



2015 Global PPI¹ Update

- Total investment² in infrastructure³ in 2015 remained steady at US\$111.6 billion, compared with US\$111.7 billion in 2014 and US\$124.1 billion over the past five years.
- 2015 saw the largest single investment commitment ever recorded in the PPI database: Turkey's US\$35.6 billion IGA Airport (New International Airport).
- Excluding Brazil, China, and India, global PPI in 2015 increased by 92 percent year over year
- Solar energy investment climbed 72 percent higher than the previous five-year average to reach US\$9.4 billion; renewables captured nearly two-thirds of energy investments with private participation.

This note is a product of the Public-Private Partnership Group of the World Bank, and the Private Participation in Infrastructure Database (PPI Database), written by Henry Kasper and Deblina Saha, and edited by Jenny Chao.

1

KEY FINDINGS

PPI investment remains at the same level as 2014 because of surging investment in Turkey. Turkey enjoyed a banner year in 2015, with financial closings on seven projects totaling US\$44.7 billion, or 40 percent of global investment. A major portion of commitments in Turkey was comprised of Istanbul's IGA Airport (also known as the New International Airport). This is the largest project ever entered into the PPI Database, with a total investment of US\$35.6 billion, including a concession fee of US\$29.1 billion to the government.

Global investment declines as commitments dwindle in Brazil, China, and India. Notwithstanding the aforementioned key finding, global investment in 2015 decreased to US\$111.6 billion, below the five-year average of US\$124.1 billion from 2010 to 2014. This contraction resulted from lower investments in Brazil, China and India. Most notably, commitments in Brazil were only US\$4.5 billion in 2015—a sharp decline from US\$47.2 billion the previous year, reversing a trend of growing investments. Investment in China also fell significantly below its 5-, 10-, and 20-year averages, as the average transaction dropped to US\$63 million. By number of projects, however, these three historical heavyweights took the lead, with 131 of the 300 global deals, or 44 percent of all projects. Still their combined investment of US\$11.6 billion only made up 10 percent of the global total, compared to 54 percent in 2014, which was also the annual average over the previous four years. India recorded a 10-year low in investments, as only six road projects—usually a rich source of PPI over the past 10 years—reached financial closure.

¹ Private Participation in Infrastructure (PPI) as defined by the Private Participation in Infrastructure Database http://ppi.worldbank.org/resources/ppi_methodology.aspx

² "Investment" refers to investment commitments at the time of financial closure.

³ "Infrastructure" refers to energy, transport, and water projects serving the public in low- and middle-income countries, including natural gas transmission and distribution, but excluding oil and gas extraction.

Record investment thrives outside Brazil, China, and India. Despite lower commitments in Brazil, China, and India, investment in 2015 among all other Emerging Market Developing Economies (EMDEs) climbed to US\$99.9 billion—the highest ever recorded. This figure represents a 92 percent year-over-year increase and is also 80 percent above the five-year average (US\$55.6 billion) and 111 percent above the 10-year average (US\$47.4 billion). Even without the US\$29.1 billion concession fee for Istanbul's IGA Airport, investment outside the top three countries was still the highest ever at US\$70.9 billion. Among this group, 11 countries committed at least US\$1 billion in 2015, comparable to activity over the past 10 years and well above commitments prior to 2005. Moreover, projects are growing in size, as the number of deals in 2015 exceeding US\$500 million was a record 40. Several countries also reemerged from a two-year or more hiatus to close deals in 2015, including El Salvador (US\$157 million), Georgia (US\$417 million), Lithuania (US\$130 million), Montenegro (US\$155 million), Uganda (US\$45 million), and Zambia (US\$830 million).

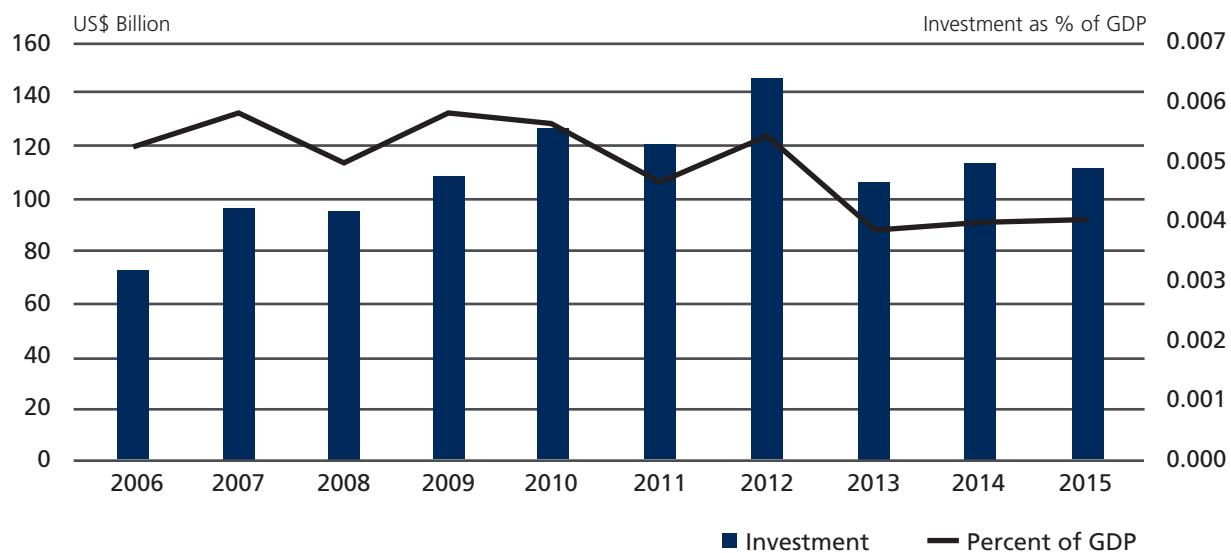
Renewables shine, particularly solar. Investment commitments in solar energy in 2015 swelled to US\$9.4 billion—72 percent higher than the five-year average of US\$5.4 billion (2010–2014). While solar comprised one-quarter of all energy investments, renewables on the whole made up 63 percent of all energy commitments in 2015, surpassing the five-year average of 44 percent and ten-year average of 37 percent. This signals greater adoption of wind (US\$9.4 billion), hydro (US\$2.9 billion), and geothermal (US\$1.3 billion) power. The most popular non-renewable source was coal at 19 percent of the total energy investments.

