Solar Power Opportunities in Europe

March 2013

TresVista
FINANCIAL SERVICES

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Executive Summary

Executive Summary

Renewable Energy

- In order to manage the increasing demand while also decarbonizing its generation portfolio, EU is encouraging heavy investment in renewable generation assets
- EU has set a target of achieving 20.0% share in gross final consumption by 2020 and EU countries have agreed on legally binding national targets
- In 2010, EU surpassed its own target of generating 12.0% of gross domestic energy consumption from renewable sources with its share being 12.5%

Solar Energy

- In 2005, solar capacity contributed 0.3% to the overall generation mix while by 2010, its share rose to 3.3%
- During the same period, total capacity grew at a CAGR of 2.9% whereas renewable energy capacity grew at a CAGR of 8.7%. The most noticeable growth in renewable came from Solar which grew at a CAGR of 70.3% in the same period
- Inspite of the highest fixed cost associated with setting up a solar plant, it compensates with extremely low variable costs. Apart form pricing, other benefits which make solar a preferred renewable energy source includes installation flexibility and eco-friendly technology

Investment Opportunity

- With increasing demand and mandate to invest in renewable energy, the ***total investment in solar opportunity stands at USD 268.0 to USD 275.0 billion***
- To narrow down to the specific investment opportunity, 27 countries were screened to arrive at 5 countries on the basis highest solar contribution, GDP growth, gap between current installed capacity and new capacity additions

Executive Summary

Focus Countries – Recommendation

Countries	Economic Fundamentals	Power Sector	Solar Significance	Investment Opportunity	Ease of Doing Business	Consolidated
Germany	◑	●	◑	◕	◕	●
Spain	◑	◕	◕	◑	◑	◕
Italy	◔	◑	●	◑	◔	◑
United Kingdom	●	◑	◑	◔	●	◑
France	◕	◔	◔	●	◑	◔

Each rating head includes ranks on the following sub-heads:

- **Economic Fundamentals** considers GDP growth rate
- **Power Sector Overview** covers total capacity CAGR and renewable capacity CAGR from 2005 to 2010
- **Solar Significance** measures solar capacity CAGR from 2005 to 2010
- **Investment Opportunity** includes individual countries dollar investment forecast from 2011 to 2020
- **Ease of Doing Business** consists of regulatory environment, ease of doing business ranking, and challenges

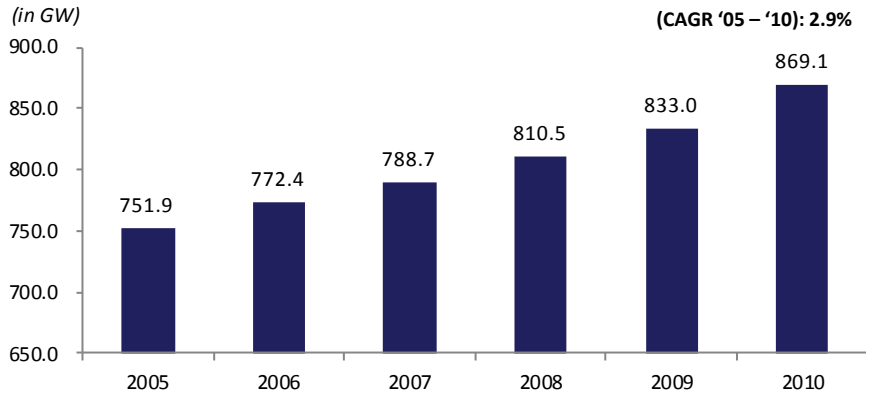
(1) Note: Ease of Doing Business ranking sourced from http://www.doingbusiness.org.

Sector Overview

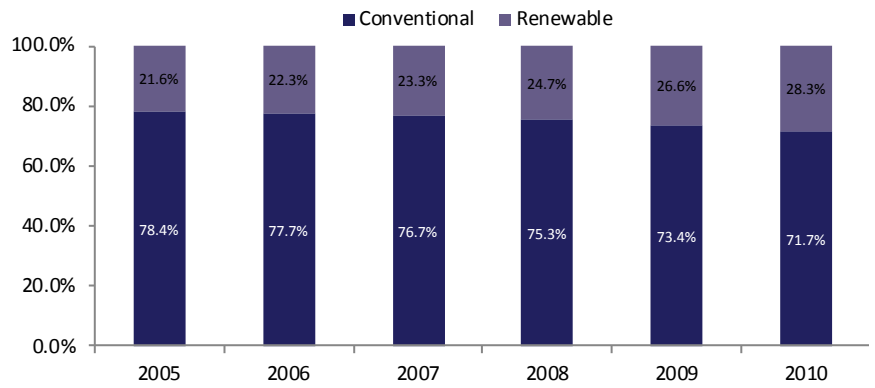
Sector Overview

Trends of Renewable Energy

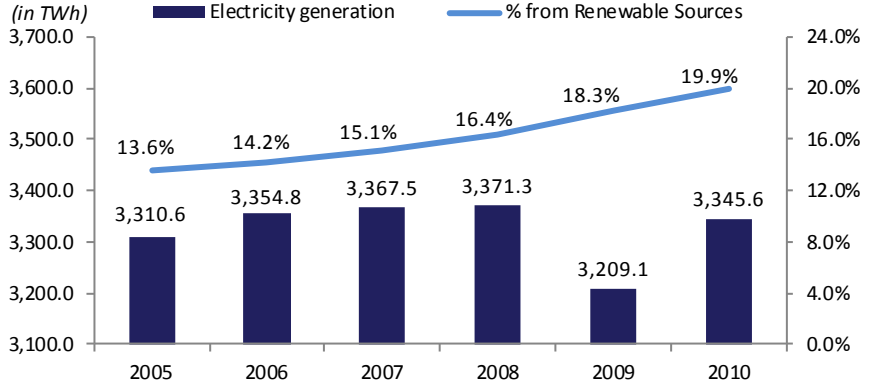
Installed Capacity(1)



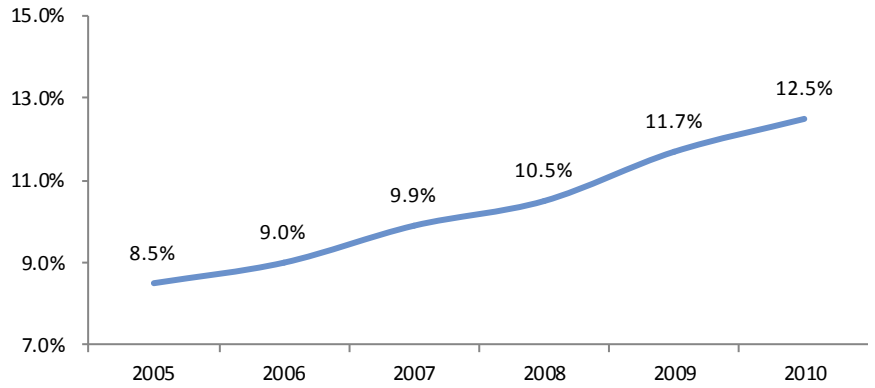
Generation Mix(1)



Electricity Generation(2)



Share of Renewable in Final Demand(2)

