

## Research Report

# European Infrastructure Update 2015: Mid-Year Review

August 2015

*Passion to Perform*

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## Table of Contents

Executive Summary .....	1
Economic Outlook .....	2
Recovery is gradually taking hold in Europe .....	2
Monetary policy to remain accommodative .....	3
Inflation likely to stay low .....	3
Infrastructure and low inflation .....	4
Falling energy prices and infrastructure .....	5
European Infrastructure Investment Themes.....	8
Structural changes in the electricity market.....	8
Transportation sector supported by growing traffic volumes .	12
Infrastructure Funding and Investment in Europe.....	16
Infrastructure investment trends in 2014 .....	16
Pipeline and transaction outlook for 2015 .....	18
Infrastructure privatization prospects in Europe .....	19
Infrastructure Megatrends .....	21
Conclusions .....	22
Appendix: Key European Infrastructure Markets .....	23
Important Notes .....	26
Research & Strategy Team – Alternatives and Real Assets .....	27

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## Executive Summary

- In 2014 European unlisted infrastructure continued to attract interest among investors seeking to match their long-term liabilities, as it can offer relatively low long-term cash flow volatility, low correlation with other asset classes and inflation-hedged total returns. Europe represents a leading global market for infrastructure investment and offers a robust infrastructure investment pipeline, ranging from the fast-growing economies of emerging Eastern Europe to the larger economies of Western Europe.
- **Core infrastructure markets:** In our opinion, the most relevant markets for core infrastructure investment in Europe include the United Kingdom, Germany, France, Spain, Italy and the Nordics<sup>1</sup>. These markets offer a relatively predictable investment environment, with a relatively transparent institutional, legal and regulatory framework and represent the main focus of this research paper.
- **Europe returns to growth:** Economic recovery is gradually taking hold in Europe, supporting the investment environment. While low energy prices should prove supportive for economic growth and traffic volumes in Europe, low inflation might prove challenging for regulated infrastructure networks in certain cases.
- **Energy revolution:** In our view, the structural shift in electricity generation towards renewables and away from thermal generation will offer significant investment opportunities across Europe in the energy sector. As European utilities continue to deleverage through disposals and refocus their business, further brownfield opportunities might materialise.
- **Transportation recovering:** The European transportation industry returned to growth in 2014 and the market is expected to accelerate in 2015, supporting investment fundamentals in the sector. While airport traffic performance was stronger in 2014 and is forecast to accelerate in 2015, performance of maritime transport and toll roads, which in some cases are still below pre-crisis levels, is expected to gradually improve in 2015 as economic growth accelerates.
- **State privatisations:** In 2015, European countries with high deficits and limited economic growth prospects, particularly in Southern Europe, will continue to pursue the privatisation of state owned infrastructure assets to contrast rising debt burdens, supporting the pipeline of potential investment opportunities.
- **Megatrends:** In the long term, we forecast increasing investor interest in unlisted infrastructure; as a number of mega-trends including climate change, energy efficiency and storage, demographics, urbanisation, and an ageing asset base will require increasing investment in infrastructure.

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<sup>1</sup> Includes Denmark, Sweden, Norway and Finland

# Economic Outlook

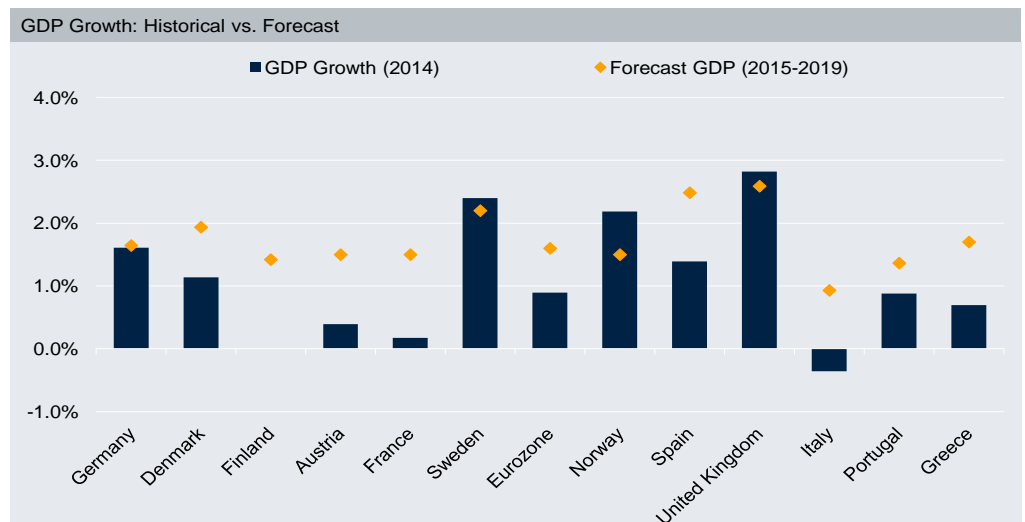
## Recovery is gradually taking hold in Europe

In the Eurozone, annual GDP growth strengthened substantially compared to previous years, but the pace continued to disappoint, reaching 0.9% in 2014. The economy remained strong in the United Kingdom, with GDP growing by 2.8% and forecast to expand further in 2015, reaching 2.6% growth. During 2014, a new growth pattern emerged in the four largest economies of the Eurozone: growth was stronger than average in Spain and Germany, but was below average in France and Italy<sup>2</sup>.

Nonetheless, there remains an expectation that recovery will gradually take hold in the Eurozone in 2015 and strengthen in the medium term. Although with differences across countries, GDP growth is forecast to strengthen, reaching 1.6% in 2015 accelerating to 1.8% in 2016<sup>3</sup>. The European Central Bank (ECB) quantitative easing (QE) programme is expected to be supportive for the Eurozone economic recovery and to continue throughout 2015<sup>4</sup>.

QE has also led to a depreciation of the euro in the first quarter of 2015 which might make European infrastructure assets more attractive to foreign investors. Low oil prices and sovereign yields, as well as a weak euro, should support the economy in gaining momentum. Europe's recovery should also be led by the return of bank lending, which despite ECB efforts fell further throughout 2014.

Risks for the European economy remain, including exchange rate shifts and geopolitical tensions. Political uncertainty remains a risk in the outlook for Europe in 2015, where notable elections are to be held in Spain, Portugal, and Poland. Long periods of austerity and falling living standards have increased the draw of parties with policies at the extremes of the political spectrum. Elections may weigh upon investor sentiment, while potentially slowing reform programmes.



Source: Oxford Economics, 15 June 2015. There is no guarantee that the forecasts will materialize.

<sup>2</sup> Oxford Economics, 15 June 2015

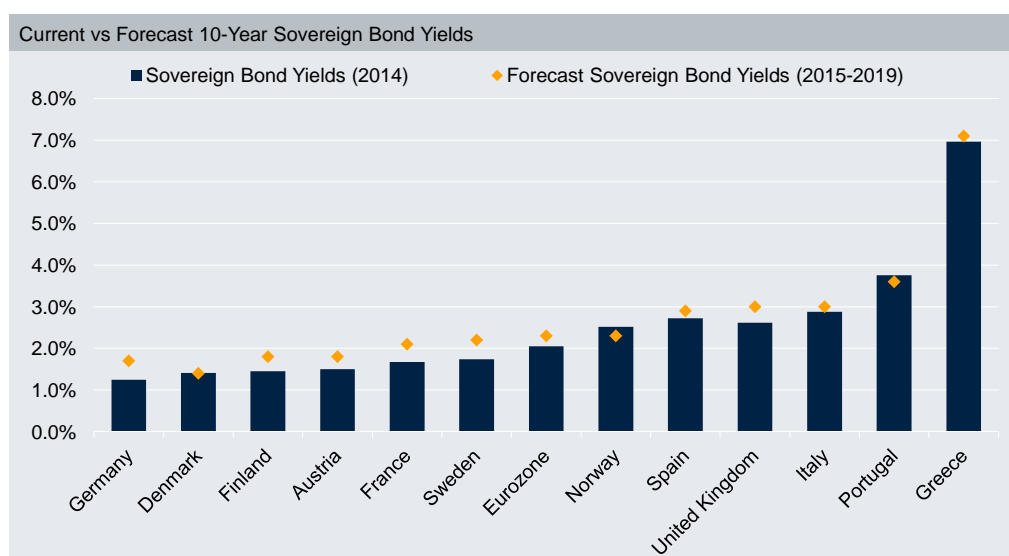
<sup>3</sup> Oxford Economics, Current Economic Forecast, 15 June 2015

<sup>4</sup> Oxford Economics, 31 March 2015

## Monetary policy to remain accommodative

The ECB QE programme will release €60 billion a month into the Eurozone economy between March 2015 and the end of September 2016<sup>5</sup>. The QE programme is open-ended, and might extend beyond September 2016, until “a sustained adjustment in the path of inflation”<sup>6</sup> is observed. The size of the ECB’s QE programme (at least €1.1 trillion) was at the top of market expectations and has led yields to fall to record lows, along with a further reduction in Eurozone bond spreads. If, as expected, the Euro depreciates over the longer term, a reassessment of inflation expectations could cause yields to gradually move upwards<sup>7</sup>.

In the United Kingdom, the Bank of England (BoE) continues to hold its official bank rate at 0.50% where it has been since March 2009. As inflation remains low amid weak energy prices and slow earnings growth, the BoE might be more patient before raising interest rates, reinforcing expectations that interest rates might stay at 0.5% throughout 2015<sup>8</sup>.



Source: Oxford Economics, 15 June 2015. There is no guarantee that the forecasts will materialize.

## Inflation likely to stay low

In 2014, for the second year in a row, inflation in the Eurozone turned out to be lower than expected, mainly due to subdued global inflation trends and weaker-than-expected domestic economic conditions<sup>9</sup>. In the first half of 2015, Euro area inflation is forecast to fall further, particularly given the recent strong decline in crude oil prices. This is likely to push headline inflation to unusually low levels and then rise gradually through the second half of 2015. Core inflation should remain broadly stable<sup>10</sup>.