2

GLOBAL OVERVIEW

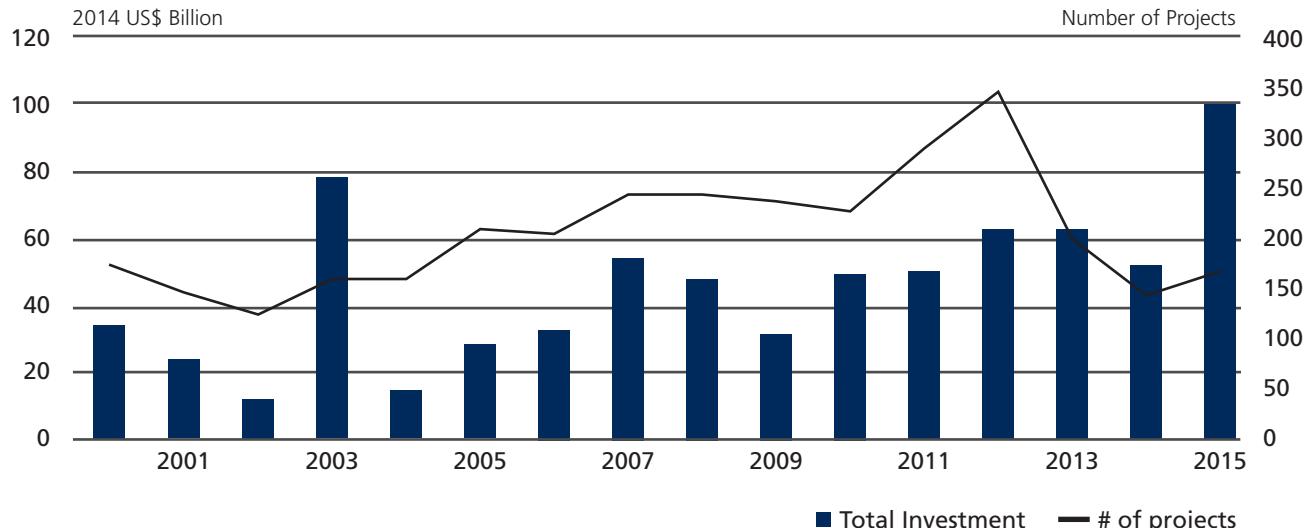
Investment commitments to private infrastructure projects totaled US\$111.6 billion in 2015, on par with 2014 but 10 percent lower than the last five-year average. A large part of the commitments was a single project, i.e., Turkey's IGA Airport, without which global investment commitments would have been US\$82.5 billion, or 26 percent lower than in 2014. But even with the airport, investment as a percent of GDP declined, with the average PPI in 2015 at 0.4 percent, a 20 percent drop from the previous five years (Figure 1).

FIGURE 1: TOTAL INVESTMENT AND PERCENT OF GDP, 2015



Accounting for the decline was lower investment in historical PPI markets: Brazil, China, and India. Brazil's investment of US\$42.7 billion fell below the previous year's. However, the PPI among other EMDEs showed a 92 percent year-over-year increase—80 percent above the five-year average (US\$55.6 billion) and 111 percent above the 10-year average (US\$47.4 billion). While these figures include Turkey's \$35.6 billion IGA Airport, large commitments were also made in Colombia, Peru, the Philippines, and other countries, indicating investments continue to be robust globally. In absolute terms, commitments totaled US\$99.9 billion—the highest ever recorded—led by the top 10 EMDEs outside Brazil, China, and India (Figure 2 and Table 1).

FIGURE 2: TOTAL INVESTMENT EXCLUDING BRAZIL, INDIA, AND CHINA



Source: World Bank, PPI Project Database.

