$b)



Sources: Ernst & Young LLP research; Conway data.

Figure 12 shows capital investment per dollar of state GDP to show investment levels in relation to economy size for each state. Louisiana had the highest ratio of capital investment relative to state GDP by far, followed by Kentucky, Texas and Alabama.

Figure 12. Mobile capital investment as a percentage of state GDP, 2015



Sources: Ernst & Young LLP research; Conway data; US BEA.





## Top states by announced jobs

In 2015, projects monitored by the USIM announced more than 402,000 new and retained jobs, a slight increase over the level of the past five years. New jobs announced by the top 10 states shown in Figure 13 accounted for 55% of all new jobs announced in 2015.

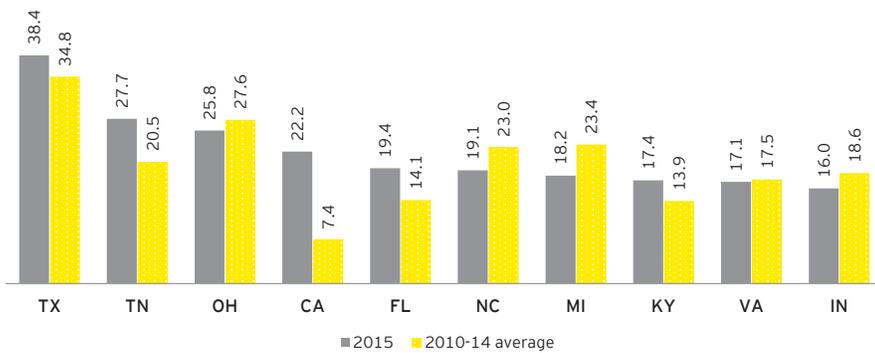
**Texas:** Texas remained the leader in new and retained jobs with approximately 38,400 jobs announced in 2015, a 9% increase from the state's 5-year average of announced new and retained jobs. The leading job-creating industry in the state in 2015 was financial and professional services. For example, Liberty Mutual announced a new office complex in Plano. This new campus will host approximately 5,000 employees relocating from other states. Last year's leading investing industry in Texas – durable goods manufacturing – fell to second place in 2015. Another significant job-creating investment in Texas was by Daikin Industries, an air conditioner manufacturer, which announced 1,500 jobs for a new Houston manufacturing facility.

**Tennessee:** Tennessee project announcements tallied almost 28,000 new or retained jobs in 2015 – 26% higher than it averaged over the previous five years. Leading hospital operator Community Health Systems announced the state's top-ranked job-creating project, a \$66m investment in a back-office expansion expected to create 1,600 new jobs in Nashville. Other job announcements in the state were concentrated in the manufacturing industry, relating to products such as metals, automobiles, semiconductors and rubber. Chemical Vapor Metal Refining (CVMR), for instance, announced a \$313m investment in a new Oak Ridge global headquarters. The new campus – set to employ 620 workers – will have office, research and industrial facilities. The company will collaborate with the Oak Ridge National Laboratory to advance the use of 3-D printing processes. The company will receive a number of city and county tax incentives.

**Ohio:** Ohio has consistently ranked among the top five states for job creation announcements since 2007. This year, Ohio ranked third among all states with approximately 25,800 announced jobs. The leading job-creating industries in 2015 were the financial and professional services and durable goods manufacturing industries. Ohio's top project was a call center announced by Barclays Bank, a multinational bank headquartered in London. The company chose Hamilton as the location of its fourth US call center – set to employ 1,500 workers – to provide customer service for Barclays-branded credit cards. The largest job-creating project in the durable goods manufacturing sector was a foreign investment project announced by the Chinese company Fuyao Glass Industry Group. The company will be investing \$130m and creating 750 jobs in addition to the investment of more than \$200m in the new Moraine plant and the 800 jobs announced in 2014.