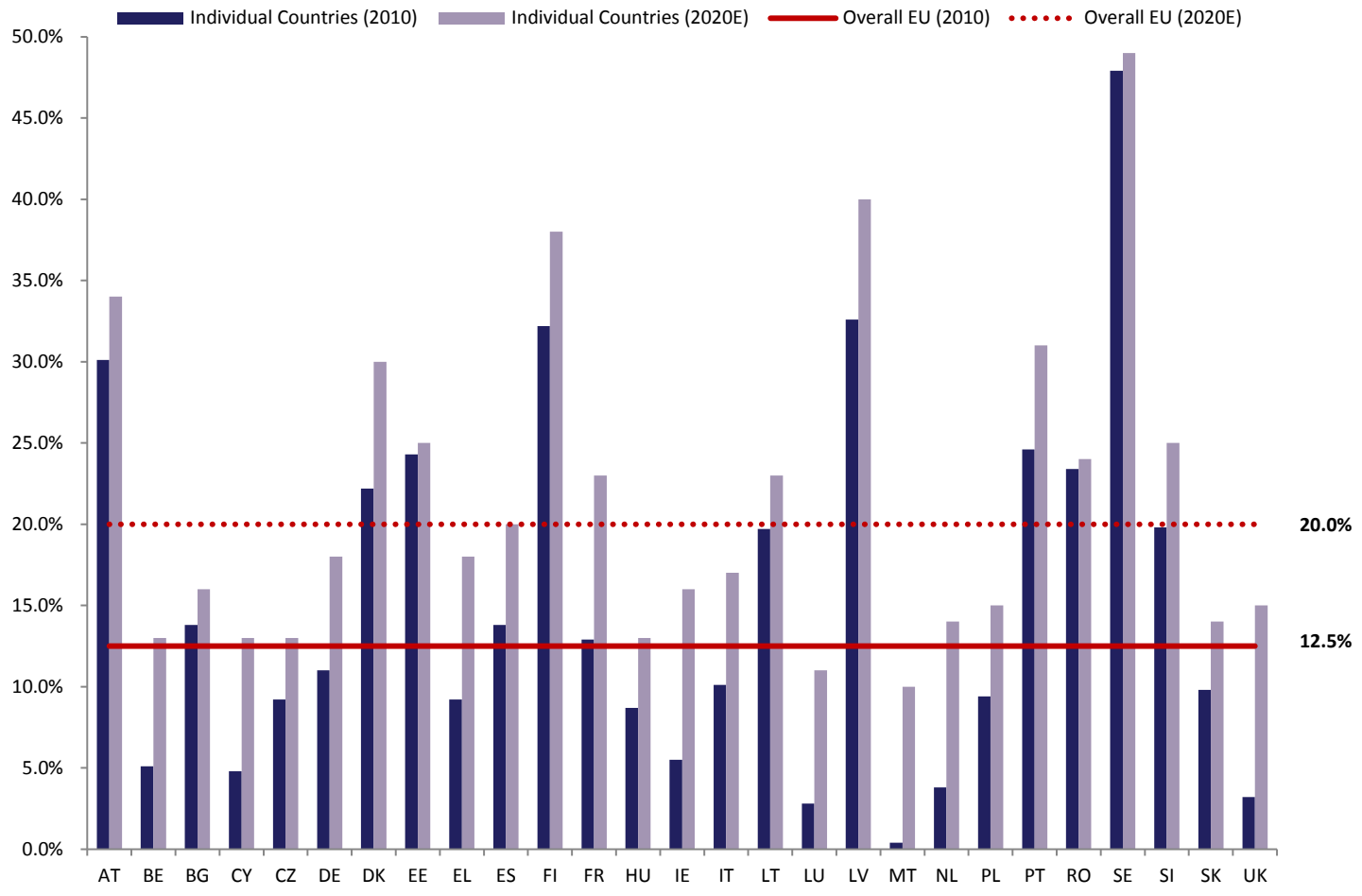


Supply and demand of energy from renewable sources has increased over the years

(1) Source: EIA 2010.
(2) Source: Eurostat.

Sector Overview

Individual Country Targets for Renewable Energy in Gross Final Demand



EU leaders have agreed on having legal binding national targets to increase the share of renewable energy in final demand

(1) Source: Eurostat.

(2) Country Conventions: AT: Austria, BE: Belgium, BG: Bulgaria, CY: Cyprus, CZ: Czech Republic, DE: Germany, DK: Denmark, EE: Estonia, EL: Greece, ES: Spain, FI: Finland, FR: France, HU: Hungary, IE: Ireland, IT: Italy, LT: Lithuania, LU: Luxembourg, LV: Latvia, MT: Malta, NL: Netherlands, PL: Poland, PT: Portugal, RO: Romania, SE: Sweden, SI: Slovenia, SK: Slovak Republic, UK: United Kingdom.

Sector Overview

Comparison by Renewable Sources of Energy

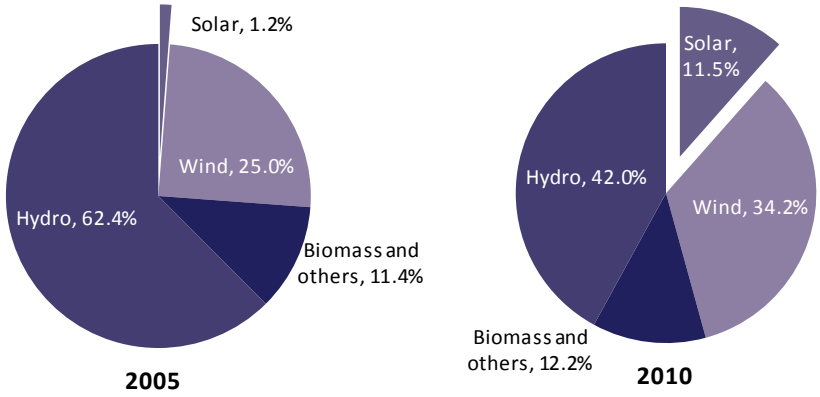
Solar vs. Other Renewable Energy(1)

Solar	Wind
• Can be installed virtually anywhere • Very low maintenance cost	• Requires open fields and creates noise pollution • High maintenance

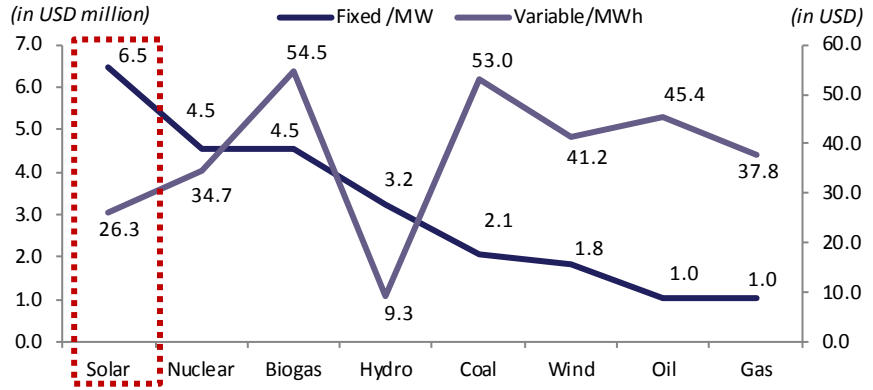
Solar	Hydropower
• Can be installed on existing rooftops • Environment friendly	• Requires large damns • Environment friendly but flooding destroys habitat

Solar	Biogas
• Efficiency as high as 19.0% • No emissions	• Efficiency lower than 1.0% • Creates CO2 emission

Renewable Generation Mix(2)



Fixed Cost vs. Variable Cost(3)



Low cost structure and other advantages such as installation flexibility, eco-friendly technology make solar a preferred choice

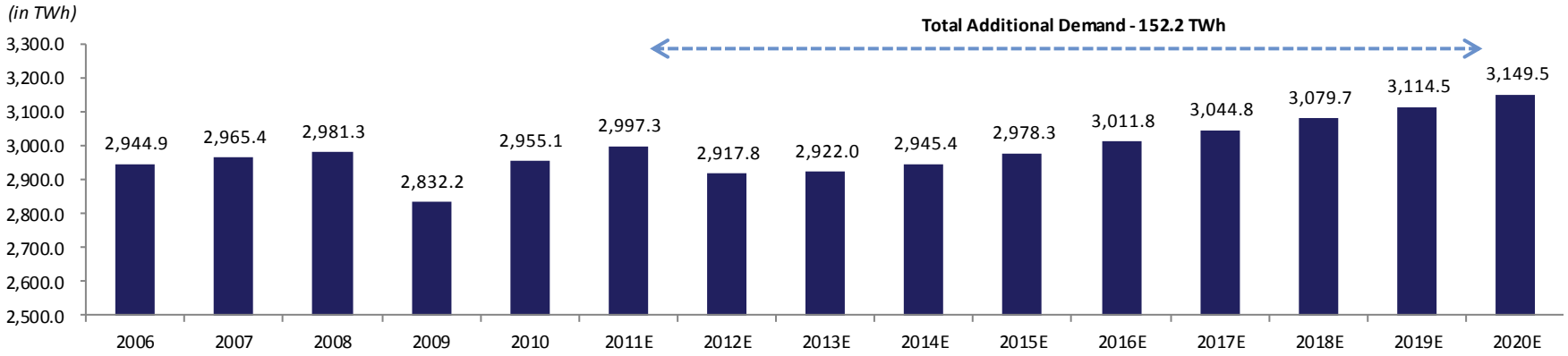
(1) http://1bog.org/blog/the-advantages-of-solar-power-vs-other-renewable-energy-sources.
(2) Source: EIA 2010.
(3) Source: KPMG.

