

**Western Europe
Renewable Energy Technology Centre**

FDI Proposition



Contents

• Fact File	3
• Executive Summary	4
• Major Investments	6
• fDi Markets Analysis	7
• Benchmarking Study	10
• Quality Analysis	
• General Business Environment	13
• Labour Availability & Quality	18
• Presence of an Industrial Cluster	22
• R&D Capabilities	25
• Infrastructure & Accessibility	29
• Living Environment	31
• Cost Analysis	34
• Summary	37

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	France	Germany	Italy	Spain	Sweden	UK
GDP Per Capita PPP (Int \$)	34,208	35,442	30,581	30,621	37,245	36,523
Labour Force (Millions)	28.00	41.44	24.74	22.19	4.84	30.88
Unemployment Rate (%)	9.7	10.1	8.2	18.1	9.3	8.1
No. of FDI Projects in Renewable Energy	87	55	58	111	16	94
Total no. of Patents	30,121	81,403	14,741	3,258	10,344	28,630
Salary for Engineer (€)	37,930	54,797	33,993	33,677	37,693	30,712

Renewable Energy Technology Centre

Why Western Europe?

- Five out of the six chosen Western Europe locations appear within top 10 economies of the world
- High GDP per capita of Int\$34,103, stable inflation rate and low forecasted labour costs growth at 2.6%
- Minimal cost of establishing a business – particularly evident in France, Sweden and the UK

Track Record

- Western Europe is the leading recipient of FDI in the renewable energy sector (30% of the global share)
- Prime locations for the sector have been identified as France, Germany, Italy, Spain, Sweden and UK
- To date these prime locations have secured a total capital investment of €47.5 billion, in turn creating over 31,000 new jobs
- Spain is the leading recipient of FDI in the renewable energy sector within the region

Knowledge Intensive Labour Force

- Sweden offers investors the most experienced industry specific labour force
- UK offers the most flexible labour market regulations
- France present the most productive labour force in the region

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Presence of an Industrial Cluster and R&D Capabilities

- Germany has a large industrial cluster with high innovative capabilities
- The largest number companies in electronic components reside in Italy
- Sweden has the highest R&D intensity closely followed by Germany
- Sweden offer the greatest availability of scientists and engineers in the region

Living Environment

- All of the prime locations in Western Europe enjoy a high quality of living
- High life expectancy average of 80 years, with all locations boasting a universal healthcare system
- France is best placed to attract and retain an international pool of labour
- Sweden offers employees the lowest personal tax rate of 27%

Price for the Global Status and Knowledge

- Average labour costs of an engineer in the region is €38,134
- UK offers a cheaper alternative to its Western European neighbours with an expected yearly cost saving of €136,773 on total labour costs

Major Investments into Western Europe (2009)

Iberdrola into the **UK** (December 2009)

Scottish government have given approval for the second extension of its Whitlee wind farm near Glasgow, UK. The wind farm is already Europe's largest onshore farm, and the expansion will add a further 39 turbines, raising capacity from 322 megawatts (MW) to 593 MW. The extensions will be completed in 2012.

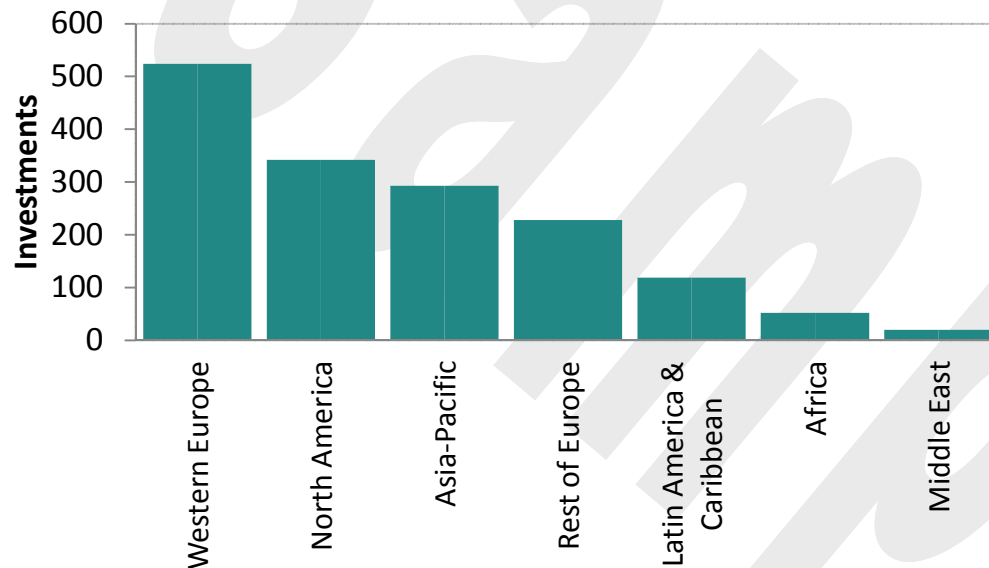
DuPont into the **UK** (November 2009)

DuPont, a US-based chemical producer is investing €30.18 Mn. The company is joining forces with BP to open a joint venture company called Kingston Research at BP's Saltend site, near Hull, UK. The JV company will focus on the commercialisation of advanced biofuel technology, and is located at a £25m purpose built development and demonstration facility. The JV will create 27 jobs.

E.ON into **Spain** (November 2009)

E.ON will build and own two 50 megawatt solar power plants in Ecija, Seville with Spain-based Abengoa. The total investment in the project is €550m and the plants, Helioenergy 1 and Helioenergy 2, are due to be completed in 2011 and 2012 respectively. The solar facilities, which will use parabolic trough technology, will produce enough power to supply 52,000 homes.

fDi Markets – ‘Leading Destination World Regions in the Alternative/Renewable Industry’



Destination World Regions - From January 2003 to January 2010

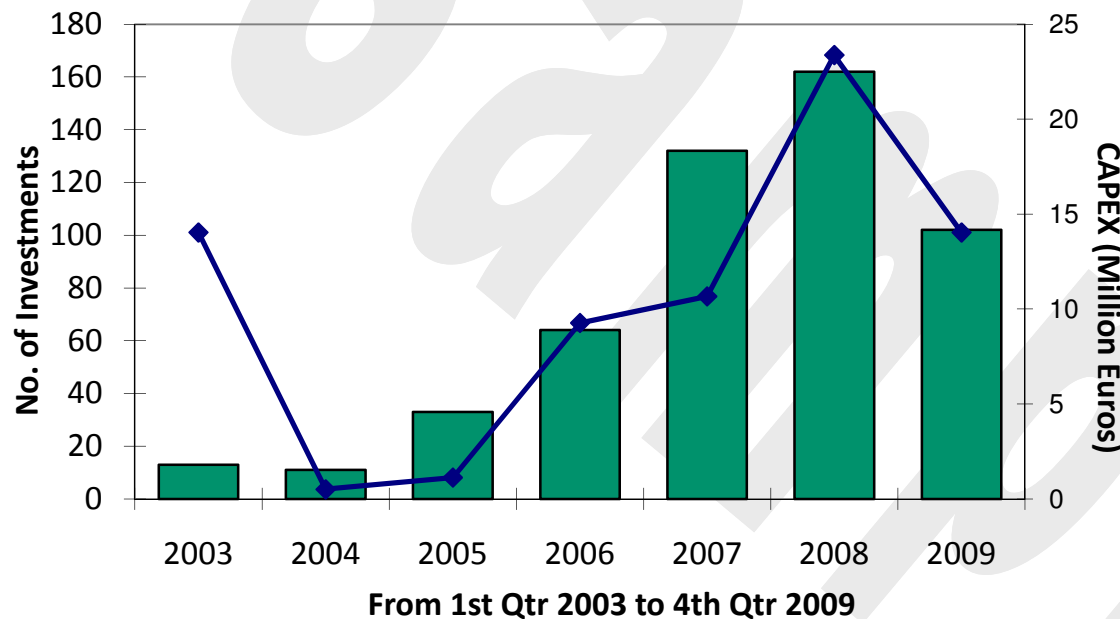
Source: fDi Markets from the Financial Times Ltd (2010)

fDi Markets identifies Western Europe as the leading destination for FDI in alternative/renewable energy.

In total the region attracted 524 investments, accounting for over 30% of global FDI share in the industry.

To date total FDI in the region has secured €61,328 million capital investment. Over the period 45,806 new jobs have been created, representing a total of 26% global share for job creation in the industry.

fDi Markets – ‘Inward Investment and CAPEX in Alternative/Renewable Energy Western Europe’



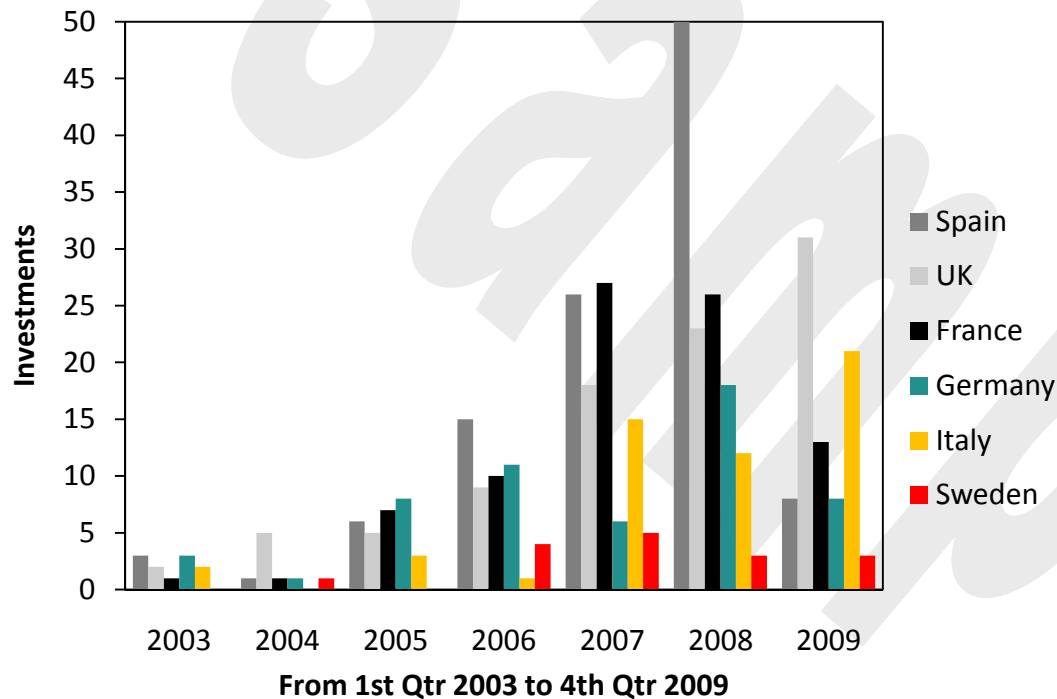
Source: fDi Markets from the Financial Times Ltd (2010)

Western Europe has experienced a steady receipt of inward investment in the industry, reaching a peak of 162 projects in 2008. Despite a fall in 2009, investments numbers were still relatively high.