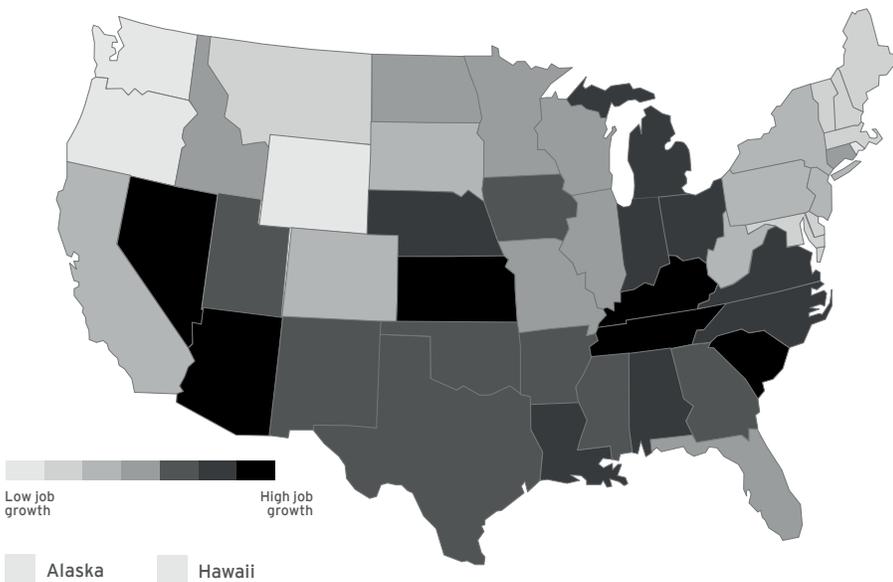
**California:** Capital investments creating more than 22,000 jobs were announced for California in 2015. The top two industries represented in California job announcements were durable goods manufacturing and financial and professional services. Based on the government's large tax credit disbursement to Tesla Motors, the electric vehicle manufacturer has committed to invest nearly \$2.4m and create 1,900 jobs in its California facilities. The second largest job-creating project in the state was the expansion of Lending Club's operations in San Francisco. The peer-to-peer lending platform plans to employ an additional 1,600 people and invest \$14m in the project.

**Figure 13. Top 10 states for mobile project jobs (thousands of jobs)**



Sources: Ernst & Young LLP research; Conway data.

**Figure 14. Announced mobile project jobs as a percentage of existing employment by state, 2015**



Sources: Ernst & Young LLP analysis of Conway data and US BLS data.

Figure 14 shows announced jobs as a percentage of existing employment in each state. Employment growth from announced mobile capital investment was strong in the Southeast, particularly Tennessee and Kentucky, as well as in South Carolina. Nevada was also among the states with the strongest employment growth, mainly due to Faraday Futures' announcement of a new car manufacturing facility north of Las Vegas.

Announcements by companies in financial and professional services created the highest employment in the top four states. Companies operating in the trade and transport and financial and professional services industries were also top job creators. Comparing Figure 12 and Figure 14, states that performed well in terms of capital investment also saw notable mobile job announcements as a percentage of current employment.

## Summary

Many factors play key roles in a company's decision to invest in a particular location. Policymakers and state business leaders alike should be aware of the effects that taxes, operating costs, natural resources and the nature of the local market – among others – have on a state's economic climate. Awareness of industry trends, workforce development levels, and the availability of state and local tax incentives can help businesses choose where to locate their mobile capital investments. These factors were highlighted by several trends seen in this year's US Investment Monitor:

- ▶ **State tax incentives:** As in previous years, many states used tax incentives to persuade companies to locate large capital investment projects within their borders.
- ▶ **Infrastructure:** States with access to infrastructure such as natural gas pipelines and deepwater ports benefited from large capital investment announcements.
- ▶ **Foreign investment:** Foreign investment accounted for 22% of all investments announced in 2015, including several investments of \$1b or more.

This year we have seen a resurgence in motor vehicle manufacturing investments, as well as proof of the continuing strength of the chemical manufacturing industry. The diverse nature of the projects analyzed in this year's US Investment Monitor reinforce what has been shown in the previous nine years of this publication: states should continue to find their competitive edge and keep up with industry trends to attract a variety of investment types and maintain a healthy economy.

# About the 2016 US Investment Monitor (USIM)

The *USIM* is an Ernst & Young LLP research initiative designed to delve into investment in the United States and shed light on the intricacies of doing business at both a national and state level. It represents the input of our Quantitative Economics and Statistics (QUEST) and Indirect Tax Incentives practices.

QUEST assists businesses at every step of the quantitative analysis process. This multidisciplinary practice combines business and industry experience with capabilities such as federal, state and local tax policy analysis and revenue estimation; economic development strategy and targeting; economic and fiscal impact modeling; and statistical sampling and surveys. QUEST also provides analyses to inform legislative and regulatory change, relying on its team of respected tax economists and statisticians to produce quantitative studies of a variety of federal, state and global issues. QUEST's Economic and Fiscal Contributions service provides public- and private-sector clients with estimates of potential economic and fiscal impacts resulting from capital investment, business relocation, economic development initiatives, tax reform proposals and regulatory changes.

Indirect Tax focuses on the tax processes that can help companies effectively manage their state and local tax costs. Our Indirect Tax professionals offer a broad array of both tax compliance and advisory services that relate to a company's business-driven initiatives.

Indirect Tax Incentives professionals in the Indirect Tax practices comprise a dedicated network of US and global practitioners who understand the business incentives arena and how investment in people, property, training

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