For 2015, CPI in the Eurozone is forecast at 0.3% , with deflationary pressure being particularly strong in Greece (-1.5% ) and Spain (-0.3% ), with inflation remaining low in the

<sup>5</sup> European Central Bank, Press Release, “ECB announces expanded asset purchase programme”, 22 January 2015

<sup>6</sup> European Central Bank, Mario Draghi, “Introductory statement to the press conference”, 15 April 2015

<sup>7</sup> Deutsche Asset & Wealth Management, “CIO Flash, Post ECB QE decision – beating expectations”, 23 January 2015

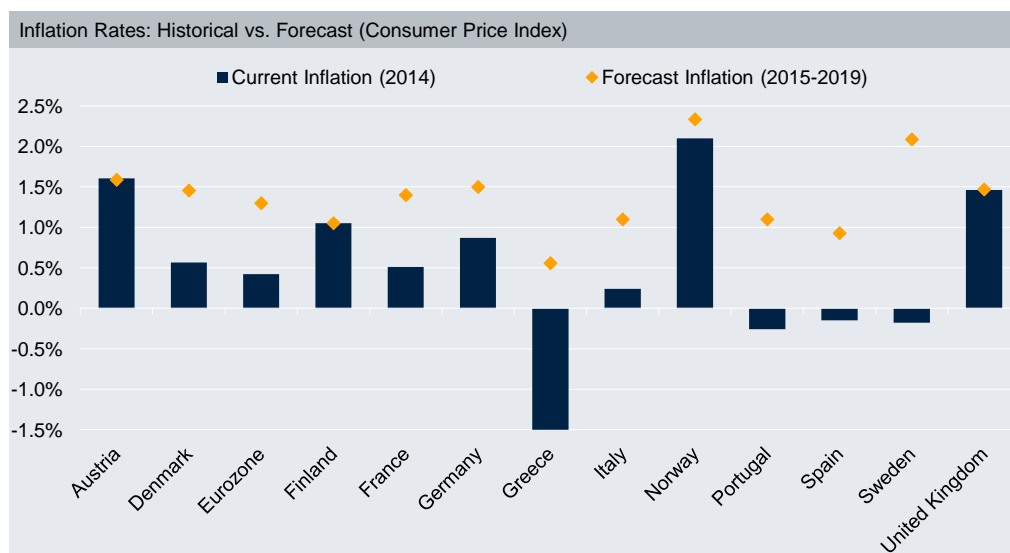
<sup>8</sup> Oxford Economics, Current Economic Forecast, 15 June 2015

<sup>9</sup> Deutsche Bank Research, “Euro area inflation outlook”, 12 December 2014

<sup>10</sup> Oxford Economics, Current Economic Forecast, 15 June 2015

rest of the Eurozone (Italy 0.3% , France 0.4% , German 0.6% )<sup>11</sup>. U.K. inflation in December 2014 was low at 0.5%<sup>12</sup>, well below the official 2.0% target.

The BoE forecasts that “inflation is likely to fall further in the near term” and could temporarily turn negative; however, inflation is likely to rebound in the second half of 2015, as the effect of falling energy prices drops out of the annual rate. Inflation in the United Kingdom is forecast at 0.3% for 2015<sup>13</sup>.



Source: Oxford Economics, 15 June 2015. There is no guarantee that the forecasts will materialize.

## Infrastructure and low inflation

Concerns have been growing about the risk that the Eurozone may experience a deflationary period, with markets’ long-term inflation expectations dropping below the ECB’s long-term inflation target of 2.0%. Current forecasts exclude a period of protracted deflation in the Eurozone, but don’t exclude the possibility that the Eurozone might experience several years of low inflation<sup>14</sup>.

A protracted period of low inflation can have negative repercussions on economic growth, keep interest rates low, and increase real debt burdens, reducing the spending power of firms and consumers<sup>15</sup>. The quasi-monopolistic market position and the essential services nature of infrastructure assets should translate into pricing power to increase prices above inflation or maintain them in the event of a deflationary environment, and represents a key strength of the asset class in the current macroeconomic environment.

**Regulated assets**, including amongst others electricity networks, pipelines, toll roads and airports can have their price-setting mechanism linked to inflation. This is for example the case for electricity transmission in the United Kingdom, France, Italy and Germany or water companies in the United Kingdom. Lower inflation may cause lower tariff and revenue growth. Depending on the country/sector, tariff regulation may not provide a remedy for

<sup>11</sup> Oxford Economics, Current Economic Forecast, 15 June 2015

<sup>12</sup> Bank of England, “Overview of the Inflation Report”, 6 February 2015

<sup>13</sup> Oxford Economics, Current Economic Forecast, 15 June 2015

<sup>14</sup> Oxford Economics, Current Financial Forecasts, 15 June 2015

<sup>15</sup> Fitch, “UK infrastructure projects well protected against low inflation”, 2 March 2015

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deflation, while in certain cases inflation indexation would not be applied if it produces a negative adjustment.

The operating and maintenance contracts of regulated assets may use the same inflation index used to determine regulated revenues, thereby mitigating further the effect of inflation volatility on operating cash-flow performance<sup>16</sup>. However, a perfect match or inflation hedge is not always achievable and slower growth in revenues can often not be fully offset by a reduction in operating costs. Moreover, while some regulated networks might have issued inflation-linked debt to mitigate their exposure to inflation, the majority of gas and electricity networks pay nominal interest<sup>17</sup>.

Falling inflation, real interest rates, and government bond yields are also likely to affect earnings for regulated networks, where these measures feed into the allowed return through the price determination mechanism. The allowed return is typically set by reference to an estimate of the weighted average cost of capital (WACC), which can take government bonds as reference for the risk free rate. Lower government yields can therefore translate into lower return for regulated infrastructure assets.

**Unregulated assets** are more exposed to a slowdown of economic activity, typical of a deflationary environment, while regulated assets have revenue profiles that can be independent from demand volumes. Depending on contractual terms and the degree of exposure to the economic cycle, some unregulated assets, such as merchant power plants, can be more exposed than other assets to the economic cycle, such as power plants with long-term contracted revenue.

While some assets, such as toll roads, are more exposed to domestic activity, other assets, for example international airports, have the potential to mitigate the effects of sluggish domestic demand, benefiting from external demand, such as international inbound traffic<sup>18</sup>.

### Falling energy prices and infrastructure

Oil prices fell by 49% between the first quarter of 2014 and the first quarter of 2015<sup>19</sup>, with the impetus for the fall in prices on the supply side. In 2015, the drop in oil prices below USD60 a barrel would provide a tailwind for the global economy. Deutsche Bank Research estimates that lower oil prices would add 20 to 40 basis points to global GDP in 2015.

Oil prices will likely remain low until supply cuts force prices back up, but they are forecast to gradually increase, reaching USD70 a barrel by the end of 2016 and trending towards USD75 a barrel by 2019, a price still below the recent historical peaks<sup>20</sup>.

**Transportation:** lower oil prices can prove supportive for the transportation sector, as higher GDP growth may translate in higher traffic volumes. The direct real benefits of lower oil prices on traffic volumes may, however, be limited, due to the inelastic profile of

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<sup>16</sup> Fitch, "UK infrastructure projects well protected against low inflation", 2 March 2015

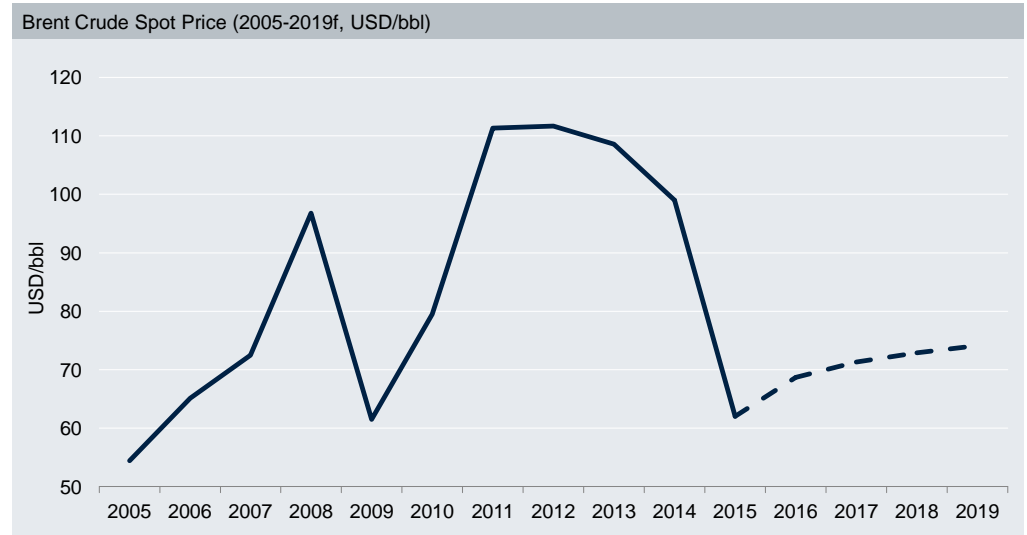
<sup>17</sup> Moody's Investors Service, "Falling inflation a credit negative for most UK regulated networks, but may strengthen hand in CMA appeals", 30 March 2015

<sup>18</sup> Fitch, "European toll roads able to resist deflation pressures", 1 December 2014

<sup>19</sup> Brent crude spot price, Oxford Economics, 15 June 2015

<sup>20</sup> Brent crude spot price, Oxford Economics, Current Economic Forecast, 15 June 2015

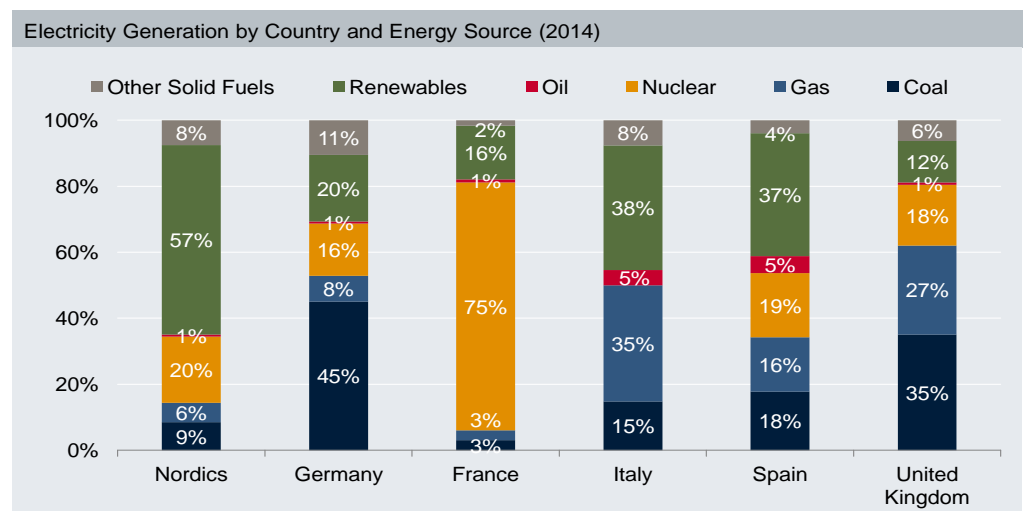
traffic volumes to fuel prices. Energy-intensive transportation industries, such as airlines, are likely to benefit from lower costs of petroleum products. Toll roads, ports, and airports have an indirect exposure to oil prices, as this affects transport costs for their clients, benefiting from a decrease in oil prices as well.