Solar Power Investment Opportunity

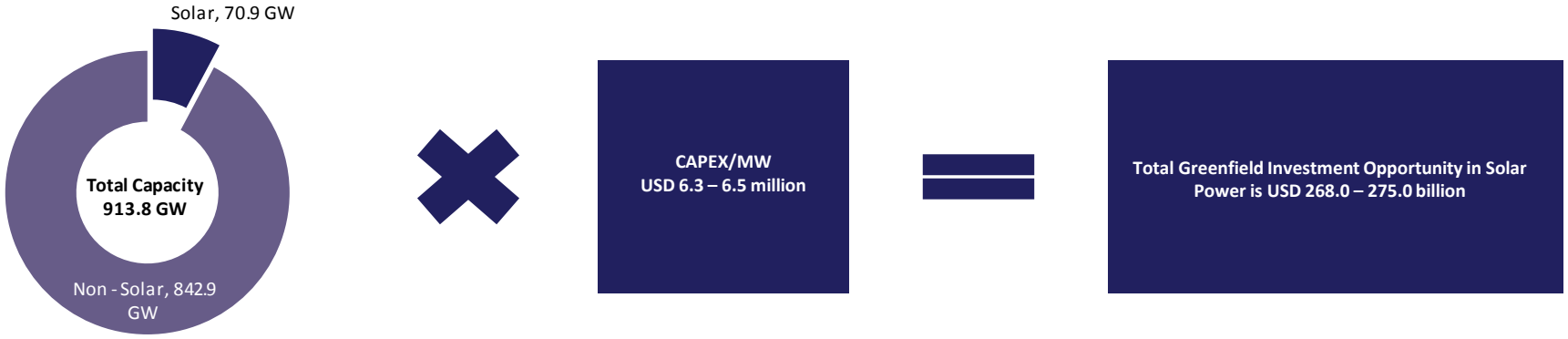
Solar Power Investment Opportunity

Greenfield Investment Opportunity

Demand Forecast



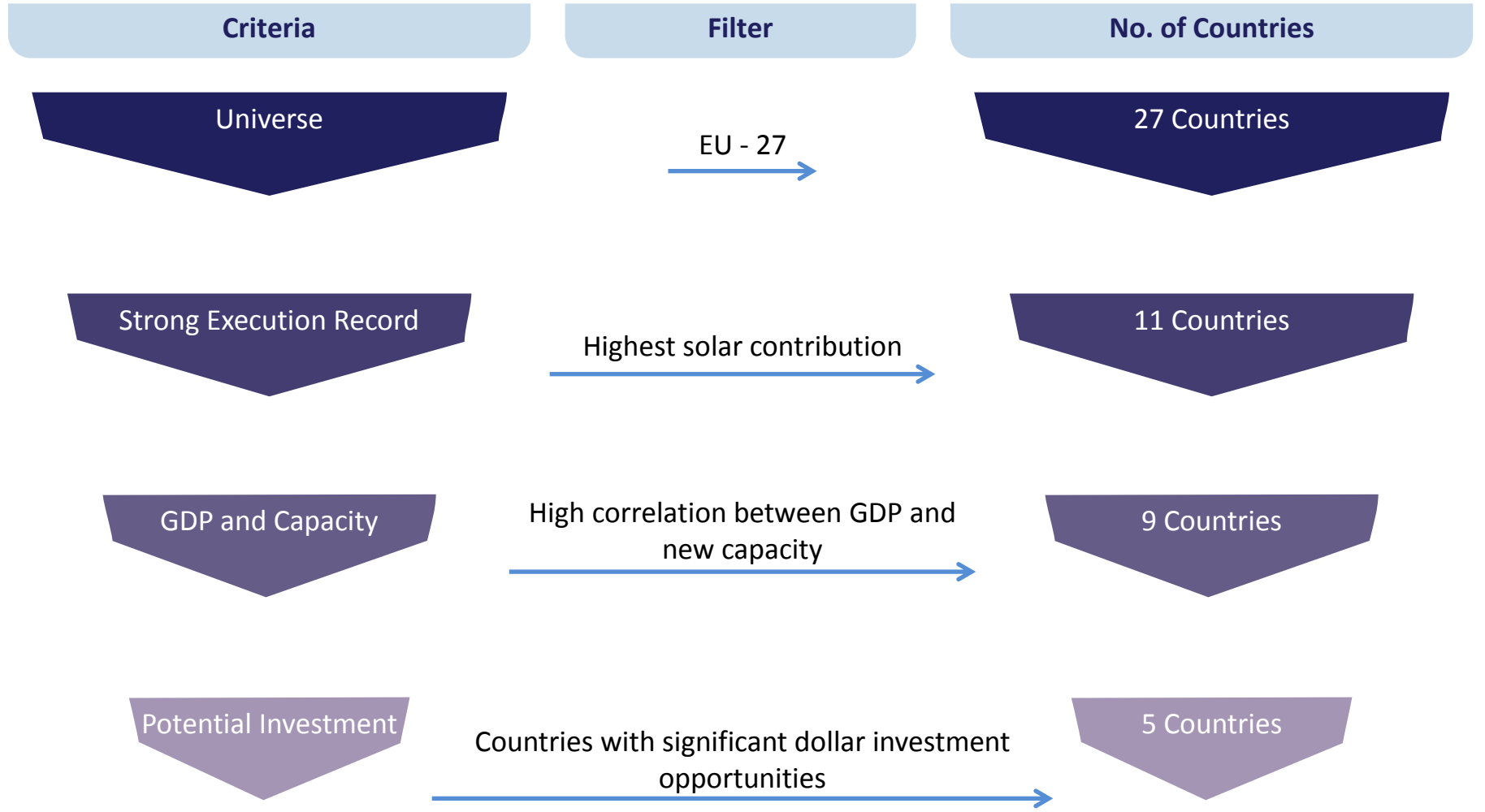
Investment Opportunity



(1) Assumption: GDP growth/Demand growth correlation = 5.6x. Implied efficiency (Total demand/ Available production capacity) = 39.9%. GDP estimate, Source: IMF.
(2) Assumption: Solar/ Total capacity = Assumed to grow to achieve the overall 20.0% target.
(3) Note: Investment opportunity is calculated as expected solar capacity minus existing solar capacity. Existing solar capacity in 2010 :28.3 GW.