TABLE 1: TOTAL GLOBAL INVESTMENT IN TOP 10 EMDEs IN 2015, EXCLUDING BRAZIL, CHINA & INDIA

	5-Year Average Investment (US\$ millions)	2015 Investment (US\$ millions)	Change from 5-Year Average (%)
Turkey	\$10,247	\$44,681	+52
Colombia	\$2,763	\$11,849	+329
Peru	\$2,637	\$7,081	+169
Philippines	\$2,425	\$5,892	+143
Chile	\$3,706	\$4,295	+16
South Africa	\$2,648	\$3,973	+50
Mexico	\$4,673	\$3,970	-15
Russian Federation	\$5,487	\$3,024	-45
Malaysia	\$883	\$2,675	+203
Morocco	\$1,215	\$1,914	+58

Transaction sizes outside Brazil, China, and India are becoming larger, particularly in the last four years. The average project size was US\$175.3 million in 2011, increasing to US\$319.8 million in 2013 and US\$358.2 million in 2014. The highest ever average project size was US\$419.3 million in 2015, excluding the US\$29.1 billion concession fee for Turkey's airport. This could indicate a rise in market confidence in countries making PPI investments (excluding the three heavyweights), as sponsors and lenders finance larger

projects in smaller economies. In fact, there was a record close of 40 projects exceeding US\$500 million in 2015 (Figures 3 and 4).

FIGURE 3: TOTAL GLOBAL INVESTMENT & AVERAGE PROJECT SIZE, EXCLUDING BRAZIL, CHINA & INDIA

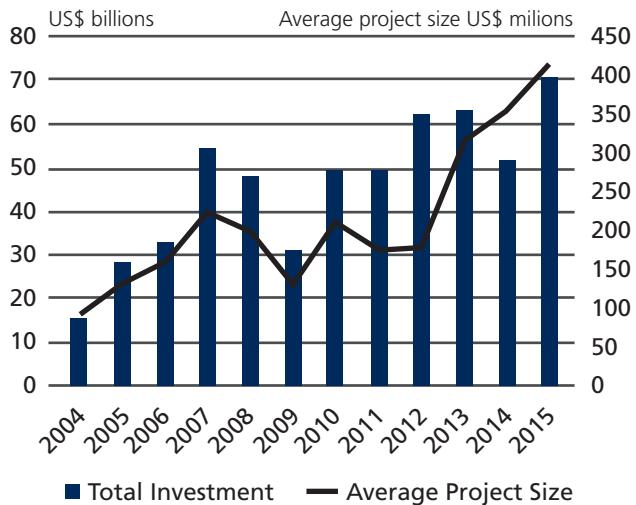
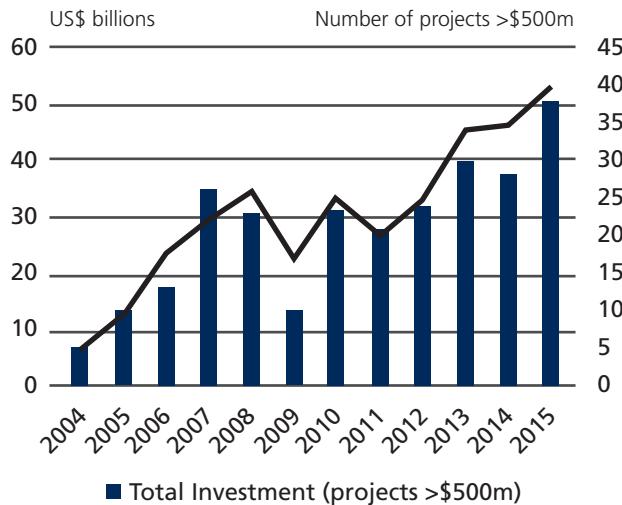


FIGURE 4: TOTAL GLOBAL INVESTMENT & NUMBER OF PROJECTS GREATER THAN \$500 MILLION, EXCLUDING BRAZIL, CHINA & INDIA



Source: World Bank, Project PPI Database; adjusted by 2014 US CPI (excluding Turkey's IGA US\$29.1 billion concession fee)