Source: Oxford Economics, 15 June 2015 f=forecast. There is no guarantee that the forecasts will materialize.

**Energy:** The consequences of falling oil prices on the European energy market are complex and can have far-reaching ramifications. Falling oil prices should not directly result in a material drop of electric power prices, as oil is not a major energy source for electricity generation in main European countries.

However, in Europe, falling oil prices can have an impact on gas prices, as gas supply contracts can be linked to oil prices, particularly for older, longer-term contracts<sup>21</sup> and this can translate into lower electricity prices. As gas is a widely more used source of energy for electricity production, a price drop might be putting further pressure on coal prices and lead to a further reduction in energy bills in some countries for 2015.



Source: Wood Mackenzie, "Europe power markets long-term outlook", 17 December 2014

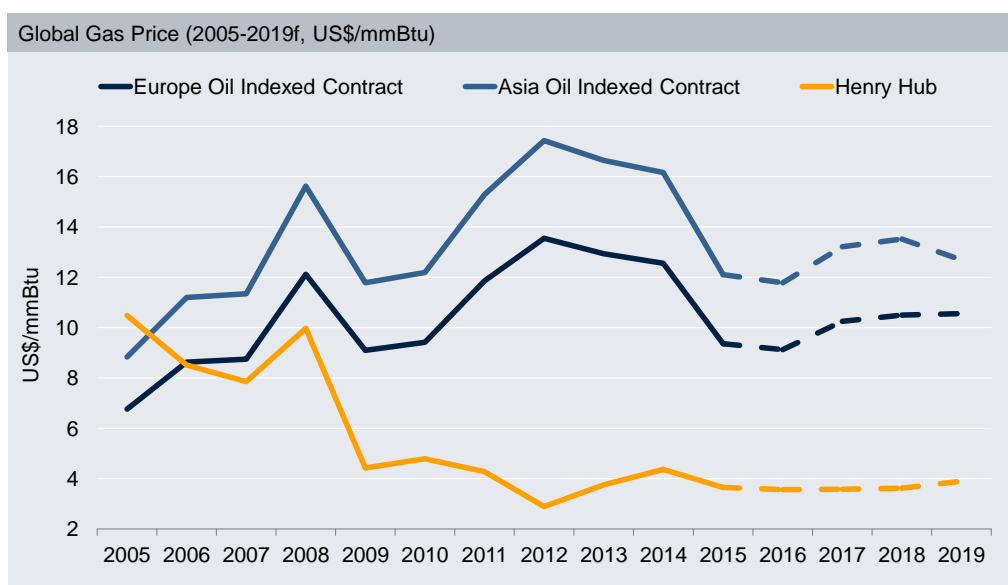
<sup>21</sup> Financial Times, "After the oil price fall, is natural gas next?", 4 January 2015



Recently, pressure on gas prices was mainly driven by a strong supply side, due to high prices in the last few years, supporting investments in the industry and by the U.S. shale revolution. In Europe, the fragility on the energy demand side, eroded by the recent economic downturn and the growth of subsidised renewables, has also put pressure on gas prices.

Dropping oil prices can have repercussions on the energy industry, reducing operating margins of oil companies, leading to a reduction in capital expenditure<sup>22</sup> and to the cancellation of projects that would have expanded their production capabilities.

About 82% of oil producers in the United States have a break-even price of USD60 a barrel or lower<sup>23</sup>. According to Deutsche Bank Markets Research 40% of U.S. shale oil production scheduled for 2015 would be uneconomic below USD80 a barrel<sup>24</sup>.



Source: Thomson Datastream (history) & Wood Mackenzie (forecast) f=forecast, 17 December 2014 f=forecast. There is no guarantee that the forecasts will materialize.

The drop in gas prices is likely to partly slow the momentum behind the development of new U.S. shale gas and new regasification capacity (LNG) projects in Europe, as LNG plants are more reliant on sustained high oil prices to generate adequate returns<sup>25</sup>.

As renewable energy is subsidised and supported by climate change policies, a practice not expected to be affected in the medium-term, we do not believe that lower oil prices will have a significant impact on the outlook for renewable energy projects in Europe.

<sup>22</sup> Financial Times, "BP slashes capital spending by 20%", 3 February 2015

<sup>23</sup> Reuters, "Oil price slump yet to hit US shale oil production: IEA chief", 13 October 2014

<sup>24</sup> Deutsche Bank Markets Research, "Estimating The Steady State for Crude Oil Prices", 17 October 2014

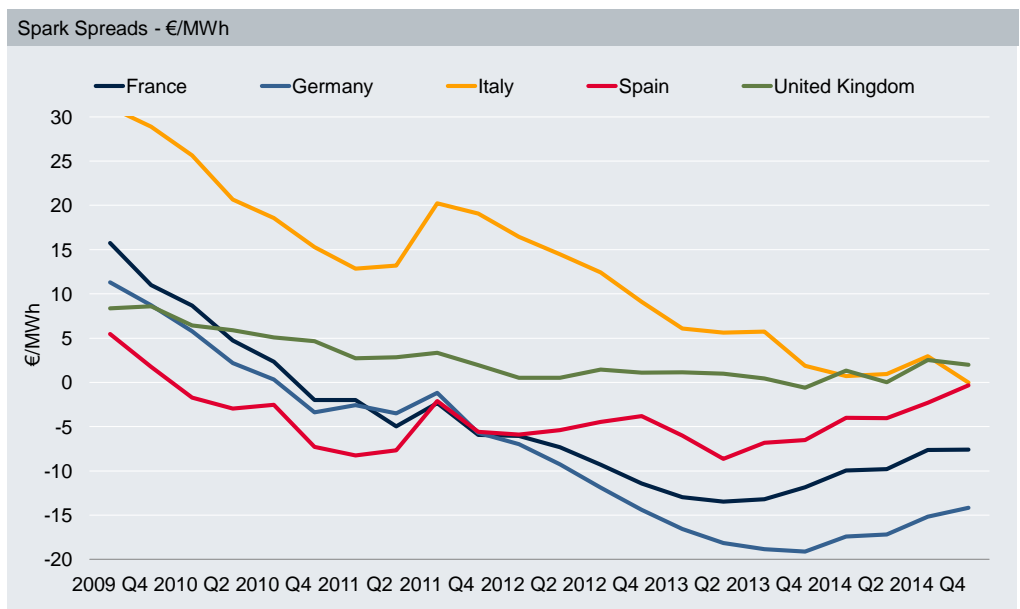
<sup>25</sup> Reuters, "Oil price slump yet to hit US shale oil production: IEA chief", 13 October 2014

# European Infrastructure Investment Themes

## Structural changes in the electricity market

**Another challenging year for conventional power:** In 2014, profitability in the European energy sector continued to shrink, due to sluggish energy demand, rising subsidised renewables, and lower power prices. Weak carbon (CO<sub>2</sub>) prices and higher fuel costs have disadvantaged gas baseload generators to a greater extent than coal, keeping clean spark spreads<sup>26</sup> for gas baseload electricity generators negative in most European countries.

Baseload generators have found it increasingly difficult to cover the costs of conventional thermal plants, with even the most efficient facilities earning little or no return on invested capital. Generators have responded to the marked deterioration in the economics of conventional power producers with an upsurge in the mothballing and retirement of fossil fuel-fired units, as well as the postponement of new thermal generation plants.



Source: Wood Mackenzie, 17 December 2014.

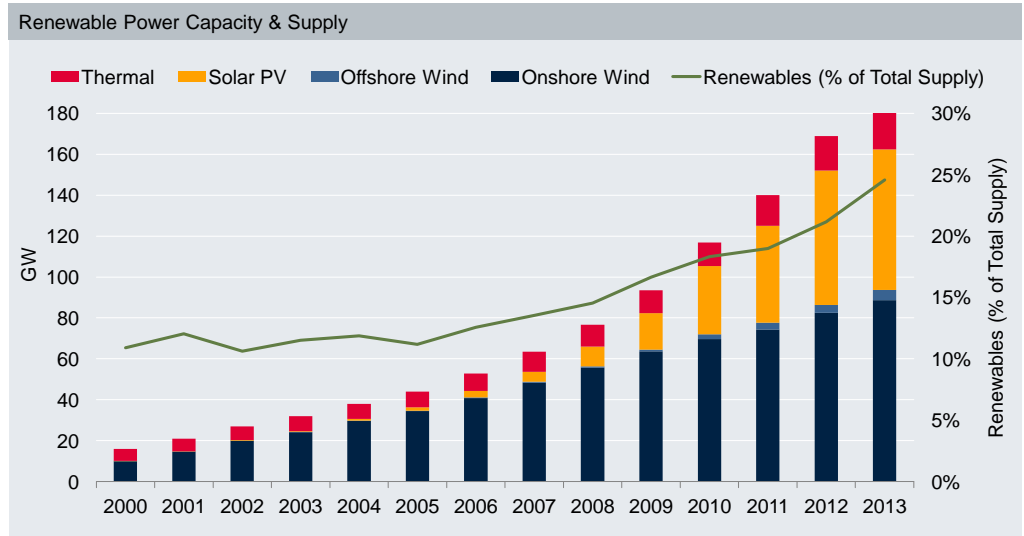
For 2015, we don't forecast this scenario to change, due to rising renewables' share of capacity, and CO<sub>2</sub> prices forecast to remain very low in the medium-term. For this reason, in 2015, conventional power generation capacity is forecast to reduce further, while falling inflation and government bond yields might affect earnings for regulated networks, where these measures feed into tariff determinations<sup>27</sup>.

**Demand forecast to grow moderately in 2015:** The economic downturn has led to a material decline in energy demand in Europe from 2009 onwards. Although demand recovered modestly in 2010, continued economic fragility has led to weak demand levels in

<sup>26</sup> The spark spread is the gross margin of a gas-fired power plant from selling a unit of electricity, having bought the fuel required to produce this unit of electricity.