Solar Power Investment Opportunity

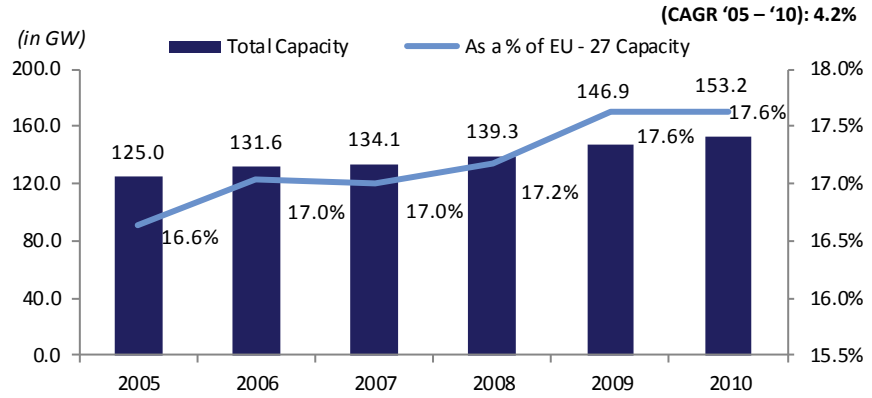
Screening Criteria



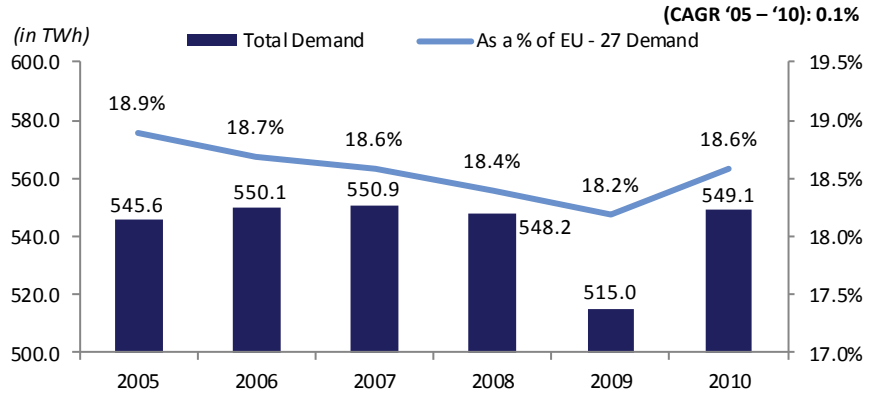
Germany

Germany

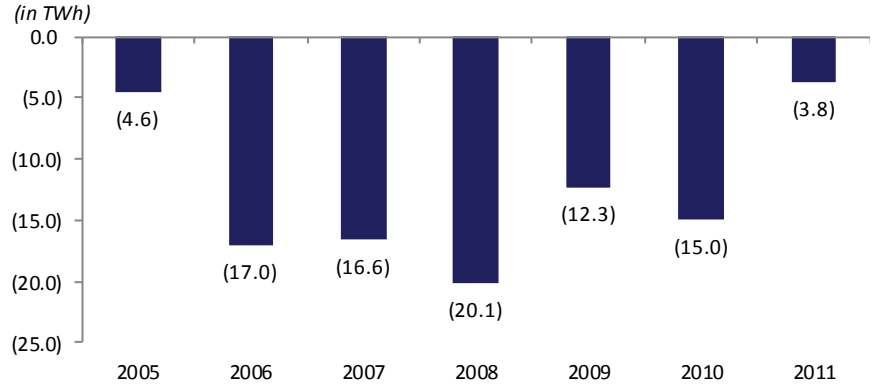
Installed Capacity



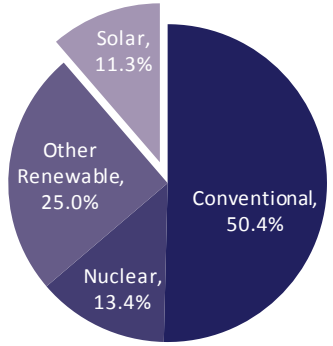
Total Demand



Net Electricity Imports



Generation Mix

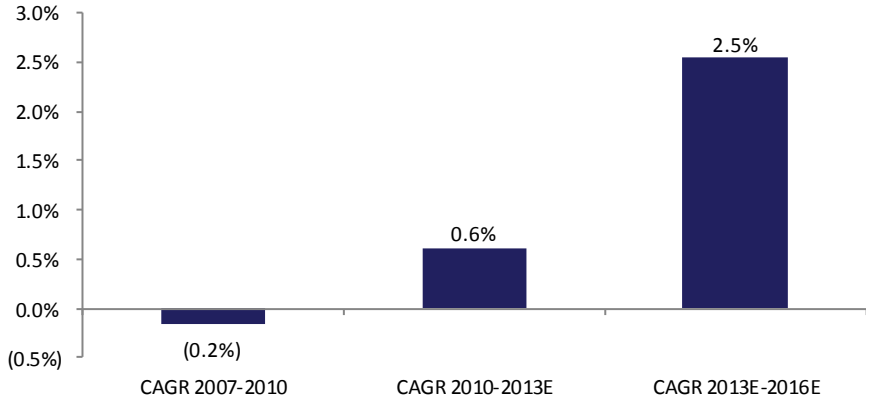


Germany is the most aggressive EU country in terms of new solar power installations

(1) Source: EIA 2010.

Germany

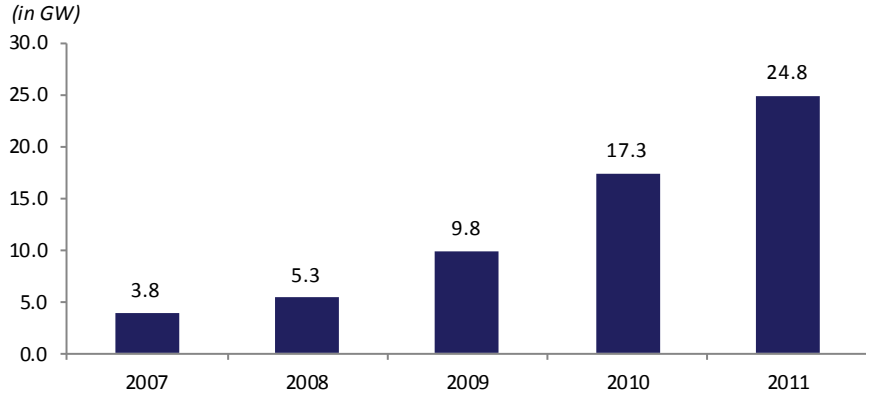
GDP Growth (3 year CAGRs)[1]



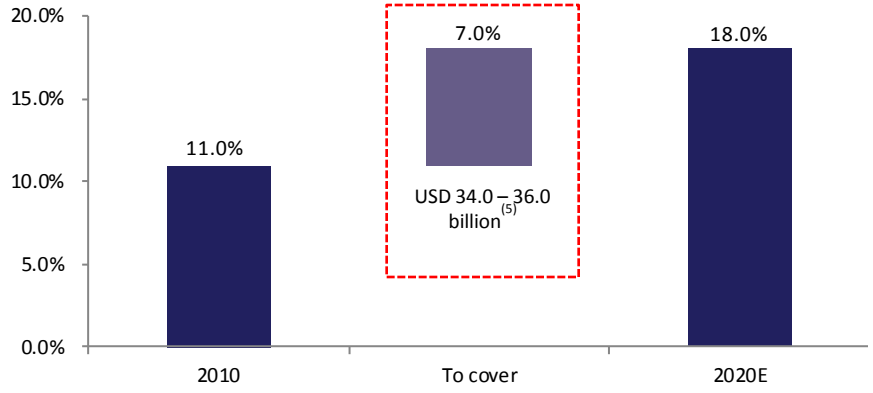
Private Equity Participation in Energy[2]

Year	Total Investments	Total Deals	Energy Investments	Energy Deals	Energy Investments as a % of Total Investments
2005	24,676.5	117	26.3	1	0.1%
2006	25,283.0	172	68.1	4	0.3%
2007	33,623.3	192	NA	3	NA
2008	33,036.7	183	188.0	7	0.6%
2009	9,879.1	124	142.3	8	1.4%
2010	12,092.3	149	4.2	4	0.0%
2011	13,139.4	192	446.9	4	3.4%
2012	9,947.2	141	15.0	3	0.2%
Total	**161,677.5**	**1270**	**890.8**	**34**	**0.6%**

Solar Capacity[3]



Final Demand Mandate by EU[4]



Strong execution record and expected growth in the economy makes investments in solar attractive

(1) Source: IMF.
(2) Source: Bloomberg. Time Frame: 2005 – 2012. Value in USD million.
(3) Source: EIA, BP statistical report, 2012.
(4) Source: Eurostat.
(5) Represents Investment Opportunity in Solar. Calculation as on Slide 11.