It is evident that job creation followed the same trend as capital investment. As CAPEX peaked in 2008 so too did job creation with a total of 11,492 news jobs, representing 35% of total jobs created over the period.

Major investing source countries in the region can be identified as Germany, Spain and the US.

fDi Markets - 'Investment by Destination Country'



Source: fDi Markets from the Financial Times Ltd (2010)

Prime locations within Western Europe can be identified as France, Germany, Italy, Spain, Sweden and the UK. The clear leader in FDI is Spain comprising a total of 109 projects over the period.

But an emerging competitor is the UK. Where, despite the global turmoil, investments continued to grow with its highest growth (31%) in number of investments experienced in 2008-09, making it the only country to experience a growth in this period and a growth year on year.

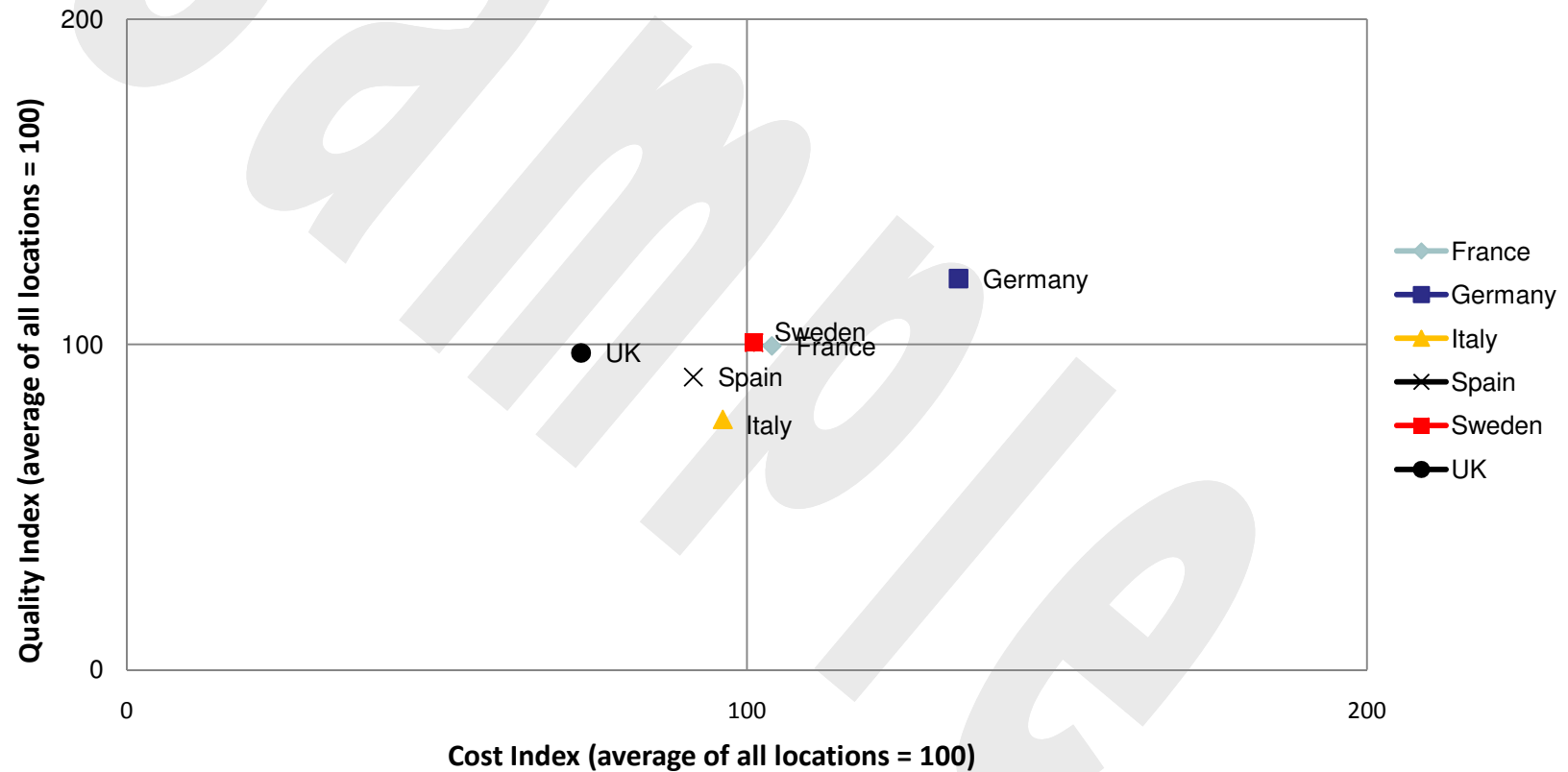
The UK is the leading destination country for job creation through FDI. The country attracted a total of 9,099 new jobs over the period, representing 27.48% share of total new jobs created in the region.

Benchmarking Study

- The following analysis is based on fDi Benchmark, an online location benchmarking tool provided by the Financial Times.
- fDi Benchmark compared Western European prime locations in the renewable energy technology sector based on an analysis of over 55 quality factors and 10 cost factors.
- A key emphasis was placed on:-
 - ***General business environment - regulatory environment, taxation, economic growth and stability***
 - ***Labour availability and quality - the size of the labour market, and tightness in the labour market and;***
 - ***Presence of an industrial cluster the size, competitiveness and track record of the domestic industry***
- Other factors including living environment, infrastructure and accessibility were also assessed.

fDi Benchmark identifies Germany as the leading location to deliver the highest quality in the renewable energy technology sector. Whereas the UK offers investors a low cost alternative.

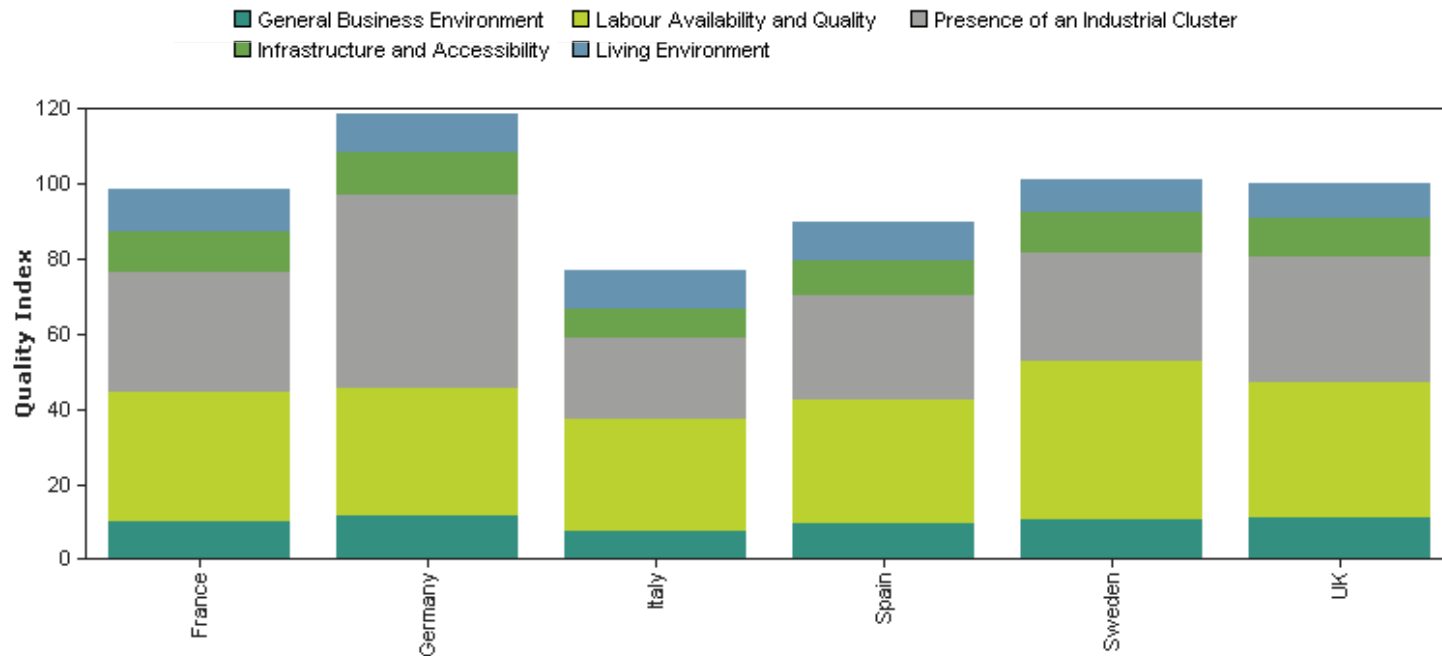
Competitiveness Matrix – Renewable Energy Technology Centre



Source: fDi Markets from the Financial Times Ltd (2010)

Assessing the 6 Western European locations on their quality competitiveness, it is clear to see that Germany is the leading location. Germany's quality scoring is boosted by the country's large industrial cluster in the renewable energy sector. Providing a similar quality offering behind that of Germany would be the UK, France and Sweden.