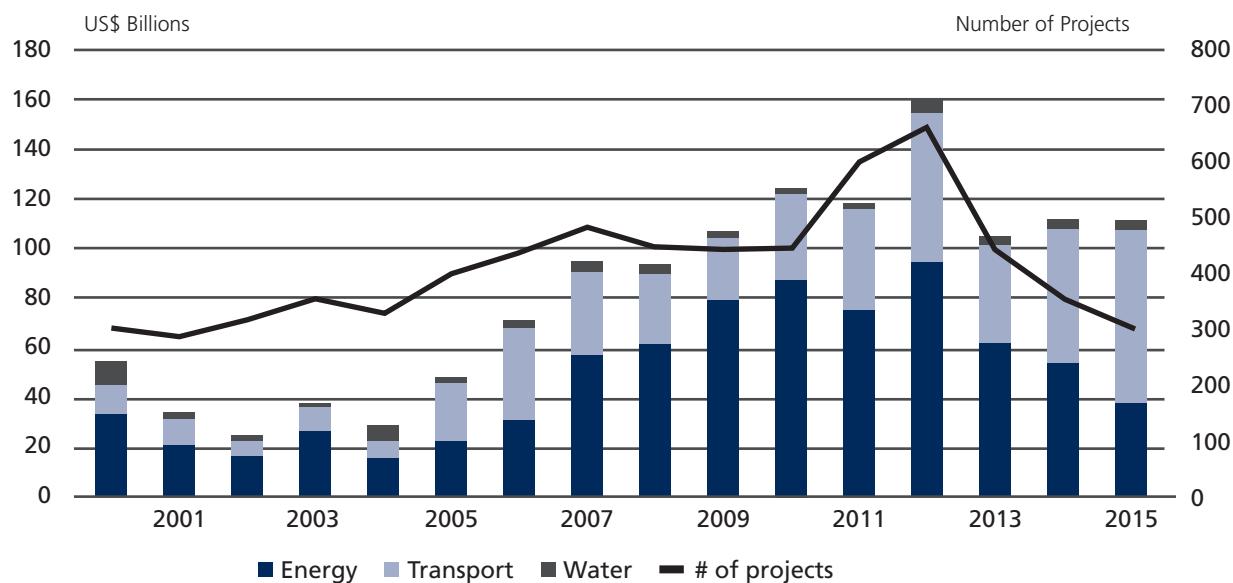
In 2015, the PPI Database introduced a renewed focus on support from Multilateral Development Banks (MDB), which participated in 16 percent of all deals in 2015, or 47 out of 300 transactions, up from 12 percent from 2010 to 2014. MDB support heavily targeted the energy sector, with 39 transactions in 2015: seven in transport and one in water and sewerage. Clearly interested in renewable energy, MDBs have financed 181 of these projects in the past five years, accounting for 75 percent of all projects they supported. The vast majority of MDB support consisted of direct loans, with assistance mostly going to Latin America (14 out of 47 projects).

3

SECTOR OVERVIEW

The largest number of projects comprised energy (205), followed by transport (55), and finally water and sewerage (40). The transport sector, though with only 55 transactions, achieved the highest commitment of US\$69.9 billion, or 63 percent of global investment. Energy encompassed over two-thirds of all transactions at 34 percent, while water accounted for the remaining 4 percent. (Figure 5 and Table 2).

FIGURE 5: TOTAL INVESTMENT IN ENERGY, TRANSPORT, AND WATER, BY SECTOR



Source: World Bank, PPI Project Database.

* Adjusted by 2014 US CPI

TABLE 2: TOTAL INVESTMENT COMMITTED BY SECTOR, 2015

	Number of Transactions	Average Investment Commitment (US\$ Millions)	Total Investment (US\$ Billions)	% Total	Change from 5-year average (%)
Transport	55	\$1,271	\$69.9	63%	+53%
Energy	205	\$184	\$37.6	34%	-50%
Water & Sewerage	40	\$113	\$4.1	4%	+8%
Total	300	\$372	\$111.6	100%	-10%

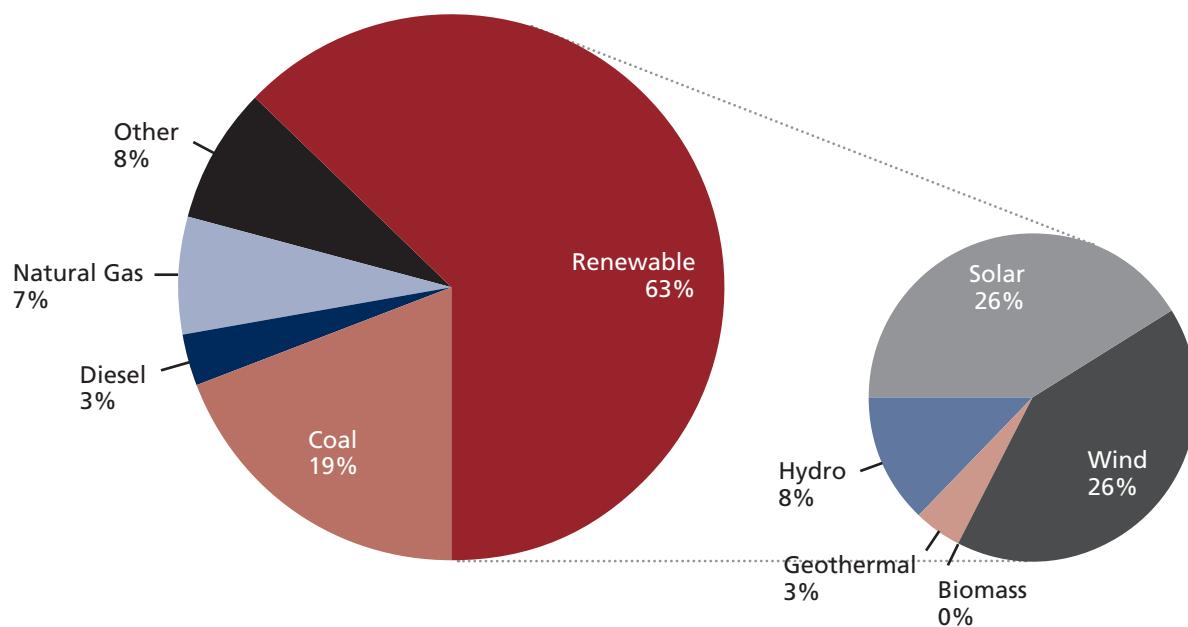
Transport investment stood at US\$69.9 billion, 29 percent above the previous year (US\$54.3 billion), largely because of major airport projects. This investment is also 53 percent above the five-year average (US\$45.6 billion per year) and 86 percent above the 10-year average (US\$37.6 billion). Turkey led the way for notable transport deals, with Istanbul's US\$35.6 billion IGA Airport and the US\$6.4 billion Gebze-Izmir Motorway.