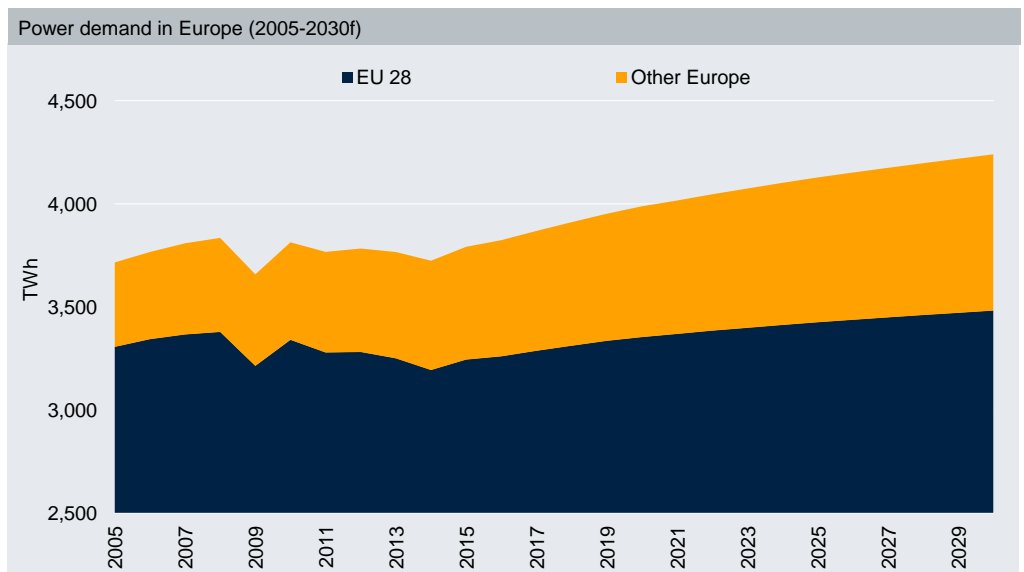
<sup>27</sup> Fitch Ratings, 2015 Outlook: EMEA Utilities, 17 December 2014

recent years. For 2015, electricity demand in Europe is forecast to grow, supported by a return to economic growth<sup>28</sup>.



Source: IEA & Wood Mackenzie, Includes capacity in Germany, France, Netherlands, Belgium, the UK, Italy, Spain, Portugal, 17 December 2014

However, as the chart below demonstrates, power demand is forecast to grow only modestly in the future, at an average annual rate of 0.7% in 2015-2030, as Europe continues on its trend of moderate economic growth, negative demographic trends in some countries, and transition towards energy efficiency. Power consumption in the industrial sector has represented the principal driver of growth in European electricity demand. Although a gradual transition towards a more service-based economy compounded with a gradual decline of large-scale industry will represent a challenge, particularly for mature European countries, the continued process of economic growth and electrification will in our view support increased power demand in non-EU markets.



Source: Wood Mackenzie, 17 December 2014 f=forecast. There is no guarantee that the forecasts will materialize.

<sup>28</sup> Wood Mackenzie, "Europe power markets long-term outlook", 17 December 2014

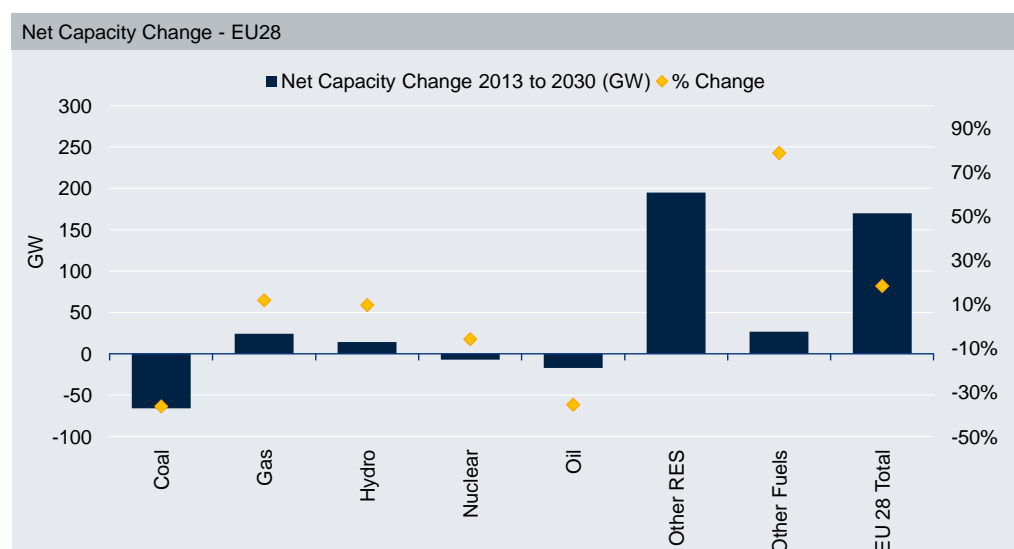
Structural changes to the energy market will pose a challenge to electricity demand growth in the future, and in particular in mature European countries, energy efficiency improvements will lead to a reduction in demand growth over time. In Western Europe, there is a growing push towards energy efficiency, and while many industrial users have already implemented actions to reduce energy consumption levels, a significant increase is forecast in the residential sector, including measures to improve household energy efficiency, thermal insulation and the adoption of smart meters.

New technologies, including electric vehicles and heat pumps, could provide an upside to demand levels; however, the success of these technologies will depend on sustained investment in research and adoption levels<sup>29</sup>.

**Regional policies to support decarbonisation and renewables:** In October 2014, the European Union reached an agreement on “Europe’s 2030” climate-energy policy framework, with the final agreement expected to be reached in December 2015. The “Europe 2030” policy framework will be a fundamental driver of energy investments in the region in future years. Member states will produce independent development plans to reach set objectives.

The agreement sets binding goals on emission reductions of greenhouse gas of at least 40% from 1990 levels, and on energy produced from renewable sources at 27% by 2030, setting a 27% goal on improvement in energy efficiency levels<sup>30</sup>.

Although the policy framework for renewables will be supportive at the E.U. level and renewables represent the main area of capacity growth, we do not forecast that the recent growth rates of renewable capacity will be sustained in the future, as governments try to manage the impact of subsidy costs on consumers.



Source: IEA (history), Wood Mackenzie (forecasts), 17 December 2014. There is no guarantee that the forecasts will materialize.

Besides renewables, the development and profitability of new electricity generation capacity in Europe is complex and will be determined by several drivers in coming years, in par-

<sup>29</sup> Wood Mackenzie, “Europe power markets long-term outlook H2 2014”, 17 December 2014

<sup>30</sup> European Commission, “2030 framework for climate and energy policies”, 23 October 2014

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ticular national and emission policies. Germany's nuclear phase-out programme "Energiewende" will be responsible for significant losses of supply in Germany, which will require adequate electricity capacity replacement, while other countries - such as the United Kingdom - are planning to increase the share of nuclear generation.

European emission legislation, including the Industrial Emissions Directive (IED) will lead to an increase in costs for power plant emissions, leading to the closure of a significant quantity of older, coal-fired capacity over the next decade. In 2015, further agreements are expected around the update of the emission trading scheme (ETS), with the objective of driving low-carbon development in Europe.

The E.U. ETS began in 2005, but the economic downturn in Europe in 2009 led to a material reduction in industrial production and a drop in carbon emissions. By the end of 2014, the E.U. ETS was oversupplied by more than 2.2 billion tonnes of carbon, neutralising the intended policy objectives<sup>31</sup>. Negotiations are ongoing, but changes to the ETS mechanism are unlikely to be implemented before 2018, and material increases to CO2 prices in Europe are therefore unlikely before then. A rise in CO2 prices further strengthens our view of decreasing coal power capacity and marginally rising gas capacity in the future, with profitability increasing from current historic lows.

**Capacity markets:** As the share of renewable energy capacity gradually increases, the large amount of intermittent production will increase the complexity of power supply management. Several governments in Europe are gradually introducing capacity reward mechanisms that will support security of energy supply and allow thermal generators, particularly gas-fired power plants, to be remunerated for the capacity they make available ahead of production.

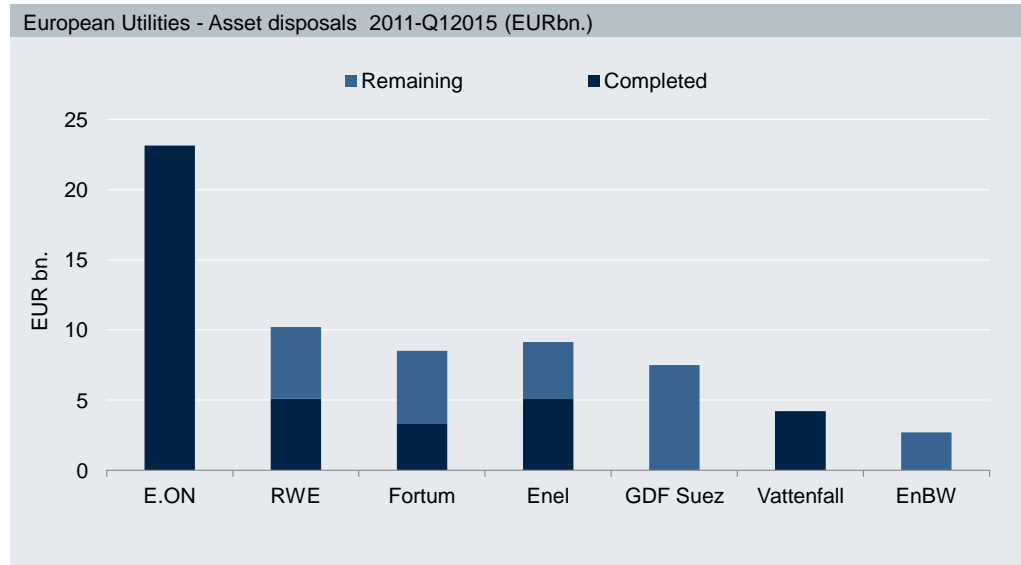
This represents a potential new business model for Europe's thermal generators. Considerable investment in the future will also be required on national and cross-border power grids, including transmission and distribution, to support increasing levels of intermittent power generation from renewables.

**Utilities refocusing business models:** overcapacity and structural changes in the market have affected most European utilities in recent years and will pose a challenge throughout 2015. European utilities continue to deleverage through disposals in Europe, refocusing investment on faster growing emerging geographies and regulated areas of energy services.

As part of their effort to reduce leverage and refocus their business, utilities might also dispose of subsidized renewables and regulated assets that can represent interesting investment opportunities in the European energy market.