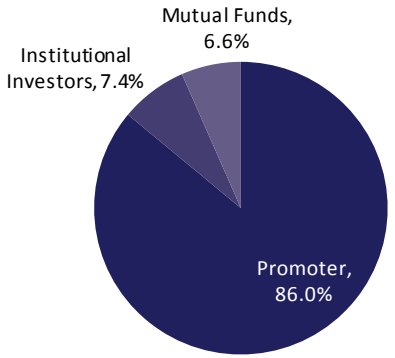
Germany

Manz AG

Overview

- Provides integrated system solutions for the production of crystalline silicon solar cells and thin-film solar modules, as well as the manufacturing of flat panel displays. The Company operates production facilities in Germany, China, Taiwan, Slovakia and Hungary

Ownership



Financial Highlights

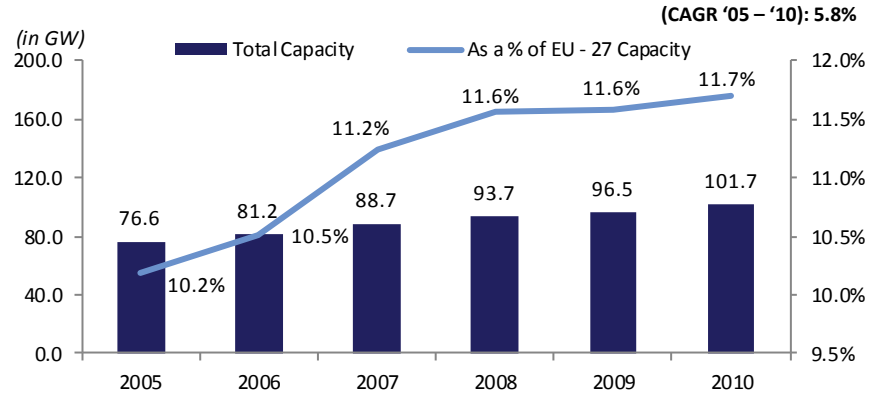
(USD million)	2010	2011	9M2012
Revenues	240.7	334.9	189.6
Solar Revenues	*36.2%*	*30.2%*	*10.1%*
EBITDA	13.5	21.4	10.6
EBITDA Margins	*5.6%*	*6.4%*	*5.6%*
EBIT	1.1	5.8	(5.0)
EBIT Margins	*0.5%*	*1.7%*	*(2.6%)*
Net Profit	2.1	1.2	(9.4)
Net Profit Margins	*0.9%*	*0.4%*	*(5.0%)*
Total Assets	378.3	412.0	410.2
ROA	*0.5%*	*0.3%*	*(2.3%)*
Total Equity	251.2	245.4	237.5
ROE	*0.8%*	*0.5%*	*(4.0%)*
Capex (Solar)	41.3	20.1	N/A
Capex to Total Revenues	*17.2%*	*6.0%*	*NA*

(1) Source: Bloomberg.
(2) Note: Companies selection based on Share of renewable in its generation mix, institutional holdings, and analyst recommendation.

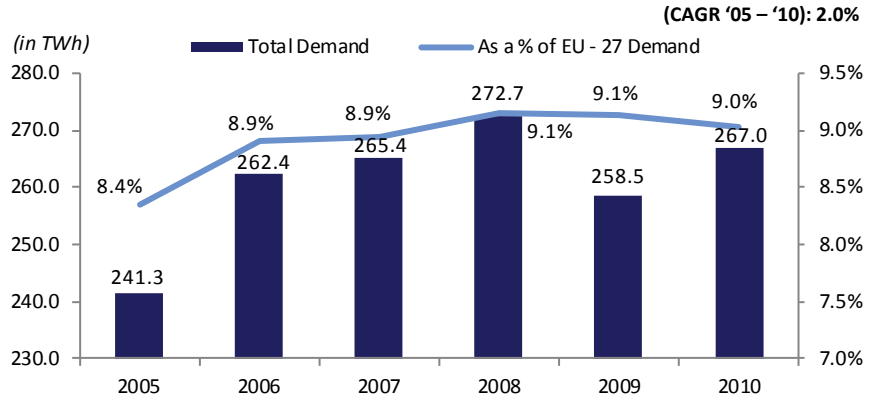
Spain

Spain

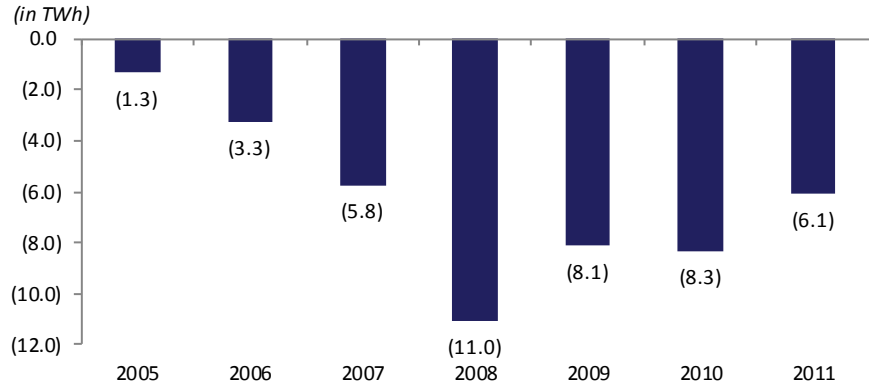
Installed Capacity



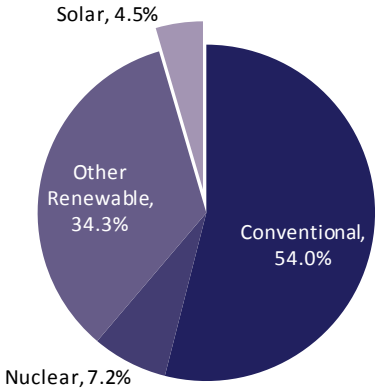
Total Demand



Net Electricity Imports



Generation Mix

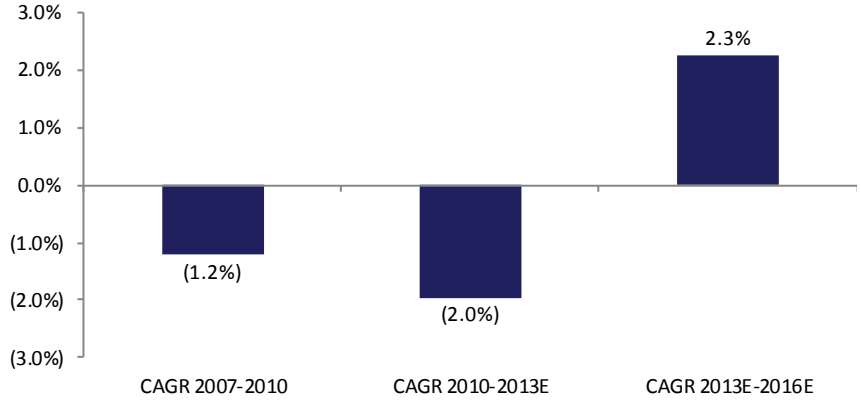


Spain has a strong renewable energy portfolio with solar comprising 12.0% of its renewable capacity

(1) Source: EIA 2010.

Spain

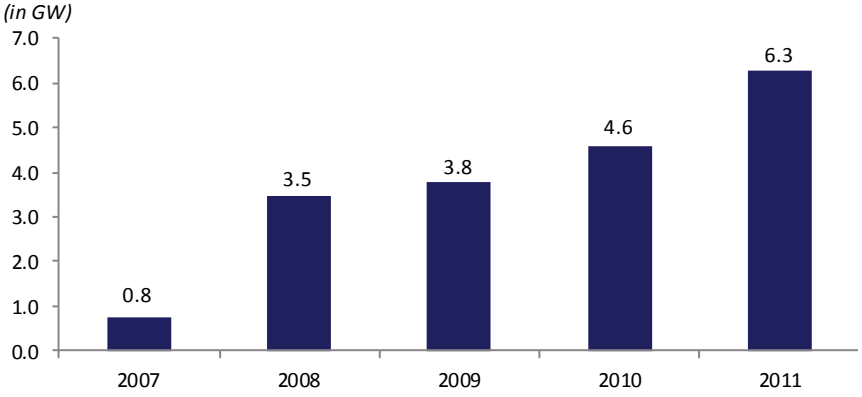
GDP Growth (3 year CAGRs)[1]



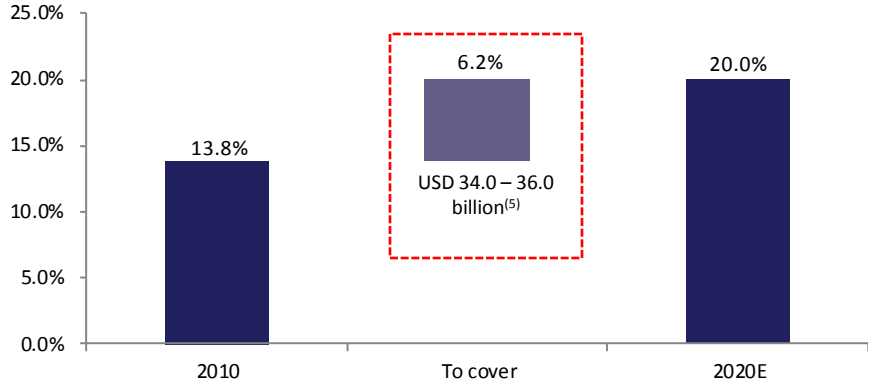
Private Equity Participation in Energy[2]