In 2015, investment in the **energy** sector took a downward swing to US\$37.6 billion year over year, below the previous year's US\$53.5 billion. Electricity generation projects continued to diminish in both number and investment, with US\$33.6 billion in 2015, or 43 percent lower than the five-year annual average (US\$59.0 billion), and with 191 projects or 32 percent below the five-year average (279 deals per year). Nonetheless, electricity generation appropriated 93 percent of the energy projects, while 67 of these or 88 percent came from renewable energy sources, the most prominent of which were solar PV and onshore wind technologies.

Renewable energy continues to make inroads in the energy mix of many developing countries. Solar energy commitments in particular have seen solid gains. At US\$9.4 billion, commitments in solar energy in 2015 were 72 percent higher than the five-year average of US\$5.5 billion (2010–2014). South Africa alone secured US\$2.4 billion in solar deals, while Morocco, Chile, and China closed an additional US\$4.1 billion combined. While solar comprised one-quarter of all energy investments, renewables made up 63 percent of all energy commitments in 2015, exceeding the five-year average of 45 percent and ten-year average of

39 percent. This indicates a move toward wind (US\$9.4 billion), hydro (US\$2.9 billion), and geothermal (US\$1.3 billion) power (Figure 6).

FIGURE 6: TOTAL INVESTMENT IN ENERGY BY SOURCE, 2015



Source: World Bank, PPI Project Database.

At US\$4.1 billion, investment in water was 8 percent above the five-year average of US\$3.8 billion per year and 17 percent above the 10-year average of US\$3.5 billion per year. In 2015, 40 transactions reached financial closure—mostly in China (17) and Brazil (15). However, the largest deal was the US\$1.2 billion Volgograd Water Communal Infrastructure Concession in Russia. Although 18 of the 40 deals were in sewerage treatment plants, this took only US\$391 million of the total. The remainder was spread across five other segments.

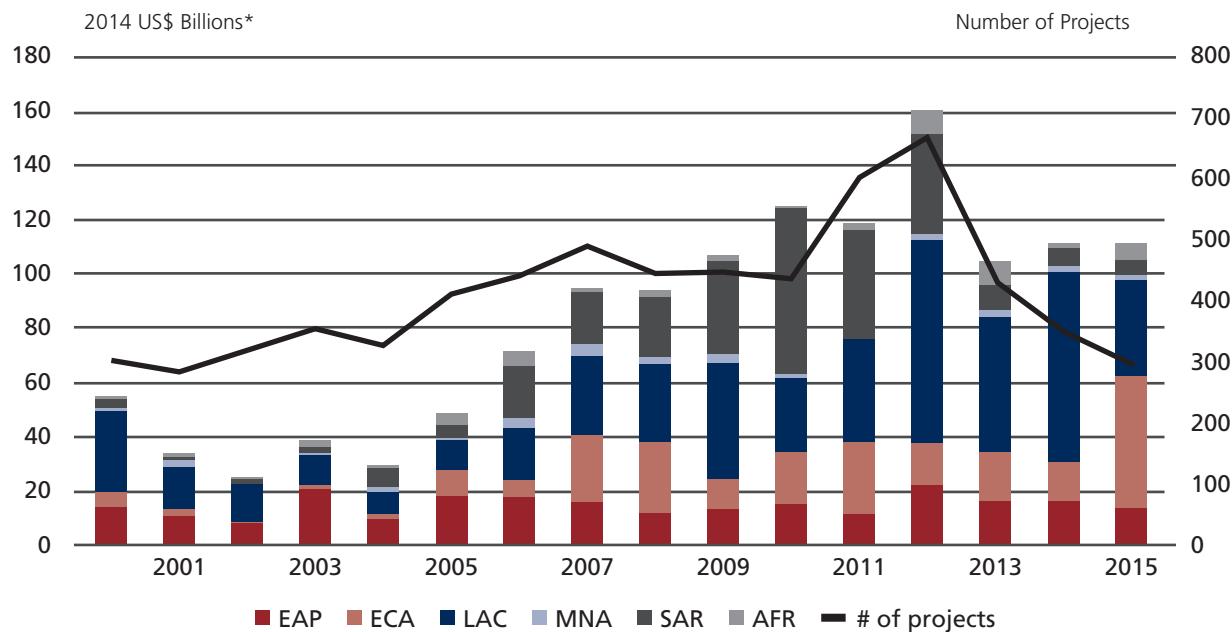
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REGIONAL OVERVIEW

Investments in four out of the six World Bank regions declined year-over-year: East Asia Pacific (EAP), Latin America and the Caribbean (LAC), the Middle East and North Africa (MENA), and South Asia (SAR), while investments increased in Africa (AFR) and Europe and Central Asia (ECA).