Renewable energy technology centre (NEW) (Head Count: 30) - Total Quality Index Breakdown



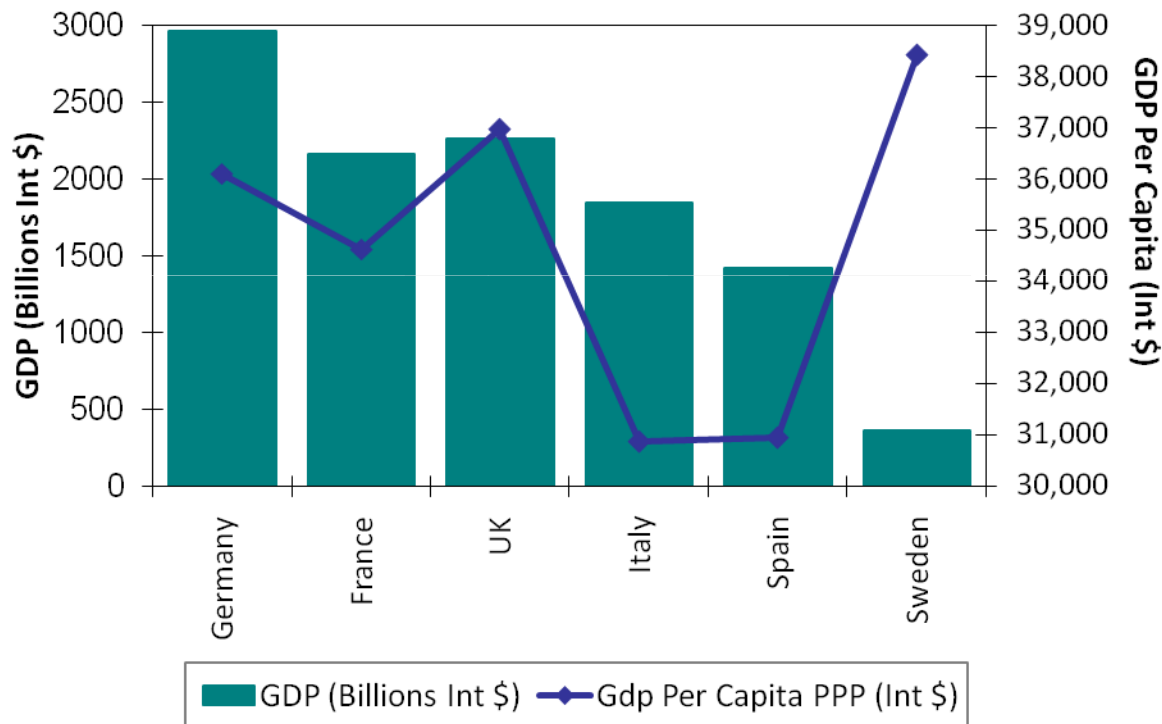
Source: fDi Intelligence, from the Financial Times Ltd (2010)

General Business Environment

Western Europe produces a large proportion of the world's GDP with five out of the six prime locations appearing in the top 10 economies of the world.

- Germany is the largest economy in the region - GDP of Int\$3,668 billion
- GDP per capita average of Int\$34,103
- Average unemployment rate of 10.6%
- Spain offers investors the lowest forecasted labour costs growth at 0.92%
- UK offers investors the most attractive business climate
- Intellectual property protection – much more stringent in France, Germany and Sweden
- Sweden holds the strongest and most efficient legal framework

fDi Benchmark - 'GDP and GDP Per Capita PPP' [2009]



Source: International Monetary Fund;
fDi Intelligence from the Financial Times

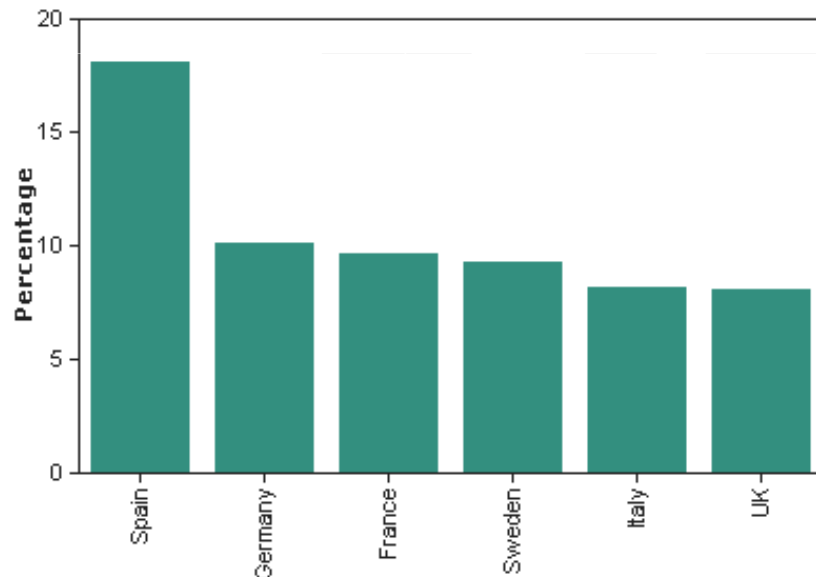
Germany reflects the largest economy in the region with a GDP of Int\$3,668 billion, while Sweden proves to be the smallest economy with a GDP of Int\$485 billion.

GDP per capita is high across the Western Europe region with an average of Int\$34,103.

Sweden represents a small yet thriving economy, with the highest GDP per capita in the region (Int\$37,245).

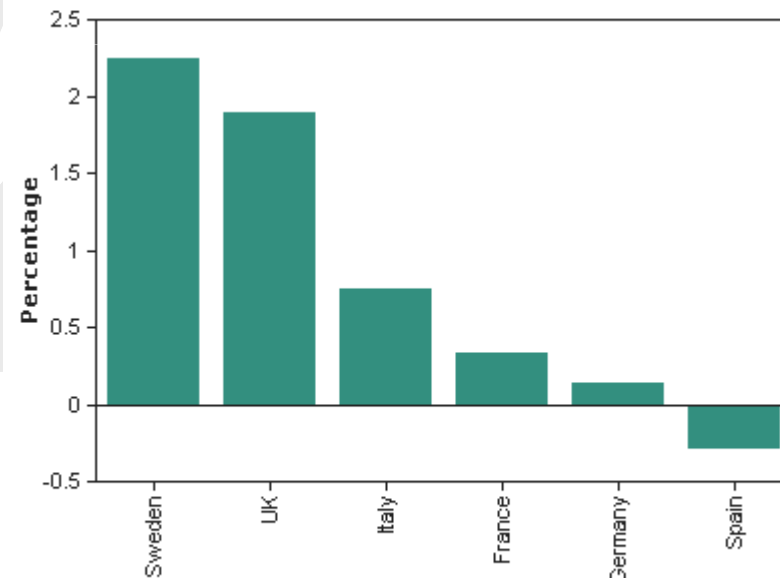
Spain's labour market illustrates the severe impact of the global downturn, with an unemployment rate of 18.1%. While unemployment in the UK is still high it is the lowest in the region at 8.1%. However, unemployment forecasts are promising with unemployment rates expected to fall across all of the prime Western European locations by 2014. Inflation is stable across the prime Western European locations, with no one country exceeding 2.5%

fDi Benchmark - 'Unemployment rate' [2009]



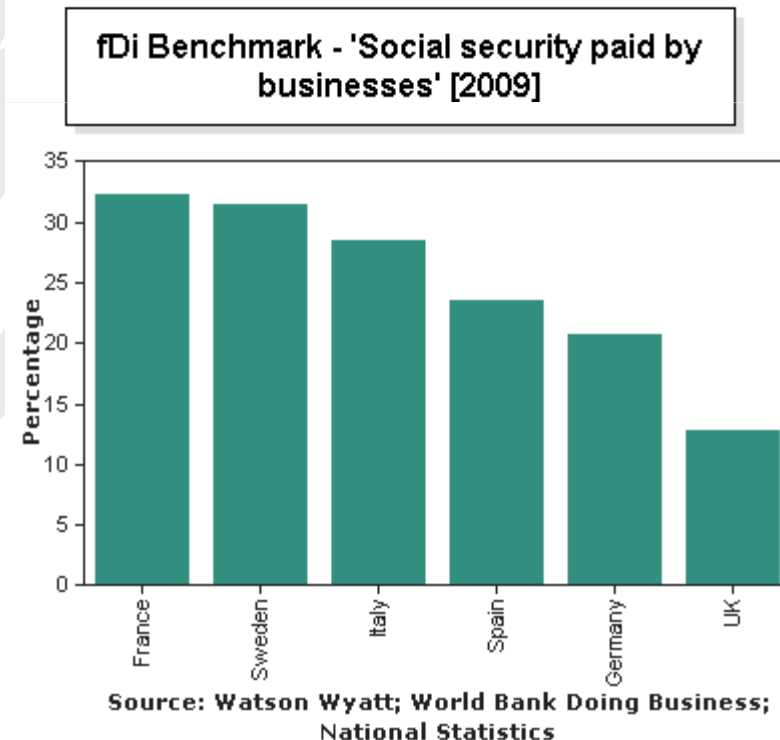
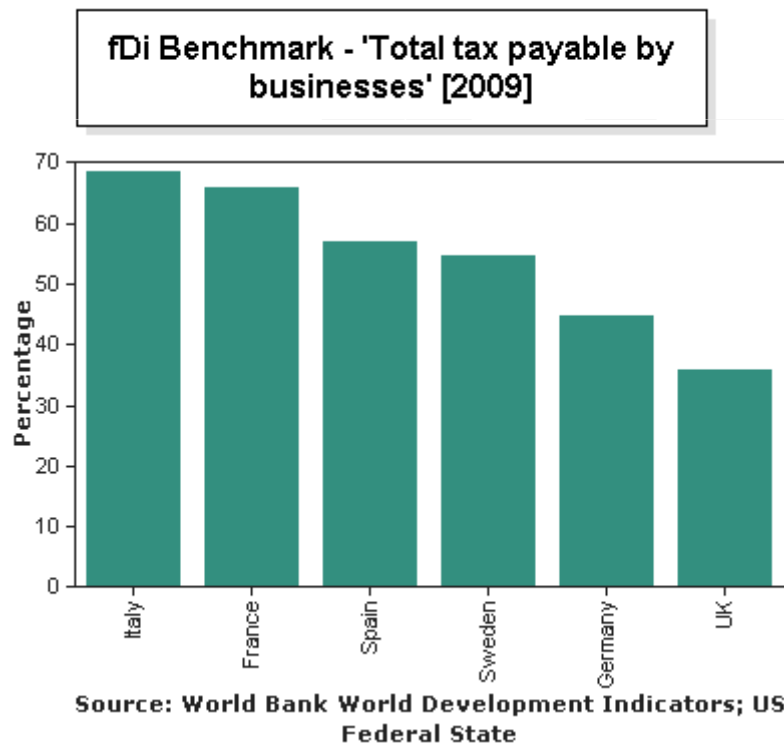
Source: World Bank World Development Indicators; Eurostat; Economic Intelligence Unit; fDi Intelligence from the Financial Times

fDi Benchmark - 'Stability - Inflation' [2009]