Year	Total Investments	Total Deals	Energy Investments	Energy Deals	Energy Investments as a % of Total Investments
2005	11,302.0	40	-	0	0.0%
2006	6,573.5	53	1,896.0	3	28.8%
2007	14,489.6	89	69.3	3	0.5%
2008	6,414.2	75	424.4	6	6.6%
2009	2,418.1	36	NA	2	NA
2010	6,360.2	44	NA	1	NA
2011	2,222.4	41	-	0	0.0%
2012	439.9	44	NA	1	NA
Total	**50,219.9**	**422**	**2,389.7**	**16**	**4.8%**

Solar Capacity[3]



Final Demand Mandate by EU[4]



Active private equity participation and recent growth in solar capacity highlights the increasing investor confidence in solar energy market

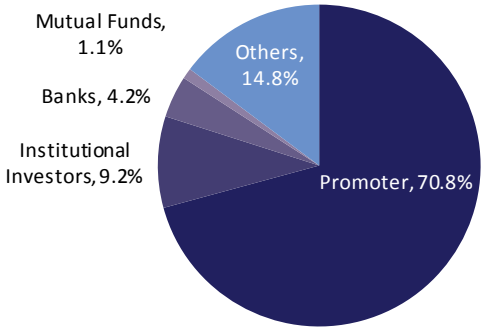
(1) Source: IMF.
(2) Source: Bloomberg. Time Frame: 2005 – 2012. Value in USD million.
(3) Source: EIA, BP statistical report, 2012.
(4) Source: Eurostat.
(5) Represents Investment Opportunity in Solar. Calculation as on Slide 11.

Spain
Abengoa

Overview

- Is an international company that applies technology solutions for sustainable development in the energy and environment sectors. The Company's technology generates electricity from the sun, produces biofuels, desalinates seawater and recycles industrial waste

Ownership



Financial Highlights

(USD million)	2010	2011	9M2012
Revenues	6,447.0	9,871.0	7,189.7
EBITDA	1,077.8	1,535.2	1,148.6
EBITDA Margins	*16.7%*	*15.6%*	*16.0%*
EBIT	727.6	1,175.5	783.8
EBIT Margins	*11.3%*	*11.9%*	*10.9%*
Net Profit	274.8	358.4	152.6
Net Profit Margins	*4.3%*	*3.6%*	*2.1%*
Total Assets	22,687.2	24,356.6	24,951.1
ROA	*1.2%*	*1.5%*	*0.6%*
Total Equity	2,179.1	2,237.2	2,396.2
ROE	*12.6%*	*16.0%*	*6.4%*

Key Performance Indicators

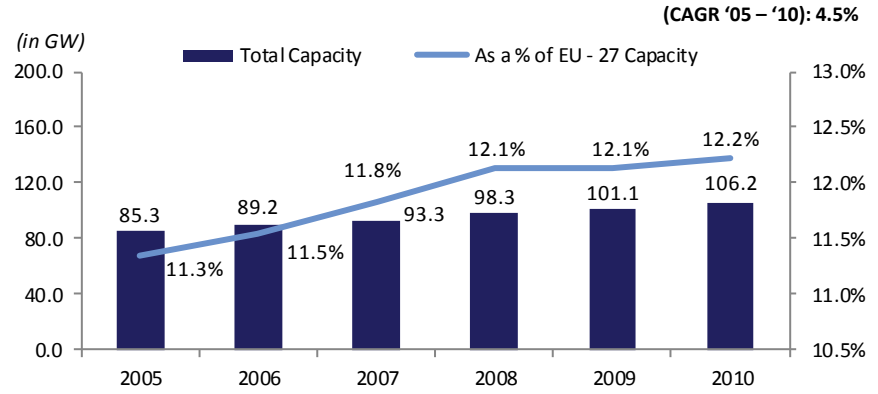
Key Performance Indicators	2010	2011	9M2012
Plants in Operation (MW)	193.0	443.0	743.0
Plants under construction (MW)	930.0	1,060.0	1,010.0
Plants in Pre-Construction (MW)	380.0	150.0	-
Production (GWh)	180.0	390.9	393.0
Available Capacity	1,690.7	3,880.7	6,508.7

(1) Source: Bloomberg.
(2) Note: Companies selection based on Share of renewable in its generation mix, institutional holdings, and analyst recommendation.

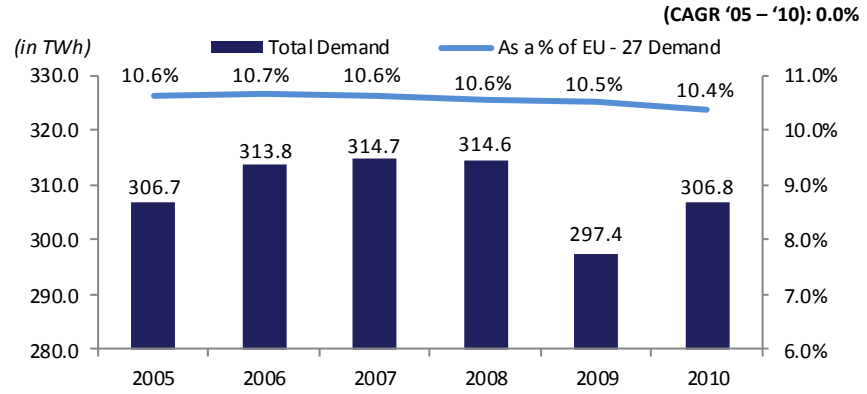
Italy

Italy

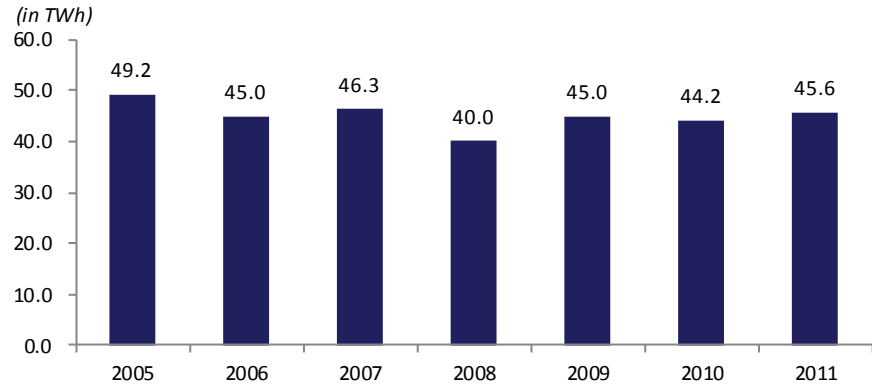
Installed Capacity



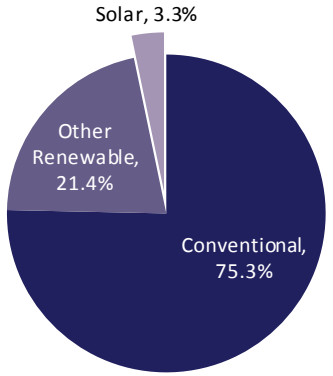
Total Demand



Net Electricity Imports



Generation Mix

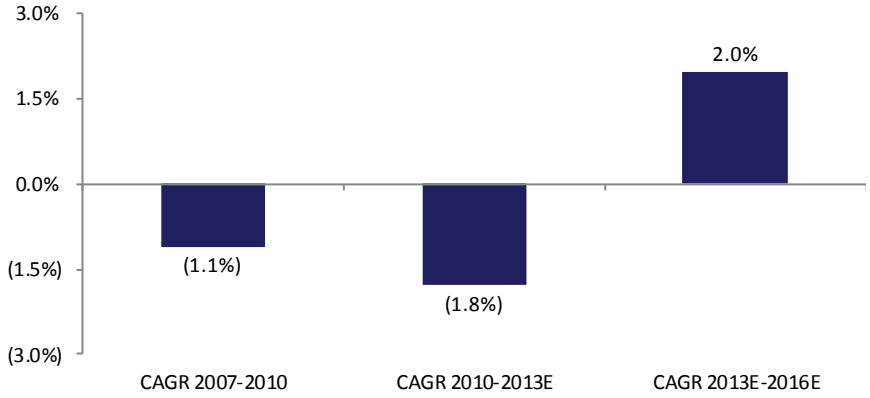


The country has shifted its focus to solar energy due to limited natural resources and strong public opposition to construction of nuclear power plants

(1) Source: EIA 2010.