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<sup>31</sup> Wood Mackenzie, "Europe power markets long-term outlook H2 2014", 17 December 2014



Source: Deutsche Asset & Wealth Management, Credit Suisse, "Utilities Big Book", H1 2015 Edition, May 2015

### Transportation sector supported by growing traffic volumes

Following a prolonged period of decline caused by the global economic downturn, the European transport industry has moved to low growth in 2014. Although with differences across industry sub-sectors and regions, for 2015-2019 the performance of the European transportation industry is forecast to accelerate, supported by improved economic growth.

Transportation is a complex industry, and includes among others air, marine, road and rail passenger, and freight services. The industry has a strong correlation to GDP growth, and in particular to private consumption, impacting on passenger volumes, as well as industrial activity, which drives freight transportation volumes.

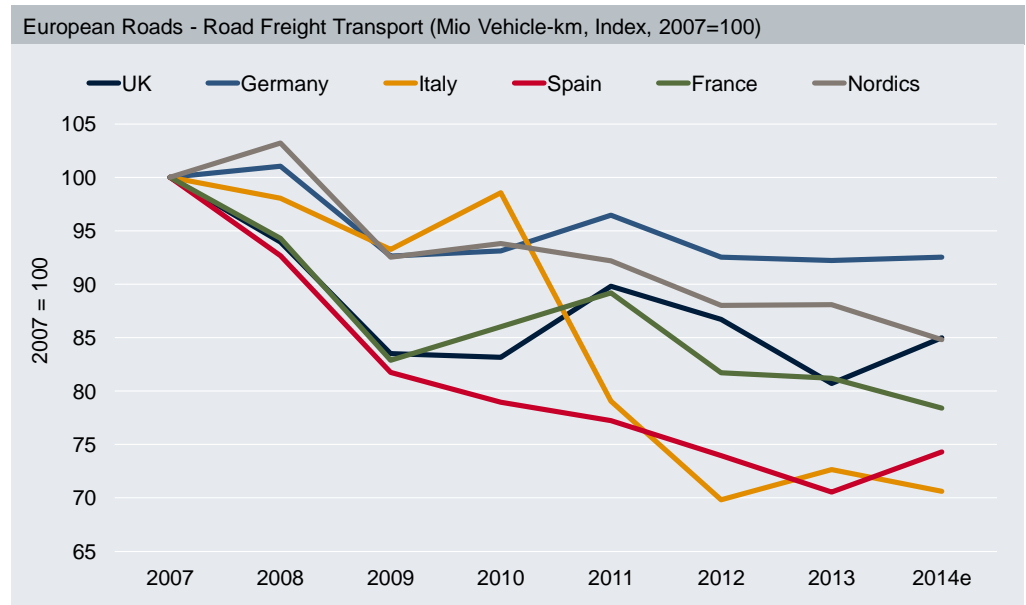
**Road transport not yet back on track:** The economic downturn affected European road transportation, including toll roads negatively, and traffic is still below pre-crisis levels in all European countries that form part of our analysis<sup>32</sup>.

The largest contraction from pre-crisis levels took place in Spain and Italy as a reflection of declining consumption levels - light vehicle traffic accounts for the majority of the total traffic volumes - and subdued industrial production. Traffic volumes in continental Europe were more resilient and were also supported by a more diverse user base.

In 2014, for the first year after a prolonged period of downturn, traffic performance recovered modestly in some European countries that form part of our analysis, excluding Italy (where GDP continued to decline in 2014), France, and the Nordics.

In 2015, traffic volume on European roads is forecast to improve moderately, driven by positive GDP growth, growing consumption and improving business sentiment. Heavy vehicle traffic is materially correlated to retail and industrial production, particularly construction and manufacturing, and is forecast to benefit from improving industrial production levels.

<sup>32</sup> Performance measured as road freight transport, (Mio Vehicle-km), Eurostat, 11 May 2015



Source: Deutsche Asset & Wealth Management, Eurostat, 11 May 2015

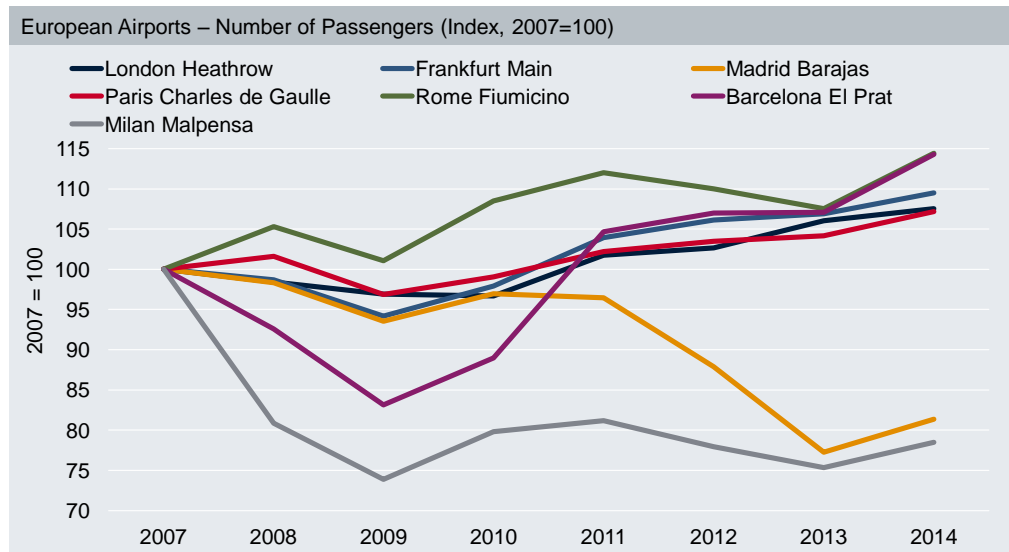
Growth will differ significantly by country, depending on levels of economic activity and GDP growth, with positive performance forecast in Germany, Spain, and the United Kingdom, while growth will be more moderate in other European countries, including Italy and France.

**Airport traffic outlook positive:** In 2014, airport traffic performance generally continued improving. Although with material regional differences, European airport traffic for airports forming part of our analysis continues growing, and passenger volumes are above pre-crisis levels in most European airports, with the exception of Madrid Barajas and Milan Malpensa, which are still suffering from a material decline in passenger numbers compared to pre-crisis levels.

In 2008, the Italian airline Alitalia moved its hub airport from Milan Malpensa to Rome Fiumicino. This partially explains Malpensa's traffic decline and Fiumicino's simultaneous traffic improvement in 2008. Madrid Barajas's negative performance was driven by a combination of factors, including an increase in competition in the domestic market from high-speed rail, the economic downturn, and the re-structuring process of Baraja's main airline, Iberia.

International airport hubs, for example Heathrow airport in the United Kingdom, Frankfurt am Mein in Germany, and Paris Charles de Gaulle in France, all have experienced sustained passenger growth levels from 2009, supported by a diversified traffic base. The exposure to the domestic economy was mitigated by international passenger volumes and an increase in the capacity of national airlines.

The key attributes underpinning airport performance include the size and diversity of the passenger catchment area, which can generate demand for both business and leisure travel for outbound and inbound traffic, as well as the strength of the home base airline which is clearly critical to the prospects of an airport.



Source: Deutsche Asset & Wealth Management, Eurostat, 11 May 2015

Aeronautical charges for larger European airports are typically regulated, and a material component of revenue growth is related to non-aeronautical revenues, particularly retail sales. Larger hub airports, particularly the ones with flight connections to emerging BRIC markets,<sup>33</sup> tend to benefit from retail sales more than smaller regional airports.

Smaller airports, including Fiumicino in Italy and Barajas in Madrid, have experienced more volatile performance in recent years, due to subdued domestic demand and a lower exposure to international routes, (which represents a limit for retail sales growth).

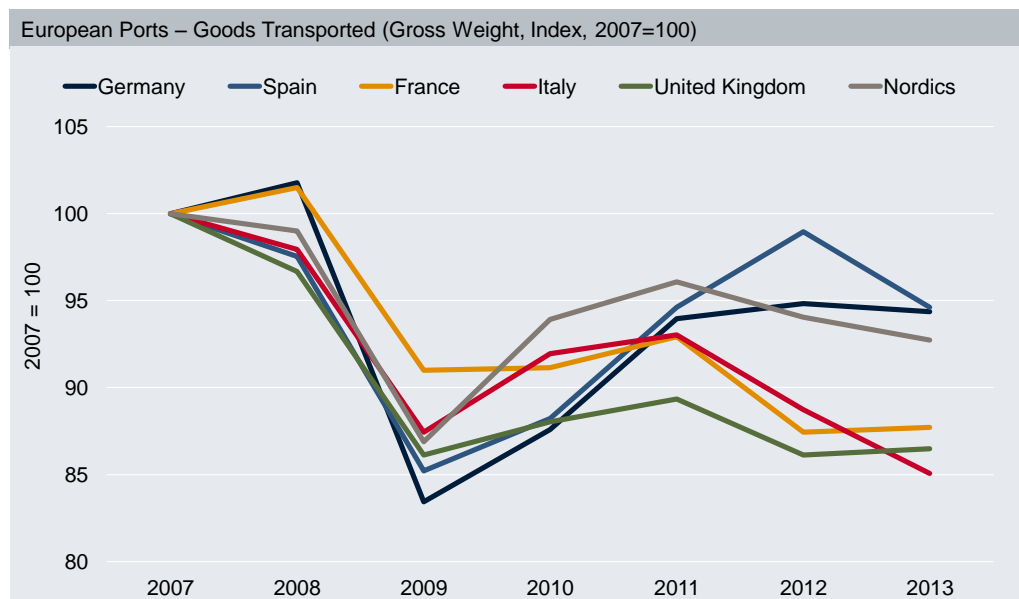
The availability of competing infrastructure on certain routes is also relevant to the traffic volumes and profitability, with national routes suffering a decline due to the development of a competitive high-speed rail network.

Although performance is forecast to vary across airports, in 2015 the outlook for airport traffic is positive and performance is forecast to improve, supported by global growth fuelling international demand and Europe returning to sustained growth, both of which should prove positive for domestic passenger demand.

**Port traffic performance volatile:** Port traffic tends to be highly correlated with the economic cycle, although the level of exposure varies across geographies and assets. In 2014, European maritime port traffic volumes for the countries forming part of our analysis were not yet back to pre-crisis levels. The economic downturn in 2009 had a material impact on maritime traffic performance, due to declining industrial activity and private consumption significantly impacting world trade.

<sup>33</sup> BRIC is a grouping acronym that refers to the countries of Brazil, Russia, India and China.