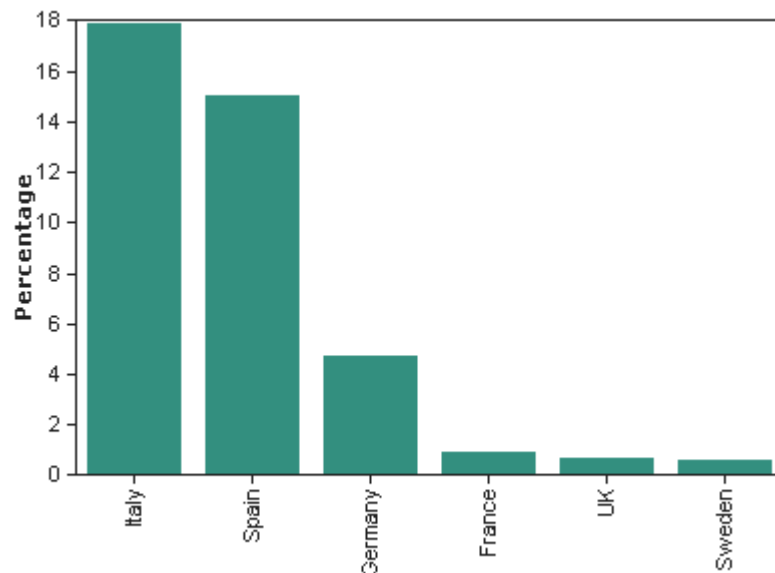
Source: World Bank World Development Indicators; WEF Global Competitiveness Report

Business tax (expressed as a % of gross profit) and social security rates vary broadly by country, however it is clear to see that the UK offers investors the most attractive business climate. The UK offers investors the lowest business tax at 35.9% and lowest social security at 12.8%. Investors will be subject to the heaviest burden of business tax in Italy at 68.4%. France is the least favourable location with a high business tax and social security rate (32%).



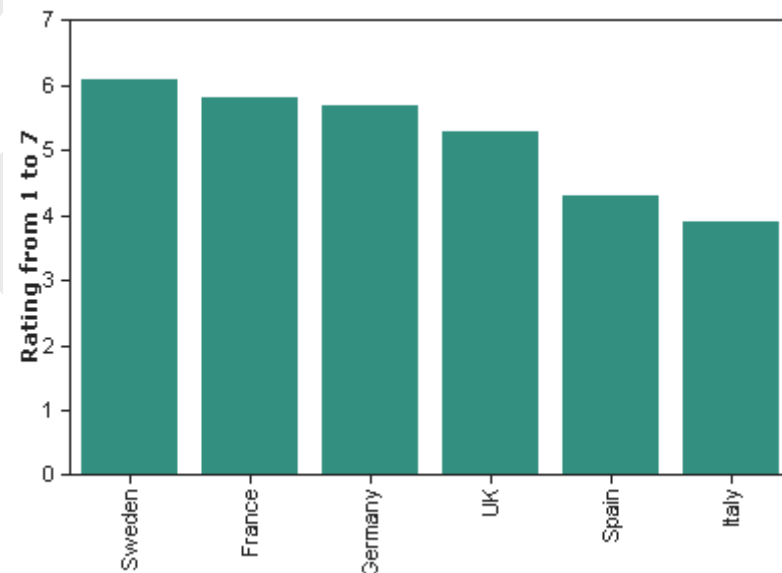
Investors can enjoy the lowest cost of establishing a business (expressed as a % income per capita) in France, UK and Sweden, with rates under 1%. A secure intellectual property protection means less long term costs for investors, with all countries in the region reflecting a fairly secure intellectual property protection system. Sweden offers investors confidence, with the most efficient legal framework and the strongest intellectual property protection.

fDi Benchmark - 'Cost of establishing a business' [2009]



Source: World Bank World Development Indicators

fDi Benchmark - 'Intellectual property protection' [2009]



Source: WEF Global Competitiveness Report

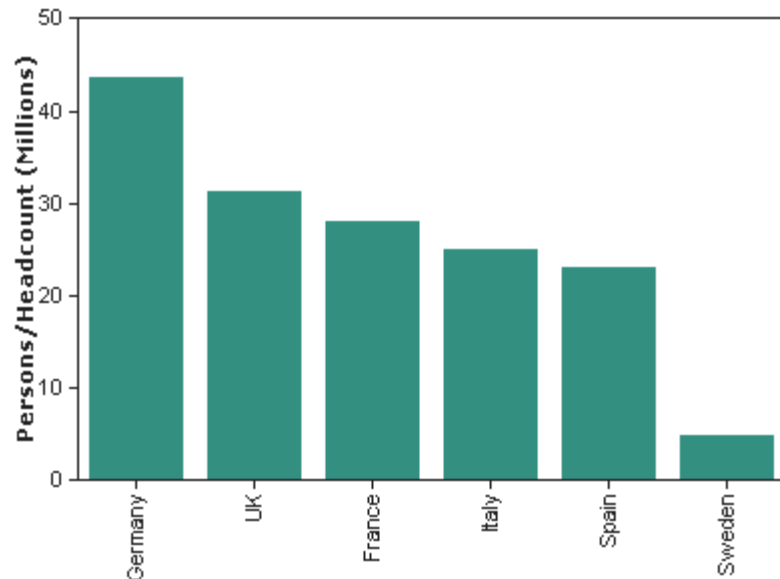
Labour Availability and Quality

Western Europe separates itself from other global regions with an innovative labour force fundamental to any investor in the renewable energy sector.

- Labour force varies across the region from a large labour force in Germany(44 million) to a small labour force in Sweden (5 million)
- Sweden shows the greatest availability of scientists and engineers
- Average gross tertiary enrolment rate of 62%, with Sweden far exceeding that average
- 20% of those unemployed in Spain hold a tertiary qualification
- France represent the most productive labour force in the region
- UK offers the most flexible labour market regulations
- Germany and the UK are the leading locations for their internationally renowned universities

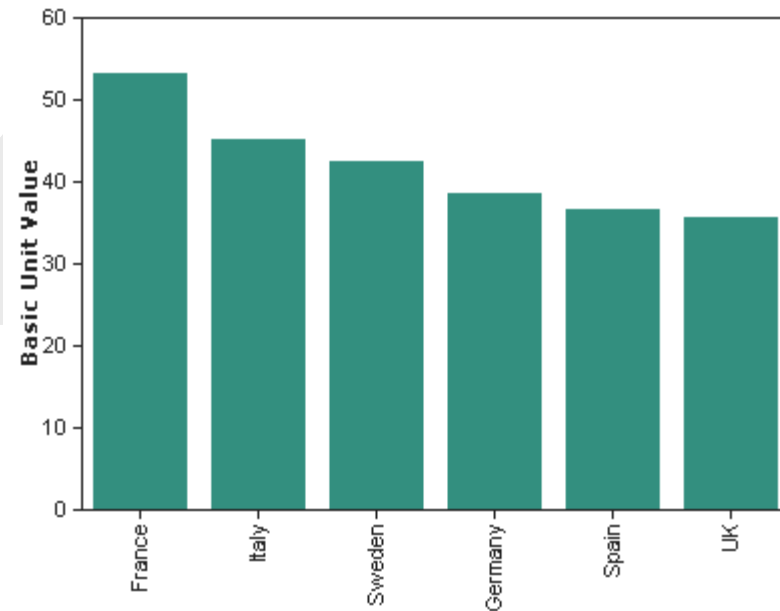
Locating to Western Europe means a reliable source of labour. Labour intensive investors may look to Germany which has a workforce exceeding 40 million persons. Labour productivity (expressed as GDP per employee) is high across the region, particularly evident in France's labour force as it is the most productive in the region.

fDi Benchmark - 'Labour force' [2009]



Source: Economic Intelligence Unit; CIA The World Factbook

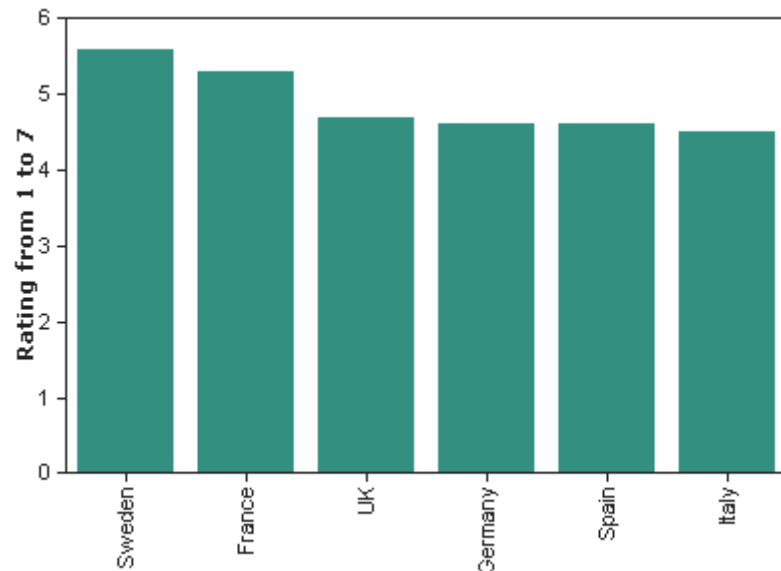
fDi Benchmark - 'Labour productivity' [2009]