Italy

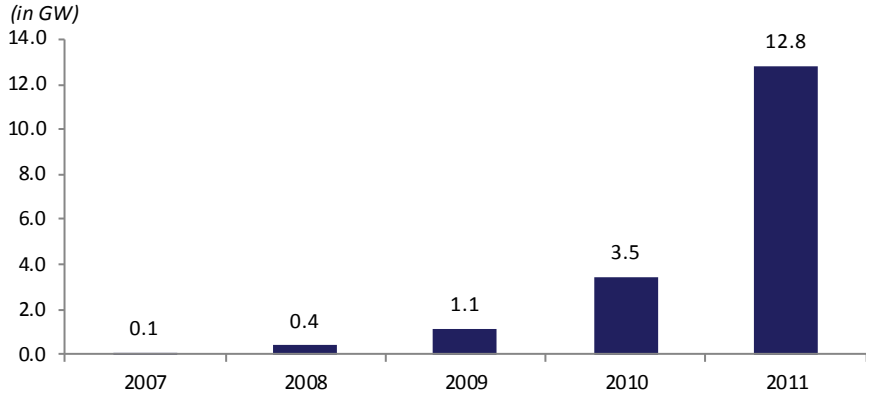
GDP Growth (3 year CAGRs)[1]



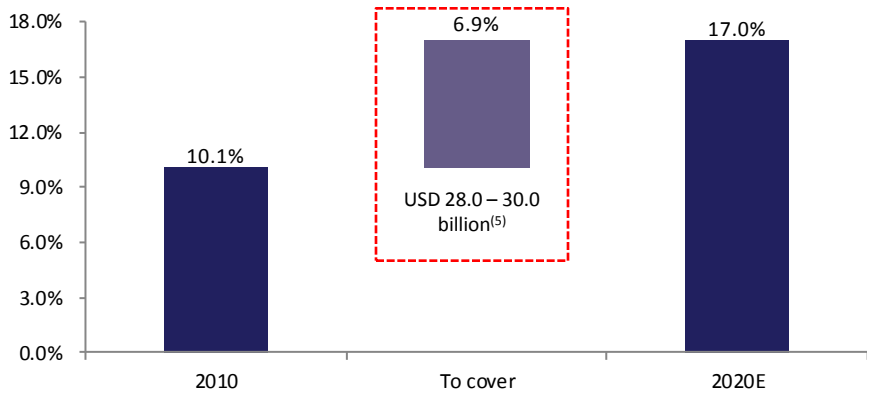
Private Equity Participation in Energy[2]

Year	Total Investments	Total Deals	Energy Investments	Energy Deals	Energy Investments as a % of Total Investments
2005	4,026.0	42	975.8	1	24.2%
2006	9,058.9	70	730.4	2	8.1%
2007	18,899.0	75	1,774.1	2	9.4%
2008	14,067.8	96	8.1	2	0.1%
2009	995.5	29	18.7	5	1.9%
2010	25,356.9	39	937.3	2	3.7%
2011	8,296.4	62	50.1	2	0.6%
2012	1,456.2	59	5.1	2	0.4%
Total	**82,156.6**	**472**	**4,499.7**	**18**	**5.5%**

Solar Capacity[3]



Final Demand Mandate by EU[4]



With strong feed in tariff programs, Italy has become a preferred market for solar investors

(1) Source: IMF.
(2) Source: Bloomberg. Time Frame: 2005 – 2012. Value in USD million.
(3) Source: EIA, BP statistical report, 2012.
(4) Source: Eurostat.
(5) Represents Investment Opportunity in Solar. Calculation as on Slide 11.

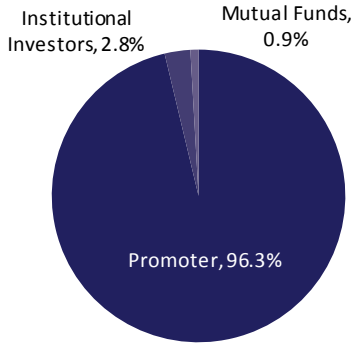
Italy

Enel Green Power

Enel Green Power - Overview

- Develops and manages plants that generate electricity from renewable resources. The Company operates wind, solar, hydroelectric, geothermal and biomass powered plants. Enel Green Power operates plants in Europe, North America, and Latin America. The Company manufactures photovoltaic systems for homes and businesses

Ownership



Financial Highlights

(USD million)	2009	2010	2011
Revenues	2,416.6	2,813.8	3,137.1
EBITDA	1,683.1	1,741.9	2,204.2
EBITDA Margin	*69.6%*	*61.9%*	*70.3%*
EBIT	1,103.0	1,053.3	1,271.3
EBIT Margin	*45.6%*	*37.4%*	*40.5%*
Net Profit	582.9	599.6	568.1
Net Profit Margin	*24.1%*	*21.3%*	*18.1%*
Total Assets	13,605.9	17,577.6	19,379.1
ROA	*4.3%*	*3.4%*	*2.9%*
Total Equity	3,674.5	9,816.0	10,028.5
ROE	*15.9%*	*6.1%*	*5.7%*

Key Performance Indicators

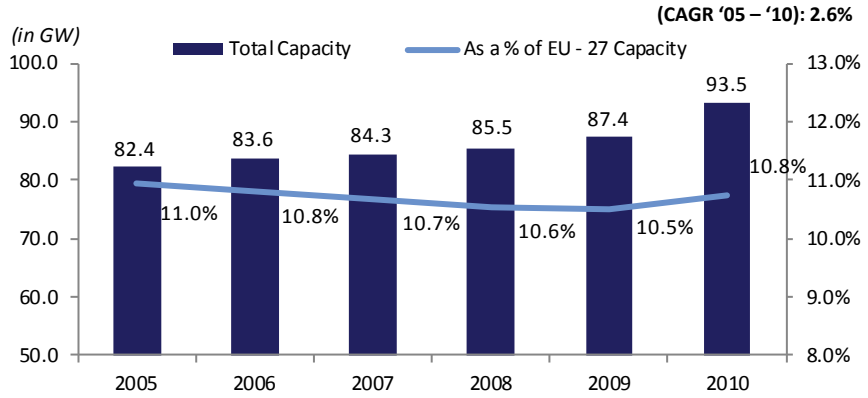
Key Performance Indicators	2009	2010	2011
Installed capacity (MW)	4,808.0	6,085.0	7,079.0
Wind Capacity	*31.4%*	*43.6%*	*50.0%*
Hydro Capacity	*52.1%*	*41.7%*	*35.9%*
Geo Capacity	*15.4%*	*12.6%*	*10.9%*
Solar Capacity	*0.3%*	*0.3%*	*1.4%*
Others Capacity	*0.7%*	*1.8%*	*1.8%*
Capacity Utilization (GWh)	44.9%	41.0%	36.3%
Available capacity (GWh)	42,118.1	53,304.6	62,012.0
Total electricity production (GWh)	18,903.0	21,835.0	22,480.0

(1) Source: Bloomberg.
(2) Note: Companies selection based on Share of renewable in its generation mix, institutional holdings, and analyst recommendation.