In LAC, a banner year in Colombia, Chile, and Peru could not offset a 90 percent drop in Brazilian investment. EAP commitments dipped only slightly to US\$13.4 billion, from US\$15.9 billion, as China, Indonesia, Thailand, and Vietnam all spiraled downward by over 50 percent year over year. Conversely, the Philippines had a record investment of US\$5.9 billion in 12 relatively large energy projects, averaging US\$428.5 million, and a transport project of US\$750.0 million. Investments in SAR fell marginally to US\$5.6 billion, from US\$6.2 billion, while India's investments continued to shrink for the sixth consecutive year. Despite Morocco's US\$1.8 billion NOORo II and III concentrated solar power (CSP) deals, MENA had fewer investments than in 2014 (Figure 7).

FIGURE 7: TOTAL INVESTMENT IN ENERGY, TRANSPORT, AND WATER BY REGION



Source: World Bank, PPI Project Database.

* Adjusted by US CPI

In ECA, commitments more than tripled as megadeals in Turkey drove regional growth. The US\$35.6 billion IGA Airport in Istanbul and the US\$6.4 billion Gebze-Izmir Motorway made up the vast majority. In a marked turnaround from 2014, commitments in AFR more than doubled to US\$6.3 billion, from US\$2.5 billion. Renewable energy investment in South Africa and two power generation projects, one each in Nigeria and Zambia, for slightly over US\$800 million, heavily contributed to growth in the region. LAC was the top region by number of projects and ECA by investment, followed by EAP, AFR, SAR, and MNA (Table 3 and Figure 8).

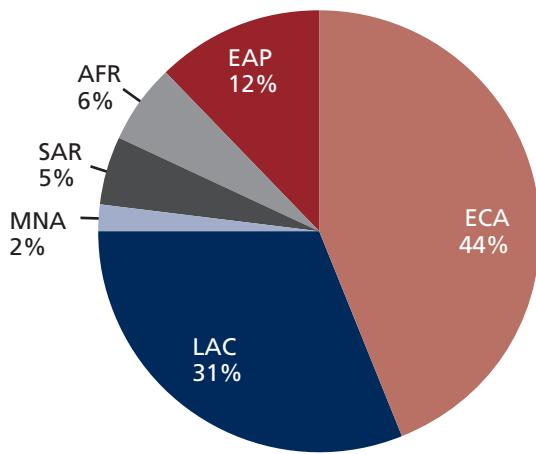
TABLE 3: TOTAL INVESTMENT BY REGION, 2015

	Number of Projects	Total Investment (US\$ Billions)	% Total	% Change from 5-year average
LAC	128	\$35.2	32%	-32%
ECA	15	\$48.7	44%	+160%
EAP	79	\$13.5	12%	-16%
AFR	23	\$6.3	6%	+31%
SAR	43	\$5.6	5%	-82%
MNA	12	\$2.3	2%	+12%
Total	300	\$111.6	100%*	-10%

*rounded down

Latin America and the Caribbean. The region attracted investments of US\$35.2 billion, capturing 32 percent of global investment. Overall, the 128 projects included 73 in energy, 37 in transport, and 18 in water. Most projects were in Brazil with 46, followed by Chile with 18, Colombia with 18, and Peru with 11. An additional 35 transactions took place in Mexico (8), Uruguay (8), El Salvador (5), Honduras (4), Jamaica (4), Costa Rica (2), Panama (2), Dominican Republic (1), and Guatemala (1).

FIGURE 8: REGIONAL DISTRIBUTION OF TOTAL INVESTMENT IN 2015



Source: World Bank, Project PPI Database

Europe and Central Asia. The region amassed 15 deals totaling US\$48.7 billion, or 44 percent of global investment. Although Turkey had slightly less than half of all new deals (7 out of 15), the country engendered 92 percent of the region's investment. The Russian Federation committed to four projects, while Armenia and Montenegro each invested in one after a year of absence from the PPI market. Georgia and Lithuania each focused on one project as well after several years of PPI inactivity.

East Asia and Pacific. The third largest destination for PPI, the region attracted US\$13.5 billion in 79 projects. China made a total investment of US\$3.0 billion in 49 projects out of the total, although most were relatively small deals. In contrast, the Philippines committed to a higher investment (US\$5.9 billion) than China across 13 deals. Thailand produced 14 deals, with US\$1.6 billion in total commitments; Malaysia had one large deal totaling US\$2.6 billion. The remaining commitments were in Indonesia and Lao People's Democratic Republic, each with one project. Investment by sector was primarily in energy, with 60 deals for US\$12.2 billion; water, with 17 for US\$ 380 million; and transport, with two for US\$761 million.

Sub-Saharan Africa. The region successfully closed on US\$6.3 billion for 23 projects, mainly in the energy sector. Investment was driven by South Africa's REIPPP Program, with 16 of the region's 23 projects. Eighteen of the 23 deals were in renewables amounting to US\$4 billion. The largest was the US\$900 million Xina Solar One CSP project in the Northern Cape Province, designed to power 90,000 households with clean energy. The remaining deals were in Senegal (2), Uganda (2), Nigeria (1), Rwanda (1), and Zambia (1).