Source: fDi Intelligence from the Financial Times

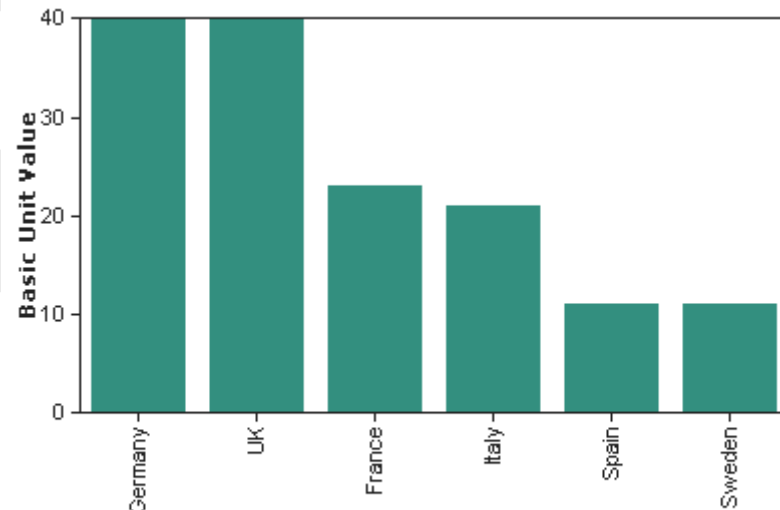
An innovative labour force is key to any renewable energy sector and one that Western Europe can certainly offer. Sweden present the most industry-specific experienced labour force, with the highest availability of scientists and engineers and a high number of researchers in R&D. Germany and the UK are the leading locations in the region, with 40 universities appearing in the top 500 universities of the world - making them a favourable location to produce a steady stream of skilled workers.

fDi Benchmark - 'Availability of scientists and engineers' [2009]



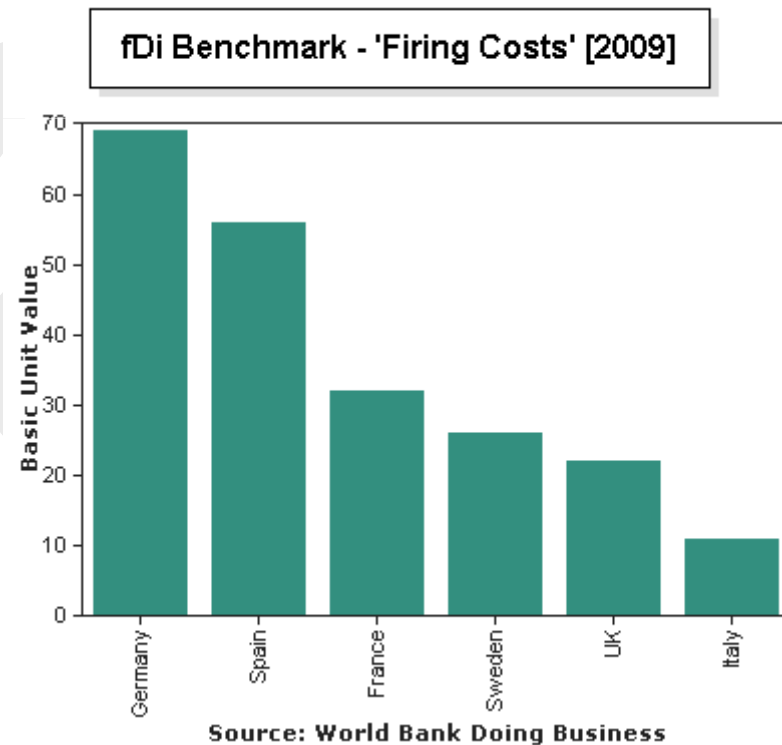
Source: WEF Global Competitiveness Report

fDi Benchmark - 'Number of top 500 universities' [2009]



Source: Academic Ranking of World Universities (ARWU) from Shanghai Jiao Tong University (GSE-SJTU)

The most liberalised labour regulations exist in the UK, with the highest hiring and firing flexibility rating and lowest firing costs, providing investors with minimum expense in handling human resource issues. Germany demonstrates the tightest labour market regulations with firing costs (expressed in weeks of salary) of 69 weeks and a low rating of 2.5 in terms of its hiring and firing flexibility.



Presence of an Industrial Cluster

Producing the highest output of renewable energy and possessing the highest number of active companies in the sector, Germany boasts the strongest industrial cluster.

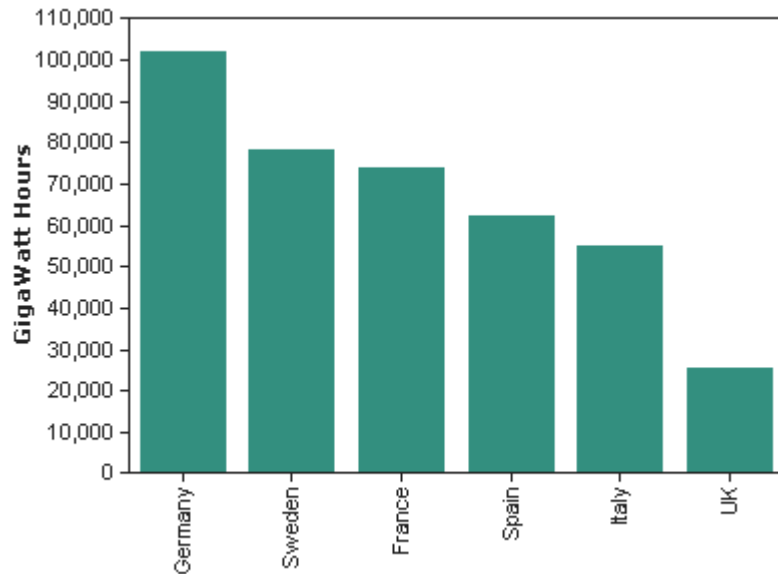
- Western Europe is the world's second largest producer of renewable energy (19.3%)*
- Germany is number one in the region for total renewable energy and wind power generated
- Germany alone covers approximately 50% of the total installed onshore wind capacity in the EU**
- Germany represents the highest export competitiveness in high technology goods – exporting a total of €113,693 million
- The highest concentration of companies in R&D development exists in Germany
- Italy holds the highest number of companies in electronic components

* www.goodplanet.info

** www.energy.eu

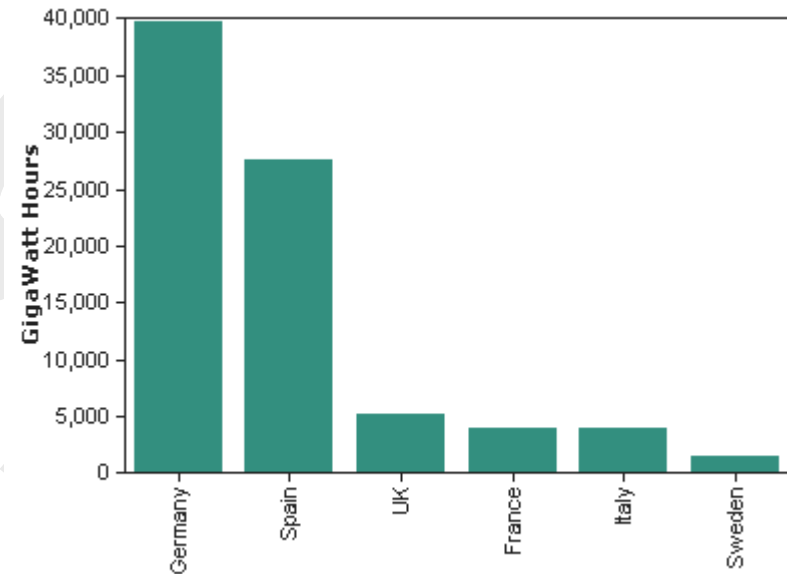
Germany generates the highest total renewable energy and wind power generated in the region highlighting the scope and size of the renewable energy industry financed by a proactive government in tact with environmental concerns. The UK produces lowest amount of renewable energy in the region.

fDi Benchmark - 'Total renewable and waste electricity generated' [2007]



Source: International Energy Agency

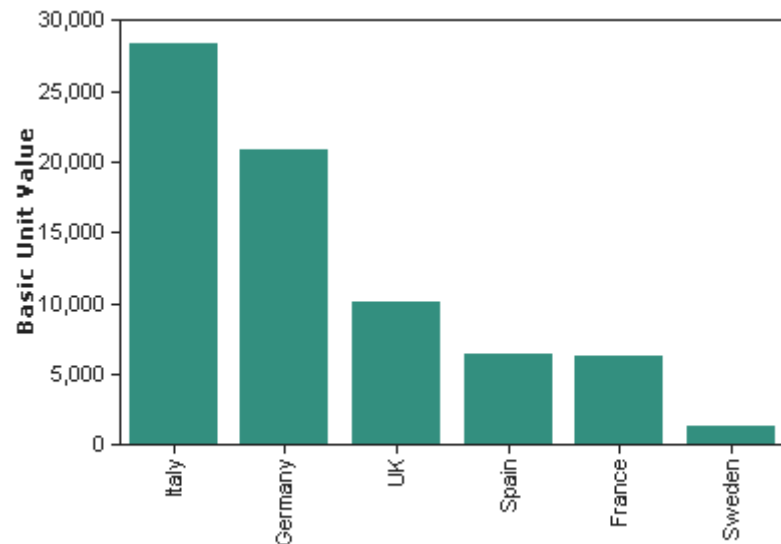
fDi Benchmark - 'Wind power electricity generated' [2007]