Source: Deutsche Asset & Wealth Management, Eurostat, 11 May 2015

The performance of ports depends upon a complex subset of factors, including geographic location of port facilities, competition with other ports, the routes and performance of shipping companies; as well as the port size, which impacts on the size of vessels able to access the facilities. For example, for freight transport Aframax and Capesize vessels have the largest capacity and are employed in iron ore and coal trades, and can only be moored in larger ports. Panamax vessels can pass through the Panama Canal and dominate grain shipments, while Handymaxes and Handysize are smaller vessels used for minor bulk trades, and are also able to access smaller ports.

For 2015, the outlook for ports in Europe will be supported by the improving performance of the European economy, but slowing commodity demand from China may represent a material downside risk for global trade volumes. The Baltic Dry Index, which measures the rates for chartering the largest ships, transporting iron ore, coal and grain has reached a historic low in the first quarter of 2015. Low freight rates are driven by the Chinese demand slow down and by shipping excess capacity. However, low freight rates and commodity prices should also prove supportive for freight volumes and contribute to support demand for dry bulk commodities during 2015.

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## Infrastructure Funding and Investment in Europe

The key challenges for European countries in the near future will be to upgrade their ageing infrastructure asset base, particularly in the transportation sector and to support the structural changes that are taking place in the energy sector, diversifying away from traditional thermal generation and into renewables. However, despite the significant investment needs in Europe across the transport and energy sectors, the pipeline and volume of private infrastructure transactions is relatively limited compared to funding needs.

In fact, public procurement remains the main source of funding, accounting for about 90% of total infrastructure investment in developed countries, as not all infrastructure projects are suitable for private financing. The IMF estimates that only 10% of infrastructure investment in advanced economies is performed by the private sector<sup>34</sup>.

The reason for this is that in several infrastructure sectors, governments have not yet identified adequate legislative measures to isolate assets and secure revenue streams, identifying clear revenue sources to be raised from users and making assets suitable for private investment. Moreover, evidence shows that in some countries the use of Public Private Partnerships (PPPs) is legally restricted to certain assets.

Political and regulatory constraints mean that most infrastructure investment in Europe will continue to be financed by governments. However, we believe that there is a strong potential to increase private financing in the sector, as upgrades and improvements to existing infrastructure will need to be fulfilled over time.

### Infrastructure investment trends in 2014

**Fundraising:** In 2014, infrastructure enjoyed another year of material growth, with prospects for further expansion in 2015 and beyond. During 2014, funding remained solid, with 43 funds closing on an aggregate US\$37 billion as compared with USD44bn in 2013, when 69 infrastructure funds closed. The average size of infrastructure funds closed was US\$1 billion (US\$0.7 billion in 2013) and 73% of capital was raised by the 10 largest funds, highlighting an increase in competition for investor capital over the last year<sup>35</sup>.

Capital is increasingly flowing to a relatively small number of large, experienced fund managers, with solid investment track records. As of 31 December 2014, the number of infrastructure funds in the market was 144, targeting US\$93 billion in investor capital, while dry powder exceeded US\$100 billion. Preqin estimates that infrastructure remains a growing area of interest for institutional investors in 2015. As of January 2015, about 144 unlisted infrastructure funds were on the road, seeking to raise a combined US\$93 billion<sup>36</sup>.

**Allocations:** The largest proportion of capital secured in 2014 was by primarily North America-based funds, with 19 funds securing US\$25.4 billion in investor capital. Several of these funds pursue a global investment mandate and invest in a range of geographies. In Europe, 15 infrastructure-focused unlisted infrastructure funds reached a final close in

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<sup>34</sup> Fitch Ratings, "Private Infrastructure Investment in Developed Economies", 2 December 2014

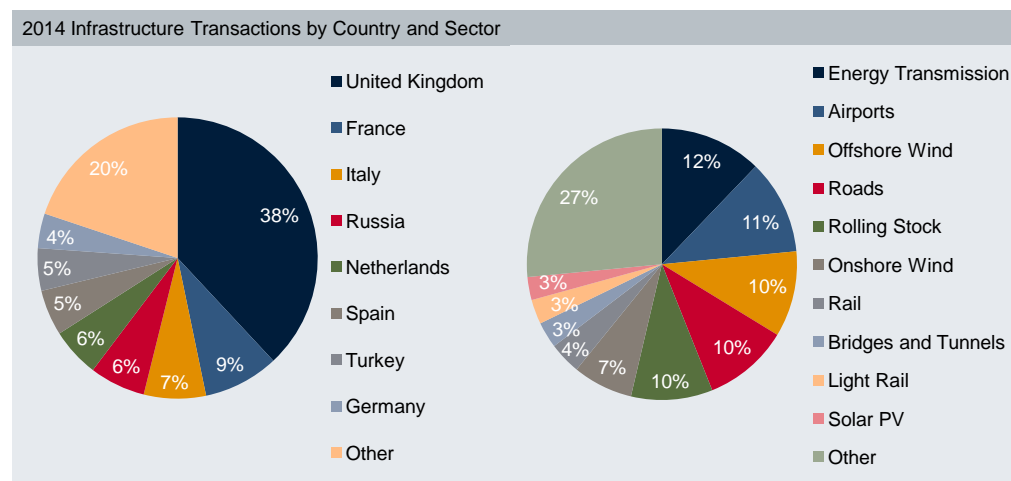
<sup>35</sup> Preqin, "2015 Preqin Global Infrastructure Report", January 2015

<sup>36</sup> Preqin, "2015 Preqin Global Infrastructure Report", January 2015

2014 with an aggregate US\$9.8 billion with most of the funds' capital expected to be allocated to Eurozone opportunities. Four funds focused on Asian infrastructure closed, raising US\$1 billion while outside these three core markets, five funds reached a final close raising an aggregate US\$1.3 billion, two of which focused on South America<sup>37</sup>.

Analyzing the regional changes in dry powder for 2014, North America has seen a sizeable increase, to US\$56 billion in December 2014 from US\$43 billion in December 2013, while Europe-focused funds have seen a decline in dry powder to US\$31 billion from US\$34 billion over the same period. Dry powder of Asia-focused funds continued to grow, reaching US\$13 billion in December 2014 and this is a reflection of the growth of the infrastructure industry in the region<sup>38</sup>.

**Deal Flow in 2014:** According to the Infra News transaction database<sup>39</sup>, the total of closed transactions in Europe in 2014 stood at €97 billion. This figure reflects both infrastructure project financing and non-project financing deals.



Source: Infranews, 21 April 2015

From a project type perspective, 41% of transactions were in the greenfield space, while brownfield accounted for 31% and refinancing for 28%. In 2014, the largest deals across Europe took place in the refinancing space, with companies taking advantage of the low interest rate environment. In the greenfield space, transactions took place across a number of sectors, including mainly wind, roads, rolling stock, while in the brownfield and refinancing space, energy transmission and airports were the leading sectors.

From a country perspective, the United Kingdom led in infrastructure deals closed during 2014, accounting for 38% of the closed volume during the period and 205 deals, including 66 PPPs. The main transactions in 2014 include the debt refinancing of the 'Heathrow Airport Group', the operator of London Heathrow airport in November 2014<sup>40</sup>, of Angel

<sup>37</sup> Preqin, "2015 Preqin Global Infrastructure Report", January 2015

<sup>38</sup> Preqin, "2015 Preqin Global Infrastructure Report", January 2015

<sup>39</sup> Infra News 2014 transaction database download, 21 April 2015. Figures include all European projects in the data base that have been listed with the status "Financial Close".

<sup>40</sup> Heathrow (SP) Limited and Heathrow Finance plc, "Investor Report", 12 December 2014

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trains, a rolling stock operating company (ROSCO)<sup>41</sup>, as well as the acquisition of Porterbrook<sup>42</sup>, one of the major rolling stock leasing companies in the United Kingdom.

France was next in line with 9% of the volume during 2014, mainly due to acquisition of the VINCI Park<sup>43</sup>, a French car park operating company. In 2014, about 14% of deals closed in Southern Europe, particularly in Italy with 7% and Spain 5%.

The main transactions in Italy include the refinancing of Italian gas distribution network 2i Rete Gas<sup>44</sup> worth €2.7 billion, the largest bond issue ever by an unlisted Italian gas distributor, while in Spain the main transactions of 2014 include the bond refinancing of Redexis<sup>45</sup>, a gas network operator, formerly known as Endesa Gas T&D.

On a sector level, energy transmission formed the most active sector of the infrastructure market in 2014, with 12% of closed transactions, mainly due to the bond refinancing activity described above, as well as the acquisition of Fortum's Swedish grid assets by a Borealis-led club of investors<sup>46</sup>. Airports accounted for 11% of transaction volumes, including mainly the Heathrow Airport Group refinancing<sup>47</sup> and the Budapest Airport refinancing<sup>48</sup>.

Wind transactions accounted for 17%, with offshore prevailing and accounting for 11%, including the Gemini<sup>49</sup> 600MW offshore wind project in the Netherlands and the 402MW Dudgeon<sup>50</sup> offshore wind project in the United Kingdom, receiving consent in 2014 and expected to be fully operational by 2017.

## Pipeline and transaction outlook for 2015

**Pipeline:** The combination of a slightly smaller deal pipeline than previous years, strong liquidity, and high levels of dry powder targeting assets, has led to increasing competition in the sector, mainly at the direct end of the market or for large investors with pressure to deploy capital, and to a rise in asset pricing. This is in addition to a 'race to the bottom' in terms of pricing and covenants for infrastructure debt transactions, where availability of capital markets and other non-bank sources of funding have increased materially.