South Asia. There were 43 deals for a combined total of US\$5.6 billion that closed in the region, representing 5 percent of the total investment—a decline of 82 percent from the five-year average of US\$30.5 billion. Consistent with historical trends, India generated a majority of the projects (36 out of 43); Pakistan had four; Nepal, two; and Bangladesh, one. Notably, 26 of the 36 projects in India, amounting to US\$2.0 billion, targeted renewable energy, while all of Pakistan's projects, totaling US\$749.9 million, solely focused on renewables.

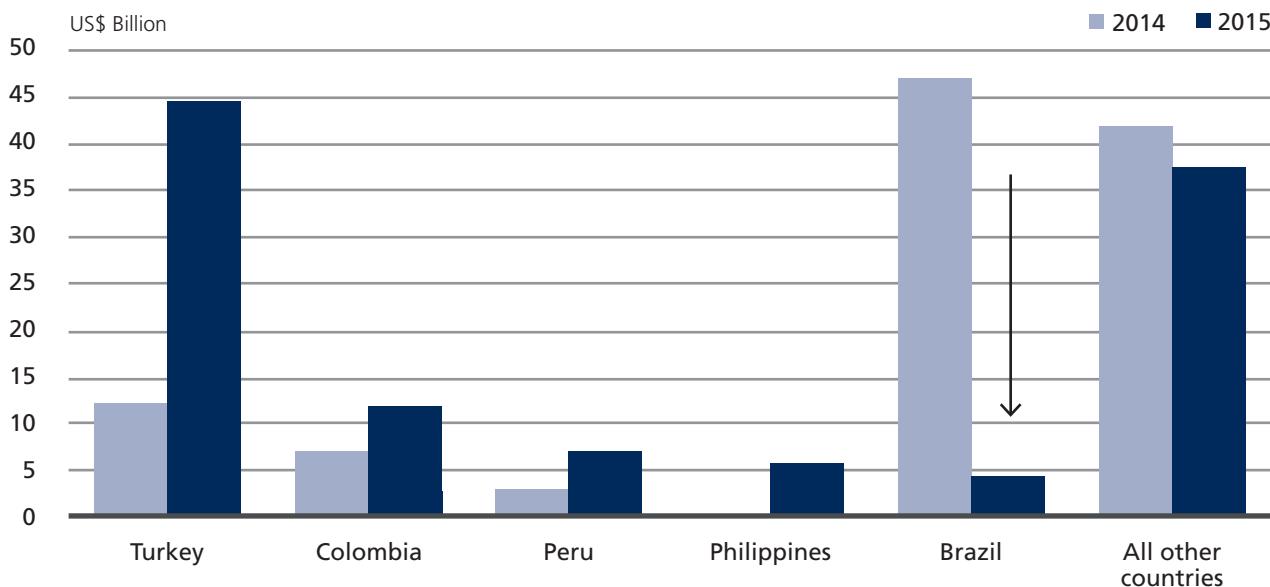
The Middle East and North Africa. Twelve deals closed at an aggregate of US\$2.3 billion—mostly solar projects in Morocco and Jordan. Morocco's two largest deals, NOORo II parabolic CSP and NOORo III tower CSP, made up 77 percent of the region's total. The other eight solar deals, seven of which were bundled financially (called the “Seven Sisters”), were all in Jordan. One water project, Gabal El-Asfar Wastewater Treatment Plant Phase 1, closed in Egypt as a management and lease contract for a four-year duration (sponsored by France's SUEZ).

5

TOP COUNTRIES

The five countries with the highest investment in 2015 were Turkey, Colombia, Peru, the Philippines, and Brazil. These five countries together attracted US\$74 billion, capturing 66 percent of global commitments in the developing world in 2015 (Figure 9 and Table 4).

FIGURE 9: TOTAL INVESTMENT IN THE TOP FIVE COUNTRIES



Source: World Bank, PPI Project Database.

The top market for PPI investment in 2015 was **Turkey**, where two megadeals helped drive up the totals. Investment commitments in 2015 reached US\$44.7 billion—US\$43.1 billion in transport and US\$1.6 billion in energy. The US\$43.1 billion in transport is Turkey's highest ever investment, while the US\$1.6 billion investment in energy is 80 percent below the five-year average of US\$8.0 billion. All three energy deals were in power generation: one geothermal, one wind, and one natural gas-fired power plant. The transport deals consisted of three airports and one road project. All but one were large projects in excess of US\$1 billion, led by Istanbul's IGA Airport at US\$35.6 billion. Five Turkish companies won the 2013 airport tender when they agreed to pay a US\$29.1 billion concession fee for operational rights for 25 years, beginning in 2017.

With 18 deals, **Colombia** secured the second highest investment total of US\$11.8 billion. The 18 projects were all in transport (17 roads and one airport). Five highway deals, each valued at roughly US\$1 billion, along with other sizeable road deals, propelled investments. The US\$11.7 billion in road projects in 2015 is a record high for Colombia, roughly 34 percent of its total PPI investment over the past 25 years in all sectors combined.