Source: International Energy Agency

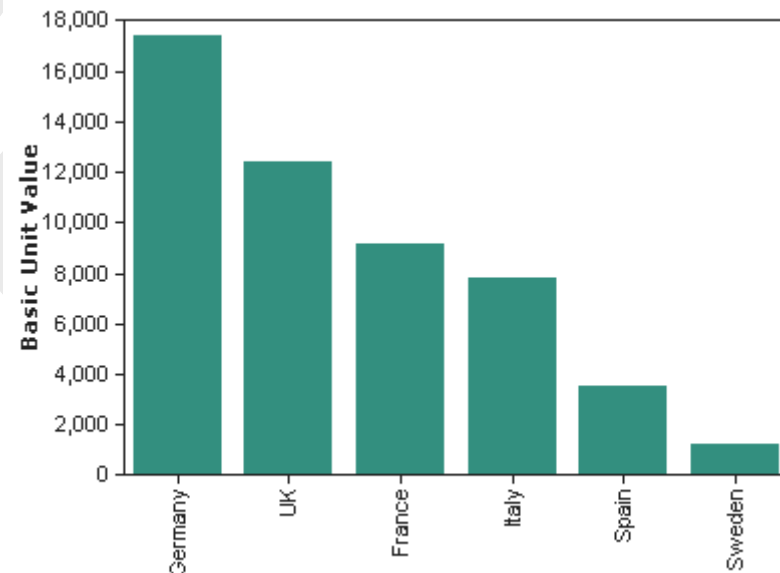
Italy is best placed to help promote the development of renewable energy equipment and components, with over 25,000 companies involved in electronic components. However those investors seeking an array of knowledge and expertise in the renewable energy sector may choose Germany over any other Western European location.

fDi Benchmark - 'Companies in electronic components' [2010]



Source: Dun & Bradstreet (Sic 362, 364, 3671, 3672, 3677, 3678, 3679, 369)

fDi Benchmark - 'Companies in Research and Development' [2010]



Source: Dun & Bradstreet (Sic 8731, 8733, 8734)

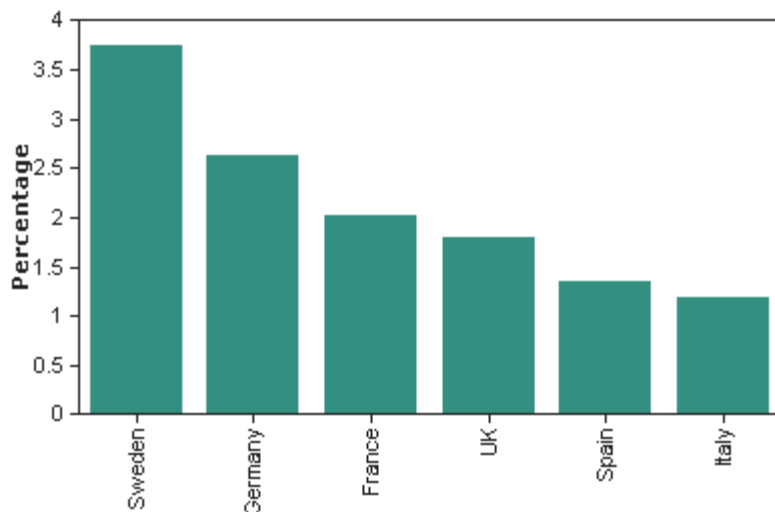
R&D Capabilities

Germany offers the most established R&D infrastructure in the region, with the highest expenditure on R&D and a highly trained innovative labour force - placed in some the world's internationally renowned research institutions.

- Sweden has the highest R&D intensity closely followed by Germany
- In real terms Germany represents the highest expenditure on R&D
- UK ranks number one in the region for their internationally renowned research institutions closely followed by Germany
- Sweden offer the greatest availability of scientists and engineers in the region
- Germany has the highest number of total patents – almost 50% of the region combined
- The highest number of patents in energy and photovoltaics is again concentrated in Germany

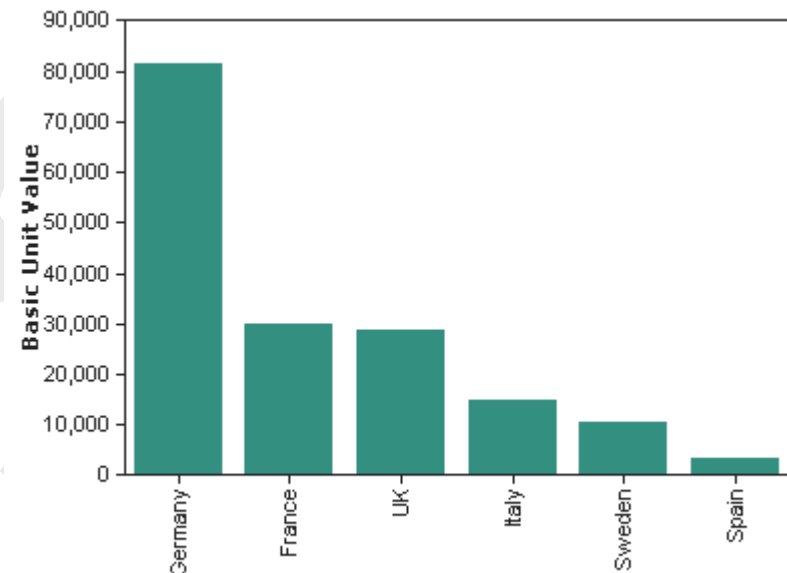
Sweden (3.75%) has the highest R&D intensity closely followed by Germany (2.63%). However as R&D intensity is taken as a % of GDP, in real terms it is Germany that represents the highest expenditure on R&D, with the country representing the largest economy in the region with a GDP of Int\$3668 billion. Germany has the highest number of patents far exceeding its Western European counterparts, with almost 50% of the rest of the region combined. Thereby representing the most innovative country in the region.

fDi Benchmark - 'Research and Development intensity' [2008]



Source: OECD Main Science and Technology Indicators; World Bank World Development Indicators; Eurostat

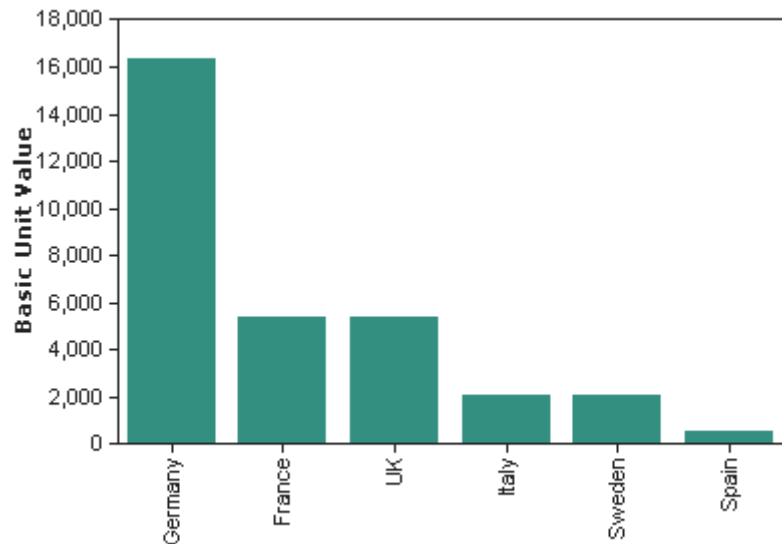
fDi Benchmark - 'Total number of patents' [2009]



Source: fDi Intelligence based on USPTO

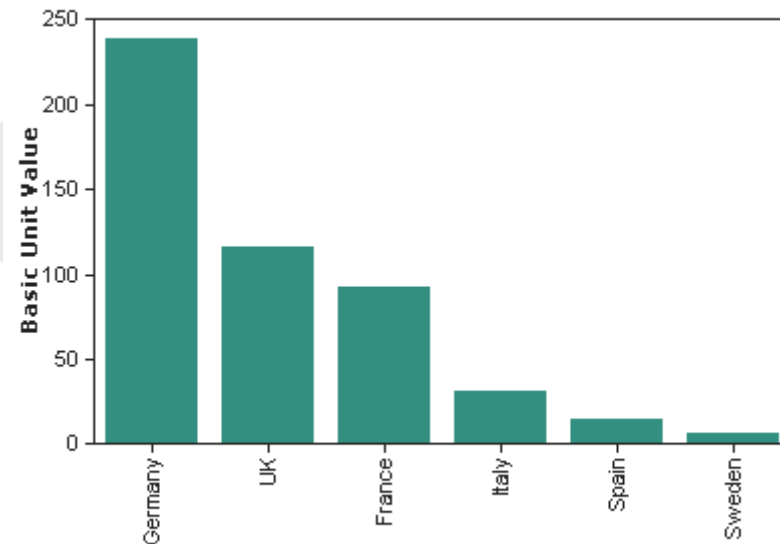
Renewable energy is a patent intensive industry and related patents in this area highlight a countries capacity to produce innovative ideas around the subject. Germany produces the highest number of patents in energy and photovoltaic's. Germany alone accounts for 50% of total patents in energy. However looking at patent specialisation in energy Sweden is number one in the region.

fDi Benchmark - 'Number of patents in energy' [2009]