The European pipeline stood at €378 billion as of the close of the first quarter of 2015 according to Infra News transaction database<sup>51</sup>. The U.K. accounts for the largest slice of the pipeline with 27%. With 17% of the pending pipeline volume, Italy follows the United

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<sup>41</sup> Infrastructure Journal, "Angel Trains closes on refinancing", 5 December 2014

<sup>42</sup> Infrastructure Journal, "Porterbrook rail closes bank and bond refinancing", 15 April 2014

<sup>43</sup> Infrastructure Journal, "VINCI Park Acquisition Refinancing 2014", 13 August 2014

<sup>44</sup> Infrastructure Journal, "2i Rete Gas Bond Refinancing 2014", 27 January 2015

<sup>45</sup> Infrastructure Journal, "Redexis Corporate Bond Refinancing 2014", 19 January 2015

<sup>46</sup> Infrastructure Journal, "Borealis-led consortium buys Fortum Sweden", 13 March 2015

<sup>47</sup> Infrastructure Journal, "Financial Close Transaction – Heathrow Group Refinancing", 31 October 2014

<sup>48</sup> Infrastructure Journal, "Budapest Ferenc Liszt International Airport Acquisition Refinancing 2014", 30 March 2015

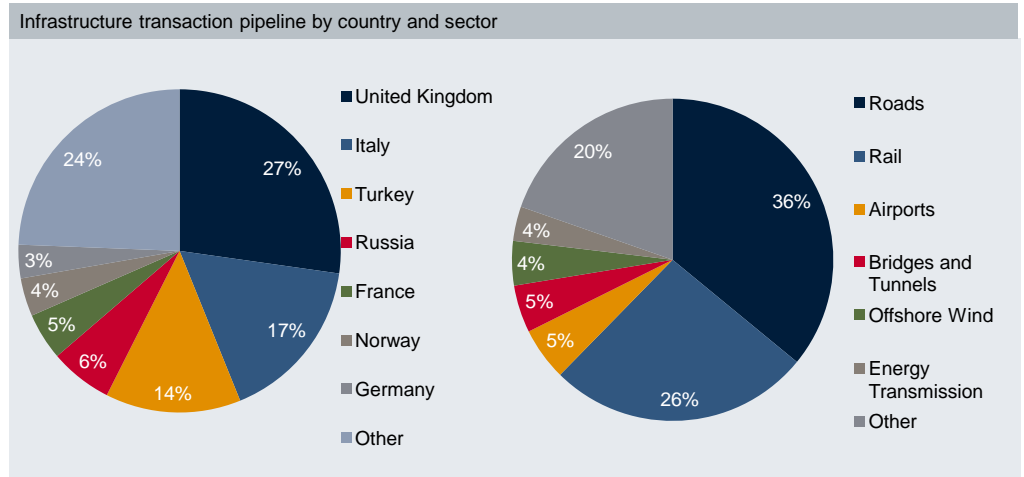
<sup>49</sup> Infrastructure Journal, "Northland closes on Gemini offshore wind", 20 May 2014

<sup>50</sup> Infrastructure Journal, "400MW Dudgeon Offshore Wind Farm", 24 July 2014

<sup>51</sup> Infra News, transaction database download, 21 April 2015. Figures include all European projects in the data base that have not been listed with the status "Financial Close". Some of these projects may have seen no actual movement in the database recently.

Kingdom, while Turkey accounts for 14%, Russia accounts for 6%, France for 5%, Norway for 4%, Germany for 3%.

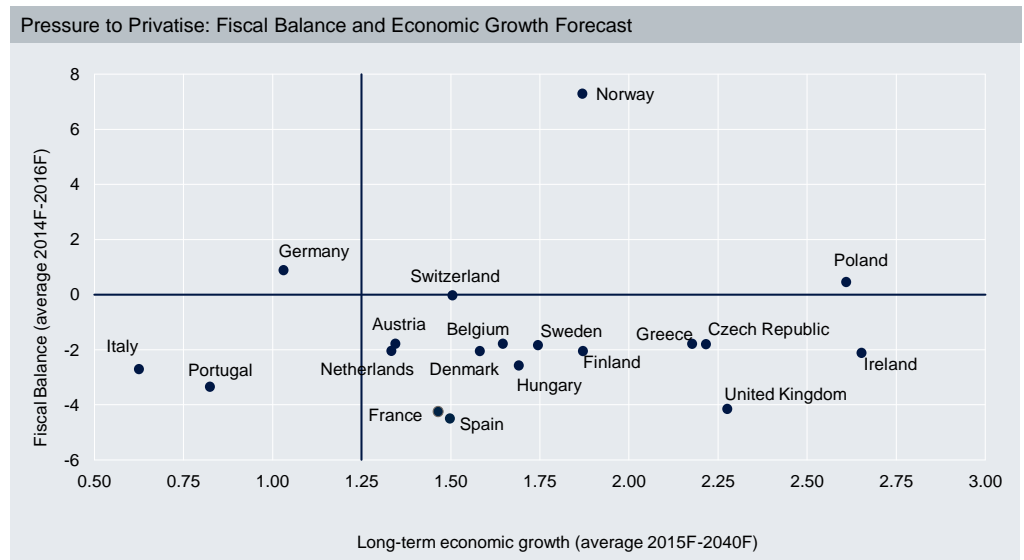
At a sector level, the transport sector accounts for 67% of the pipeline, including mainly road (36%) and rail (26%) projects, while airport deals account for 5% of the pipeline. The pipeline for energy-related sectors accounts for 13.5%, including mainly offshore wind projects (4.5%), energy transmission (3.5%) and hydro projects (2.5%).



Source: Infranews, 21 April 2015

## Infrastructure privatization prospects in Europe

Sluggish economic growth and rising public debt burdens have direct implications for infrastructure in Europe. Austerity programmes in Europe have led to a reduction of public investment in infrastructure in recent years<sup>52</sup>.



Source: Oxford Economics, 15 June 2015 F=forecast. There is no guarantee that the forecasts will materialize.

While fiscal constraints will continue to put pressure on public budgets in many cases, European countries with high deficit levels and limited economic growth prospects are

<sup>52</sup> European Commission, European Fund for Strategic Investments, Factsheet 1, "Why does the EU need an investment plan", 26 November 2014

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pursuing alternative measures to contrast rising debt burdens, including privatisation of state owned assets, as the current low growth environment makes debt reversal policies hard to achieve.

The pressure to privatise public assets is underscored in the exhibit above which compares current fiscal balances among European markets to their long-term projected growth rates. Although privatisation prospects differ significantly<sup>53</sup> as a reflection of specific political objectives and attitudes towards public assets, we have identified four key markets for government privatisations in Europe for 2015, including Italy, Spain, Portugal and France.

**Spain:** On 11 February 2015, the Spanish airport operator 'Aena SA' made its market debut, being the largest privatisation in Europe since 2011, with a valuation of €8.7 billion<sup>54</sup>. The sale of the 49% stake in 'Aena SA', which runs 46 Spanish airports and has stakes in London Luton<sup>55</sup> was approved by Spain's Council of Ministers in June 2014. Spanish toll road operators are also frequently mentioned in the media as possible assets for sale.

**Italy:** In December 2014, the Italian government confirmed that in 2015 Italy plans to sell off major parts of the postal service 'Poste Italiane SpA', of the air traffic control company 'ENAV SpA', and the of the national railway company 'Ferrovie dello Stato SpA', controlling Grandi Stazioni SpA, the company operating the largest trains stations in Italy; another target for potential privatization.

The Italian government confirmed that it is looking to sell off a 40% stake in 'Poste Italiane SpA' and 49% of 'ENAV SpA', while the size of 'Ferrovie dello Stato SpA' stake expected to be sold off should probably be not far from 40%<sup>56</sup>. In 2014, the government completed the initial public offering of 30.51% of 'Rai Way SpA', the television transmission tower operator, as well as the sale of 35% of 'CdP Reti SpA' to 'State Grid Corporation of China' for €2.1 billion<sup>57</sup>.

**Portugal:** The disposal of state-owned assets in Portugal continues to move forward at a steady pace. Portugal committed to generate €5 billion via privatisations as part of its restructuring programme agreed with IMF, ECB and European Commission in spring 2011. In November 2014, the Portuguese government confirmed its intentions for the privatisation of 66% of 'TAP Portugal', the national airline<sup>58</sup>.

The Portuguese government is at various stages in the privatisation process for public transport operators including Porto's public transport concessions, covering bus, metro and ferry companies<sup>59</sup>, as well as concessions to run the Lisbon bus company and a

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<sup>53</sup> Deutsche Bank Research, "Privatisation in the euro area", 20 August 2013

<sup>54</sup> The Wall Street Journal, "Shares in Spanish airport operator soar in market debt", 11 February 2015

<sup>55</sup> Reuters, "Strong demand for Spanish airports group Aena as sale goes ahead", 10 February 2015

<sup>56</sup> Reuters, "Italy chooses BofA Merrill Lynch as adviser for railway privatization", 3 February 2015

<sup>57</sup> Il Sole24ore, "Privatization drive under way with EUR11bn. expected in 2015 from Ferrovie and Poste", 22 December 2014

<sup>58</sup> Reuters, "Portugal gets three bids in TAP airline privatization", 15 May 2015

<sup>59</sup> Railway Gazette, "Government consults on privatisation options," 24 February 2014; The Portugal News, "Twin city transport privatisation tender by May", 9 April 2014

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waste disposal firm that serves two-thirds of the country's residents<sup>60</sup>.

**France:** On 17 February 2015, the French parliament voted on article 49 of the "Macron law" that authorises the state to sell its majority stake in the Nice and Lyon-based airports. The infrastructure market is awaiting the start of these two airport privatisations after the privatisation of Toulouse-Blagnac airport, which was acquired for 49.9% by a consortium of Chinese investors in the last quarter of 2014<sup>61</sup>. In July 2014, the French parliament formally adopted railway reforms, which might pave the way to privatisation, combining the state-owned railway company SNCF and track owner RFF into one holding company, with the aim to introduce European Union measures, enhancing competition into continental rail transport<sup>62</sup>.

## Infrastructure Megatrends

Several megatrends, including large social, economic, environmental or technological long-term changes, are likely to influence infrastructure investment in Europe in the medium to long term. We believe that investors should be thinking about these factors now, due to the present value implications of long-dated trends.

**Climate change:** climate change will continue to influence European infrastructure. Europe's commitment to reduce carbon emissions and commitments in certain countries to phase out a reliance on nuclear energy, as well as to reduce fossil fuel generation, point to a significant reshaping of the energy sector in the coming years. To meet these goals, renewable energy will inevitably need to ramp up significantly from the current 25% of total production it now represents, requiring steep investment.

As the share of large base-load generation gradually approaches decommissioning and projected growth in renewables increases, considerable investment in power transmission infrastructure will be required, to ensure that power grids are able to cope with increasing levels of intermittent generation from renewable sources.

As the role of local grids gradually increases, big transmission networks and larger generation plants will operate as an important security back-up. This trend is more evident in Germany, with "Energiewende"<sup>63</sup>, but all European markets will be gradually involved, as conventional generation ages.

**Energy storage and smart grids:** climate change policies will also have an impact on a number of technological changes in the infrastructure market, including energy storage, energy efficiency, and zero emission technologies. Although at an early stage, energy storage has a positive long-term outlook at both a small-scale level, where the gradual reduction in the cost of solar panels will make the battery storage market gain critical mass, and at a large-scale level, with battery storage for transmission grids in pilot stage in a number of countries, to address the problems of grid bottlenecks and intermittent renewable power. Smart grid systems will support the energy transition, by creating a more efficient energy network, aligning more closely peak demand and peak production through

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<sup>60</sup> Infrastructure Journal, "Portugal's privatisations drive ahead", 14 March 2014; Infrastructure Journal, "Portugal launches privatisation of waste company EGF", 15 April 2014

<sup>61</sup> Financial Times, "France to sell airport stake to Chinese", 5 December 2014

<sup>62</sup> Financial Times, FT View, "Francois Hollande's baby steps of reform in France", 23 July 2014

<sup>63</sup> Infrastructure Journal, "Energy transition – is Germany back on track?", 20 January 2014

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the use of real time digital information and communication technologies between the various components of the energy network.