Eleven deals in **Peru** closed at US\$7.1 billion, driven by a single project—the US\$5.4 billion Lima Metro Line 2. Moreover, there was notable investment in nine energy projects, although no water PPI investment was made.

TABLE 4: TOTAL INVESTMENT IN TOP 5 COUNTRIES IN 2015

	Number of Projects	Average Investment (US\$ millions)	Total Investment (US\$ billions)	Total Global Investment (%)
Turkey	7	\$6,386	\$44.7	40%
Colombia	18	\$658	\$11.8	11%
Peru	11	\$644	\$7.1	6%
Philippines	13	\$453	\$5.9	5%
Brazil	46	\$98	\$4.5	4%
All Other Countries	205	\$187	\$37.6	34%
Total	300	\$372	\$111.6	100%

The **Philippines** had the fourth highest volume of any EMDE country, with US\$5.9 billion in commitments, the country's second highest ever PPI investment: US\$5.1 billion for energy projects and US\$750 million for a single transport deal—construction of the Mactan-Cebu International Airport on a 25-year build-operate-transfer basis. Although the number of energy projects was split evenly between renewables and traditional hydrocarbons for power generation, investment was heavily skewed toward fossil fuels by roughly four to one. The largest deal was the US\$1.2 billion coal-fired San Buenaventura Power Plant.

PPI investment in **Brazil**—previously the largest PPI market—fell precipitously in 2015. Nonetheless, the country closed on 46 deals and remained in the top five. Investment was spread across three sectors: US\$2.1 billion allocated to energy; US\$1.6 billion to water and sewerage; and US\$862 million to transport. Interestingly, 2015 marks the first time since 2002 that investment in the water sector outpaced transport.

6

TOP DEALS GLOBALLY

These top 10 projects account for over 58 percent of global investment (US\$57.2 billion of US\$111.6 billion).

TABLE 5: TOP 10 DEALS GLOBALLY IN 2015

Country	Project	Total Amount (US\$ million)	Sponsors (% Ownership/Sponsor Country)
Turkey	IGA Airport Istanbul	\$35,587	Limak Holding (20%/Turkey), Cengiz Holding (20%/Turkey), Kolin Group (20%/Turkey), MNG Holding (20%/Turkey), Kalyon Group (20%/Turkey)
Turkey	Gebze-Orhangazi-Izmir Motorway	\$6,356	Astaldi SpA (19%/Italy), Gocay Group (19%/Turkey), Makyol (19%/Turkey), Nurol Holding (19%/Turkey), Ozaltin (19%/Turkey), Yuksel Insaat AS (9%/Turkey)
Peru	Lima Metro Line 2	\$5,373	ACS Group (Actividades de Construcion y Servicios) (25% / Spain), Ferrovial Group (19%/Spain), Impregilo SpA (19%/Italy), Cosapi (10%/Peru), Finmeccanica (29%/Italy)
Malaysia	Project 3B, coal-fired Jimah East Power Plant	\$2,675	Mitsui (30%/Japan)
Mexico	Los Ramones Gas Pipeline Phase II Norte	\$1,513	Sempra Energy International (25%/United States)
Russian Federation	Volgograd Water Communal Infrastructure Concession	\$1,200	Water Supply Concession LLC (100%/Not Available)
The Philippines	San Buenaventura Coal-Fired Power Plant	\$1,195	Manila Electric Company (Meralco) (51%/Philippines), Electricity Generating Company (EGCO) (49%/Thailand)
Colombia	Autopista Chirajara-Villavincencio	\$1,164	Corficolombia (100% /Colombia)
Turkey	Dalaman Airport Domestic Terminal	\$1,086	YDA (100%/Turkey)
Colombia	Autopista Neiva-Mocoa-Santana	\$1,080	Carlos Alberto Solarte S.A. (20%/Colombia), Latinco S.A. Latinoamericana de Construcciones (10%/Colombia), ICA SA de CV (35%/Mexico), Cass Constructores y Cia (20%/Colombia), Alca Ingenieria S.A.S. (5%/Colombia), Estyma S.A. (10%/Colombia)

About the Private Participation in Infrastructure Projects Database:

The Private Participation in Infrastructure Database is a product of the World Bank's Public-Private Partnerships Group. Its purpose is to identify and disseminate information on private participation in infrastructure projects in low- and middle-income countries. The database highlights the contractual arrangements used to attract private investment, the sources and destination of investment flows, and information on the main investors. The site currently provides information on more than 8,000 infrastructure projects dating from 1984 to 2015. It contains over 50 fields per project record, including country, financial closure year, infrastructure services provided, type of private participation, technology, capacity, project location, contract duration, private sponsors, debt providers, and development bank support. This project represents the best efforts of a research team to compile publicly available information on those projects, and should not be seen as a fully comprehensive resource. Some projects—particularly those involving local and small-scale operators—tend to be omitted because they are usually not reported by major news sources, databases, government websites, and other sources used by the PPI Projects database staff. For more information, please visit: <http://ppi.worldbank.org/>.

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