Source: fDi Intelligence estimates based on the US Patent and Trademark Office

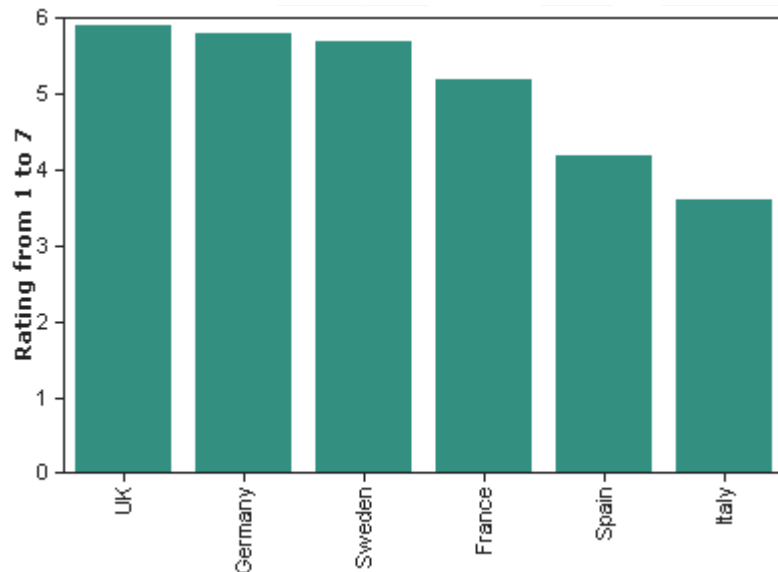
fDi Benchmark - 'Number of patents in photovoltaics' [2009]



Source: fDi Intelligence estimates based on the US Patent and Trademark Office

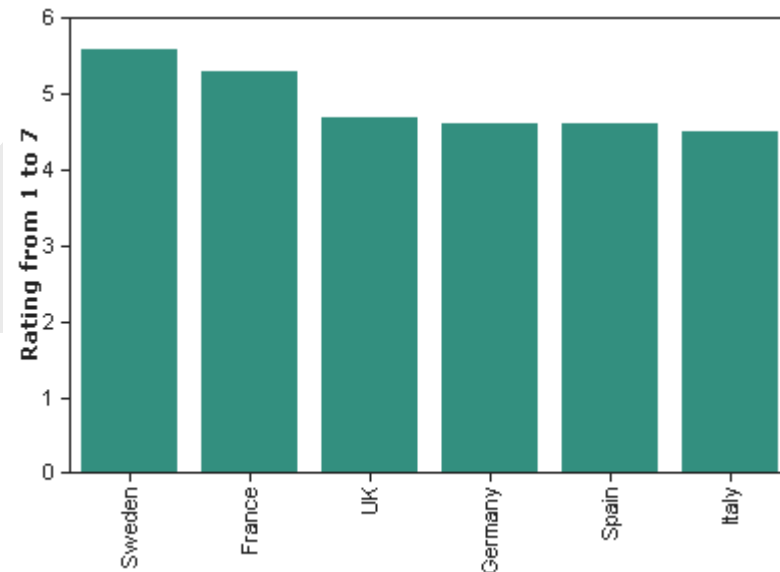
UK and Germany are best placed to produce highly skilled workers for the renewable energy sector, given the countries strong offering of scientific research institutions and their dominating appearance in the top 500 universities of the world over any other Western European counterpart. Sweden also offers investors a high quality offering, with their high quality of scientific institutions and the highest availability of scientists and engineers in the region.

fDi Benchmark - 'Quality of scientific research institutions' [2009]



Source: WEF Global Competitiveness Report

fDi Benchmark - 'Availability of scientists and engineers' [2009]



Source: WEF Global Competitiveness Report

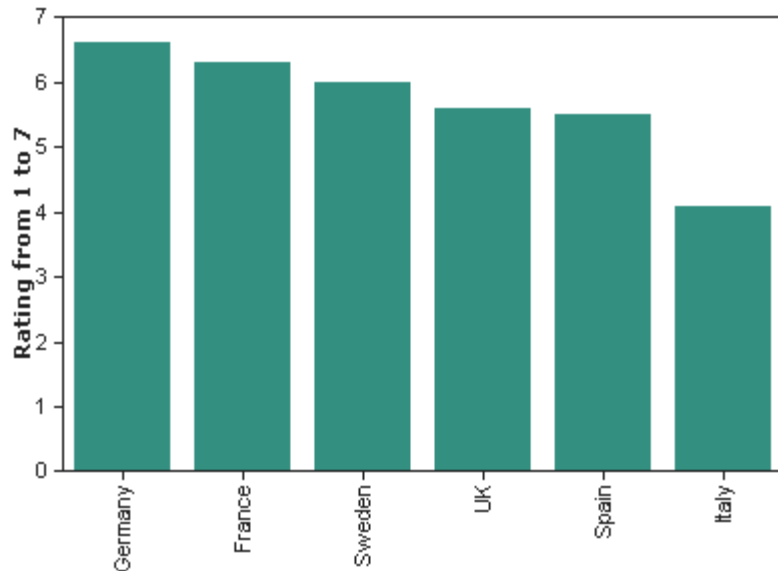
Infrastructure & Accessibility

Western Europe offer investors a strong, developed, high quality infrastructure giving access to both international and domestic markets. With all of the Western European locations appearing in the top 25 countries of the world for their logistics and trade facilitation performance.

- Germany has the highest quality of air transport infrastructure
- Concentrating on the capital cities, the UK is the most internationally connected location
- France shows the greatest access to domestic markets, with the most extensive road network
- In terms of the quality of their electricity supply France, Germany and Sweden rank the highest
- The UK has the highest expenditure on ICT infrastructure at almost of 7% of their GDP

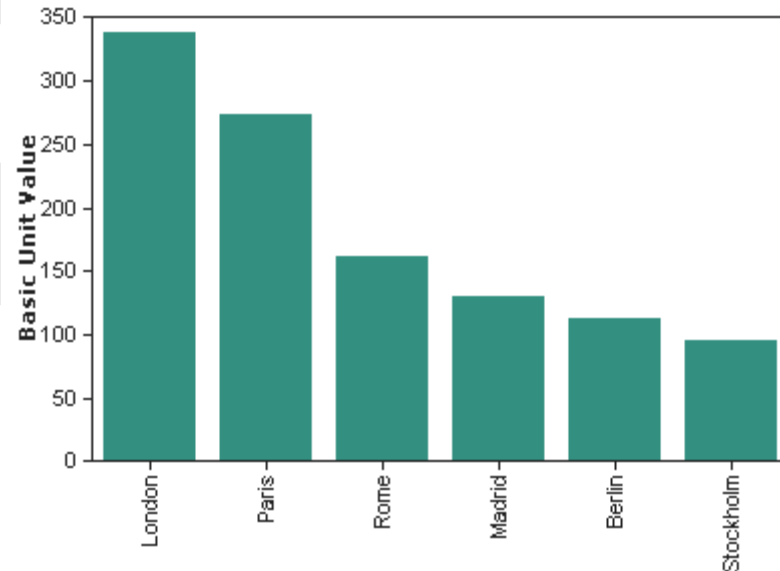
With all locations boasting a high quality infrastructure, Western Europe offers investors access to international markets. Using the country's capital cities as an indicator of how internationally connected the countries are, it is clear that the UK is best placed for the international investor as it's city airport serves over 330 international destinations.

fDi Benchmark - 'Air transport infrastructure quality' [2009]



Source: WEF Global Competitiveness Report

fDi Benchmark - 'No. of international destinations served from airports' [2009]



Source: OAG Flight Guide

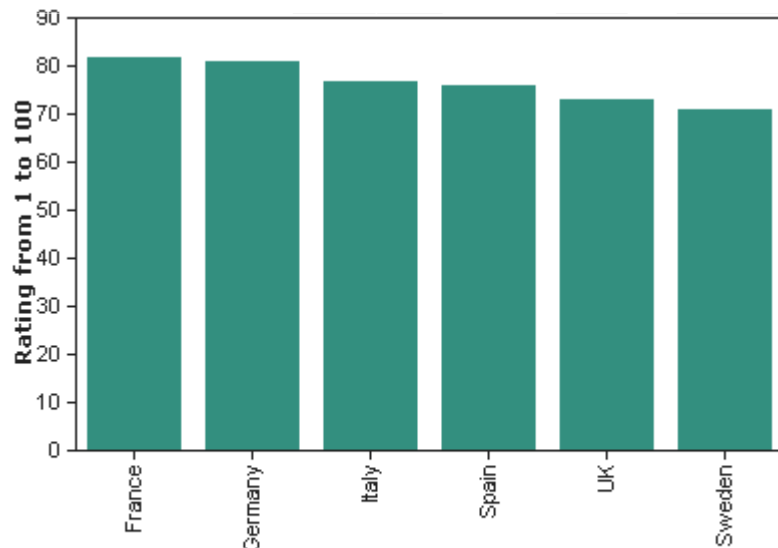
Living Environment

With a relatively low cost of living, the highest living standard and highest quality of public schools in the region, France's living environment has all the right components to attract a pool of international staff.