**Mobility:** The next decade is also forecast to lead to a material shift towards the electrification of transportation, for example with the gradual introduction of electric vehicles. Electric vehicles might lead to a fundamental change in the business model of utilities, with repercussions on new infrastructure needs to be added to the distribution infrastructure and potentially increasing significantly peak residential electricity demand.

**Demographic changes:** The demographic outlook for Europe varies significantly across countries and regions, and over the next 40 years, decreases in population are set to be observed in Russia, the Ukraine, Germany, Poland and Italy, while the United Kingdom, France and Spain are forecast to experience population growth over this period<sup>64</sup>.

Examining different European age cohorts, the 60+ age groups are set to record significant growth between 2010 and 2020, increasing by almost 28 million people. The largest absolute change in a single ten-year cohort is expected in the age group 20 to 30, which is due to shrink by almost 22 million people between 2010 and 2020. Demographic changes could have material implications for infrastructure, driving demand and influencing the type, functionality, and location of assets.

Across Europe, over the next decade, demographic drivers, particularly an increased elderly share, are likely to weigh upon the demand for social infrastructure, including schools, hospitals, retirement villages, and nursing homes or have other consequences, such as a gradual reduction in traffic volumes.

**Urbanisation:** The recent past has seen continued urbanisation across much of Europe. The population expansion of European cities to form mega cities, may influence demand for new infrastructure, including basic social services infrastructure such as schools, health facilities, water, power, and transport infrastructure. As cities grow, the viability of existing infrastructure might become inadequate and require upgrades, suggesting that a demographic analysis is required when considering investments.

## Conclusions

In 2015, economic recovery is gradually taking hold in Europe, supporting the investment environment and our outlook for European infrastructure investment. Europe represents a leading global market for infrastructure investment and offers a robust infrastructure investment pipeline, supported by relatively predictable investment environment, with a homogeneous institutional, legal and regulatory framework.

The structural shift in electricity generation towards renewables and away from conventional thermal generation is likely to offer significant investment opportunities across Europe in the energy sector in 2015. The European transportation industry returned to growth in 2014 and the market is expected to accelerate in 2015, supporting the conditions for investment in the sector, along with further state infrastructure privatisations.

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<sup>64</sup> Deutsche Asset & Wealth Management, "The Demographic Drivers of European Real Estate Demand", January 2013



## Appendix: Key European Infrastructure Markets

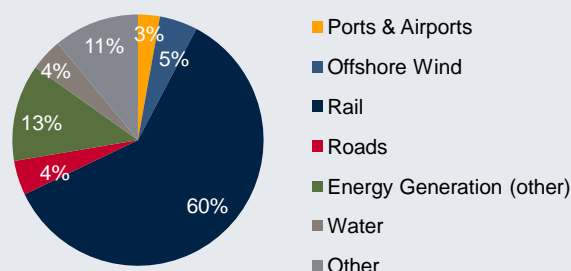
### United Kingdom

#### Summary View:

- **Economy:** In 2015, economic growth in the United Kingdom remains strong, led by private consumption and a tight labour market, while exports might be partially constrained by the sterling's strength.
- **Risks:** Following the Conservatives' win, the possibility for fiscal consolidation in the second half of 2015 and a referendum to renegotiate the relationship of the United Kingdom with the European Union are likely.
- **Infrastructure:** The U.K. market and regulatory framework for infrastructure investment is one of the most mature and transparent globally and attracts capital from global investors.

Source: Deutsche Asset & Wealth Management, Oxford Economics, 15 June 2015

#### Pipeline: €103 billion



Source: Infra News, 21 April 2015. Figures include all projects in the data base that have not been listed with the status "Financial Close". Some of these projects may have seen no actual movement in the database recently.

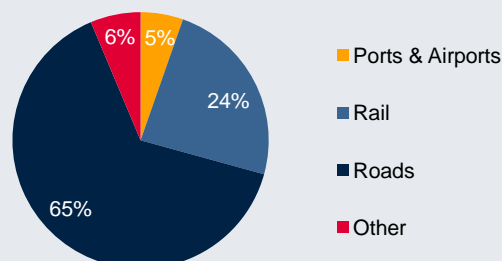
### Italy

#### Summary View

- **Economy:** After three years of recession, Italy is now forecast to return to modest growth in 2015, however, any deterioration in external demand might lead to Italian GDP shrinking further.
- **Risks:** Although the labour market reform was approved by parliament in the last quarter of 2014, the government is implementing its reform agenda at a slower pace than what was previously planned.
- **Infrastructure:** The infrastructure market is active, and regulation is mature and transparent. Although improving, the Italian legal framework represents an obstruction to the closing of privately-financed infrastructure projects.

Source: Deutsche Asset & Wealth Management, Oxford Economics, 15 June 2015

#### Pipeline: €63 billion



Source: Infra News, 21 April 2015. Figures include all projects in the data base that have not been listed with the status "Financial Close". Some of these projects may have seen no actual movement in the database recently.

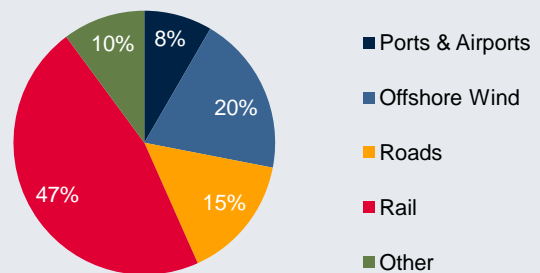
## France

### Summary View

- **Economy:** In 2014, the French economy underperformed much of the rest of the Eurozone, but the recovery is expected to gradually gain momentum in 2015.
- **Risks:** Government spending remains a concern and fiscal sustainability may impact on GDP growth in 2015 if not offset by an increase in net exports.
- **Infrastructure:** France is a major infrastructure market. The institutional and legal framework is mature and stable, and the infrastructure regulatory framework is transparent. France is committed to increasing renewable energy generation.

Source: Deutsche Asset & Wealth Management, Oxford Economics, 15 June 2015

**Pipeline:**  
€18 billion.



Source: Infra News, 21 April 2015. Figures include all projects in the data base that have not been listed with the status "Financial Close". Some of these projects may have seen no actual movement in the database recently.

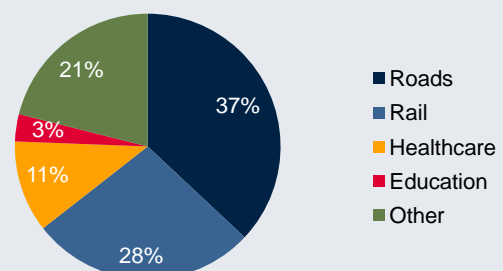
## Spain

### Summary View

- **Economy:** In 2014, Spain outperformed much of the rest of the Eurozone and in 2015, the recovery is expected to strengthen. Spanish unemployment remains above 20% and the country remains dependent on external economic and financial factors.
- **Risks:** Uncertainty deriving from the Catalan election in September and the general election in December-February might weigh on investment and consumption.
- **Infrastructure:** The infrastructure market is active, but over the past five years, the number of greenfield projects has decreased significantly. Infrastructure regulation is volatile albeit improving.

Source: Deutsche Asset & Wealth Management, Oxford Economics, 15 June 2015

**Pipeline:**  
€6 billion



Source: Infra News, 21 April 2015. Figures include all projects in the data base that have not been listed with the status "Financial Close". Some of these projects may have seen no actual movement in the database recently.

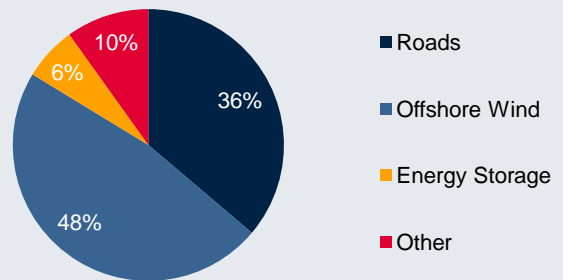
## Germany

### Summary View

- **Economy:** The German economy remains strong, and the outlook for 2015 is supported by a weaker euro and lower oil prices, boosting consumption and net exports.
- **Risks:** The government's focus on fiscal discipline might lead to subdued infrastructure investment levels and translate into a downside risk to the economy.
- **Infrastructure:** The infrastructure market is growing, supported by the renewables pipeline and Germany's energy transition away from nuclear. The regulatory framework for infrastructure is transparent and gradually improving.

Source: Deutsche Asset & Wealth Management, Oxford Economics, 15 June 2015

**Pipeline:**  
€13 billion



Source: Infra News, 21 April 2015. Figures include all projects in the data base that have not been listed with the status "Financial Close". Some of these projects may have seen no actual movement in the database recently.

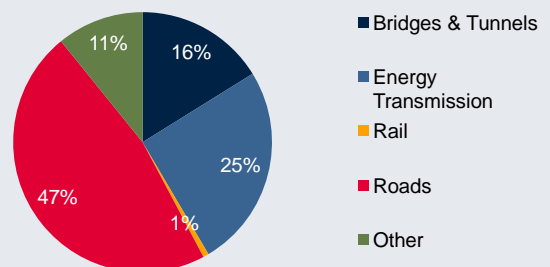
## Nordics (Denmark, Finland, Norway, Sweden)

### Summary View

- **Economy:** While GDP growth is forecast to be strong in Sweden and Denmark, in 2015, growth will be subdued in Finland and Norway.
- **Risks:** In Norway, the decade-long boom in energy investment is set to come to an end, requiring rebalancing of the economy. Political uncertainty continues to add to Sweden's risk profile.
- **Infrastructure:** Nordic countries have a mature institutional framework. Infrastructure regulation is volatile albeit improving. Nordic governments have traditionally favoured public infrastructure investment.

Source: Deutsche Asset & Wealth Management, Oxford Economics, 15 June 2015

**Pipeline:**  
€29 billion



Source: Infra News, 21 April 2015. Figures include all projects in the data base that have not been listed with the status "Financial Close". Some of these projects may have seen no actual movement in the database recently.

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