- All locations enjoy a high quality of living
- France and Germany offer the highest quality to cost ratio
- High life expectancy average of 80 years, with all locations boasting a universal healthcare system
- Sweden ranks the highest for its overall quality in its education system closely followed by France and Germany
- The highest quality in public schools can be found in France
- UK far exceeds its Western European competitors with 171 IB World Schools
- Spain offers employees the lowest personal tax rate

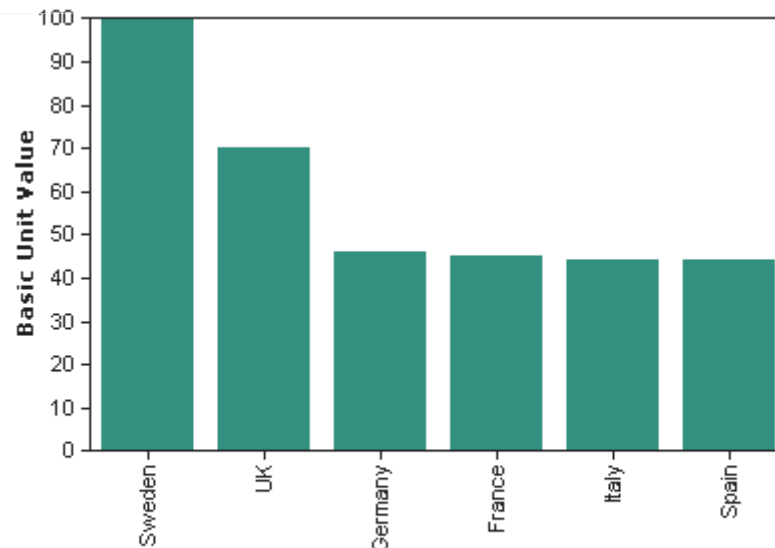
Western Europe is renowned for its high quality of life. France and Germany are optimal locations to attract and retain a skilled labour force, with their attractive quality to cost ratio. In comparison, Sweden and the UK are the inferior locations when comparing quality and cost of living.

fDi Benchmark - 'Quality of living index' [2010]



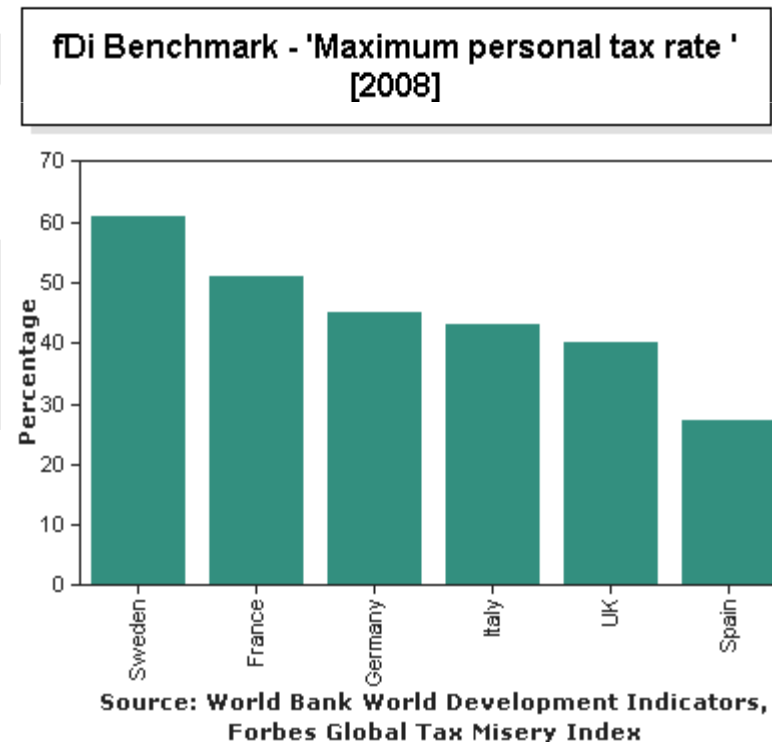
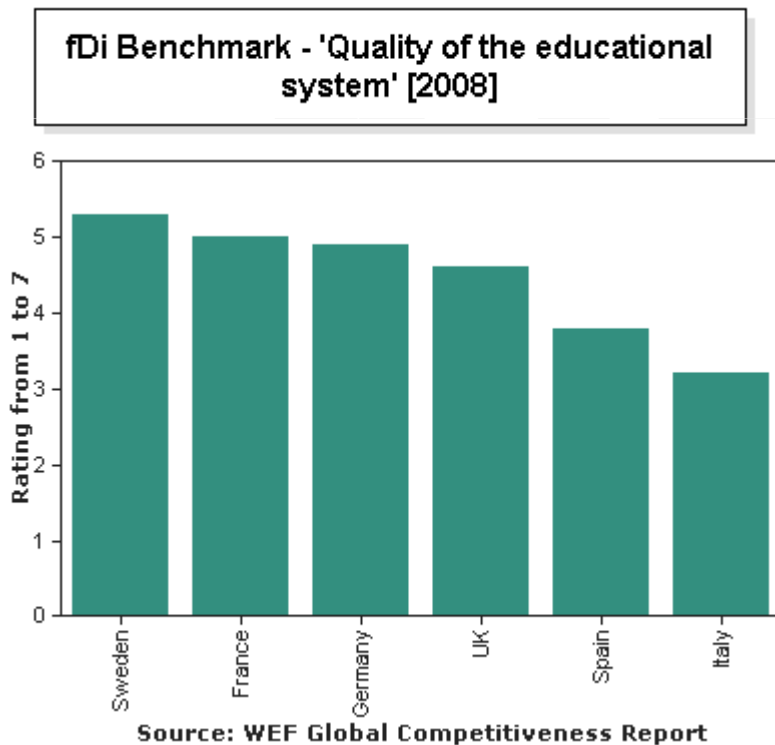
Source: Mercer Global Quality of Living Report; www.internationalliving.com; fDi Intelligence from the Financial Times

fDi Benchmark - 'Cost of living Index' [2010]



Source: Economic Intelligence Unit; www.internationalliving.com; fDi Intelligence from the Financial Times

Other important indicators that can be considered to attract an international pool of labour, is a country's education system and personal tax rate. Sweden's education system is rated the highest in the region, closely followed by France and Germany. The UK boasts the highest number of IB World Schools of 171, which is more than the rest of the region combined. Personal tax rate varies from 27% in Spain to 61% in Sweden.

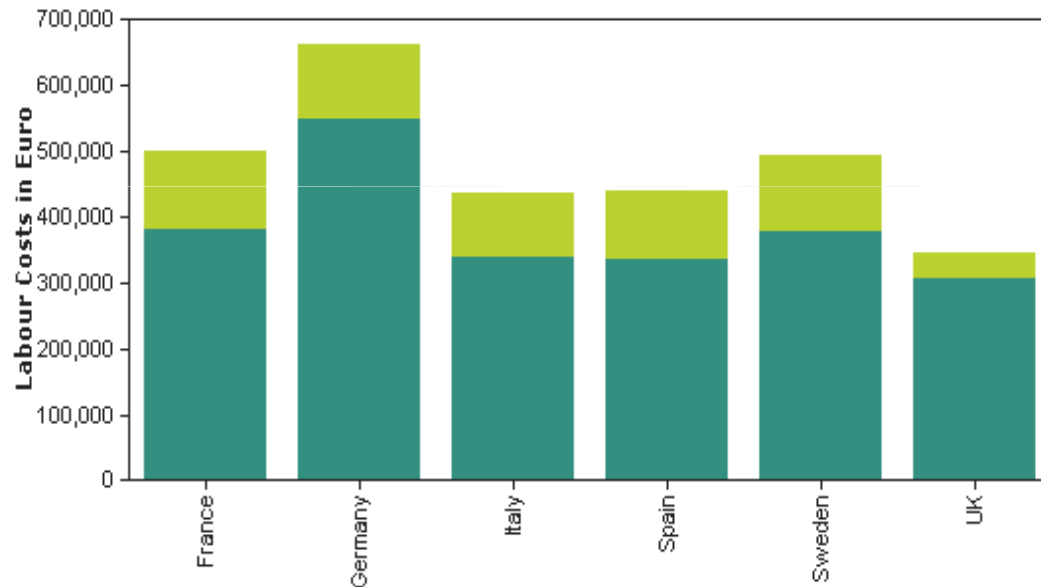


Cost Analysis

Combining the UK's low labour costs with the country's business friendly tax climate, it is clearly an optimal location for investors wishing to minimise costs.

- Choosing to locate to Western European will come at a cost with their leading economic competitiveness and global status
- The regions average salary cost of an engineer is €38,134
- UK offers a cheaper alternative to its Western European neighbours with an expected yearly cost saving of €136,773 on total labour costs
- On average forecasted labour costs are expected to grow at 2.6%
- UK offers businesses the lowest tax rates and lowest social security rates
- Utility costs vary across the region, with France offering the lowest costs

fDi Benchmark - 'Engineer' Labour Costs / 'Head Count (10)'



Benchmark Locations (Source: fDi Intelligence estimates based on National Statistics, Economist Intelligence Unit, and Watson Wyatt [All Years])

Labour costs vary considerably across the region. Labour costs for an engineer in Germany are €54,796, whereas in the UK it is just €30,712 giving a cost saving of €24,084. Spain and Italy offer similar labour cost savings.

It is clear to see that the UK holds a cost advantage over its Western European neighbours as investors with a team of ten engineers could expect to save an average of €136,773 a year on total labour costs.

On average, forecasted labour costs are expected to grow at 2.6%. Spain offers investors stability in labour costs with the lowest forecasted growth in labour costs at 0.92%

Utility costs vary across the region, but overall France offers investors the best cost/competitive opportunity. Germany the most expensive country on cost, however these high costs are compensated by the high end quality that the country offers.

	Gas (100kWh)	Electricity (m ³)	Water (m ³)
France	4.34	0.39	1.19
Germany	7.58	0.44	1.80
Italy	8.23	0.33	0.94
Spain	6.49	0.32	0.78
Sweden	5.03	0.55	0.77
UK	7.62	0.27	1.42

Source: fDi Intelligence based on Economist Intelligence Unit, Eurostat and main utility operators

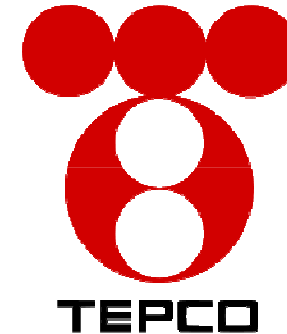
*All costs are presented in Euros.

Summary

Germany offers the strongest quality investment in the sector with its well established renewable energy sector while the UK's growing sector stands as a cheaper alternative. Overall it is clear to see why Western Europe continues to be the global leader for FDI in the renewable industry.

- A readily available innovative labour force, particularly evident in Sweden with the most industry specific staff for the sector
- Germany is well equipped to undertake any investment in the renewable energy sector with the country's established presence in the renewable energy sector coupled with its R&D capabilities
- UK proves to be the most cost advantageous location for investors with the country's low specific labour costs, flexible labour regulations, minimal cost of establishing a business and its business friendly taxation climate
- France stands as the best country to attract an international pool of labour with a relatively low cost of living, the highest quality of living and highest quality of public schools in the region
- With countries such as Germany and Sweden battling to be number one in the world for renewable energy efficiency by 2020 the future looks bright for the renewable energy sector

Who's already harnessing Western Europe's potential...



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