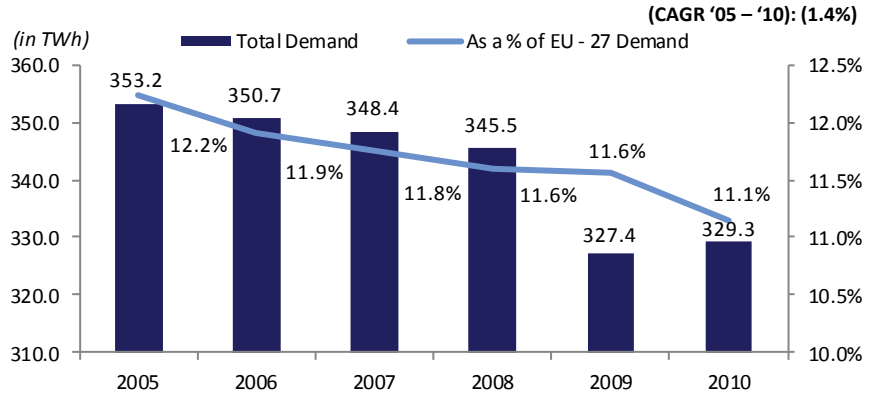
United Kingdom

United Kingdom

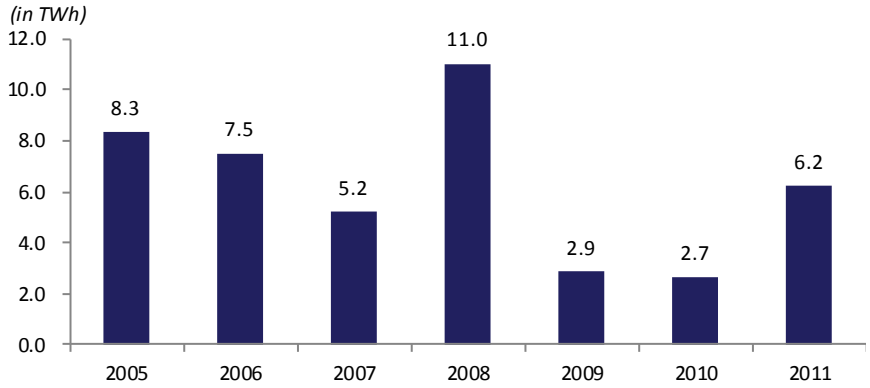
Installed Capacity



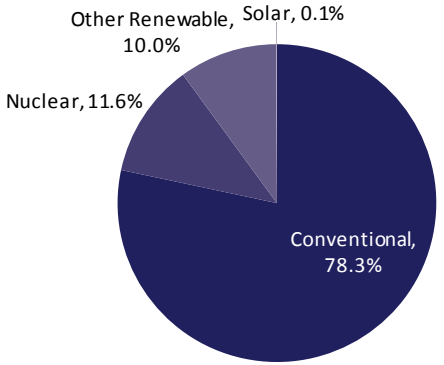
Total Demand



Net Electricity Imports



Generation Mix

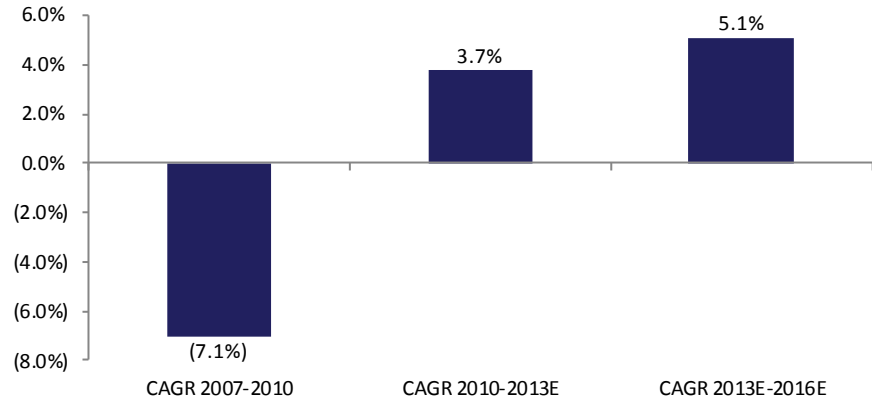


High electricity prices caused a dropped in the demand and therefore, government is encouraging installation of renewable energy sources

(1) Source: EIA 2010.

United Kingdom

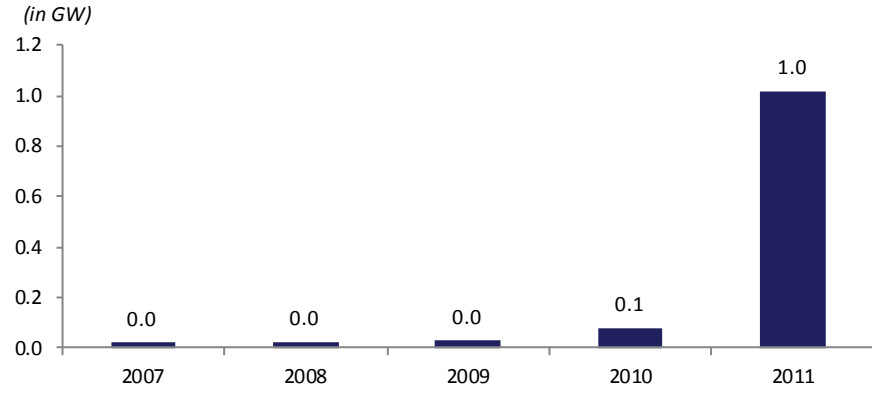
GDP Growth (3 year CAGRs)[1]



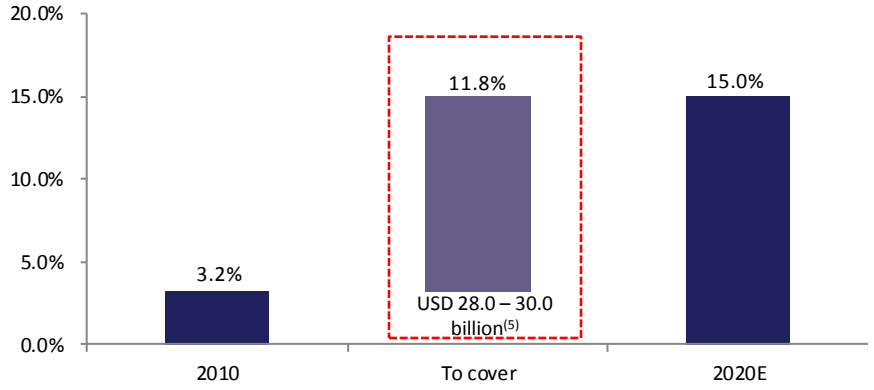
Private Equity Participation in Energy[2]

Year	Total Investments	Total Deals	Energy Investments	Energy Deals	Energy Investments as a % of Total Investments
2005	44,573.8	280	1,155.6	4	2.6%
2006	120,981.4	358	1,456.9	9	1.2%
2007	105,795.2	479	1,705.9	15	1.6%
2008	46,709.9	390	8,558.4	17	18.3%
2009	13,843.3	243	139.0	7	1.0%
2010	30,007.8	386	134.5	14	0.4%
2011	35,550.2	395	80.8	17	0.2%
2012	30,694.7	413	49.7	15	0.2%
Total	**428,156.3**	**2944**	**13,280.8**	**98**	**3.1%**

Solar Capacity[3]



Final Demand Mandate by EU[4]



UK is witnessing the fastest growth in solar installations in the recent years

(1) Source: IMF.
(2) Source: Bloomberg. Time Frame: 2005 – 2012. Value in USD million.
(3) Source: EIA, BP statistical report, 2012.
(4) Source: Eurostat.
(5) Represents Investment Opportunity in Solar. Calculation as on Slide 11.

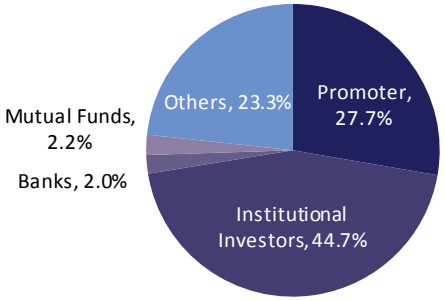
United Kingdom

PV Crystalox Solar PLC

Overview

- Plays a central role in making solar cost competitive with conventional hydrocarbon power generation and, as such, continues to seek to drive down the cost of production whilst increasing solar cell efficiency
- Produces multicrystalline silicon ingots and wafers for use in solar power generation systems

Ownership



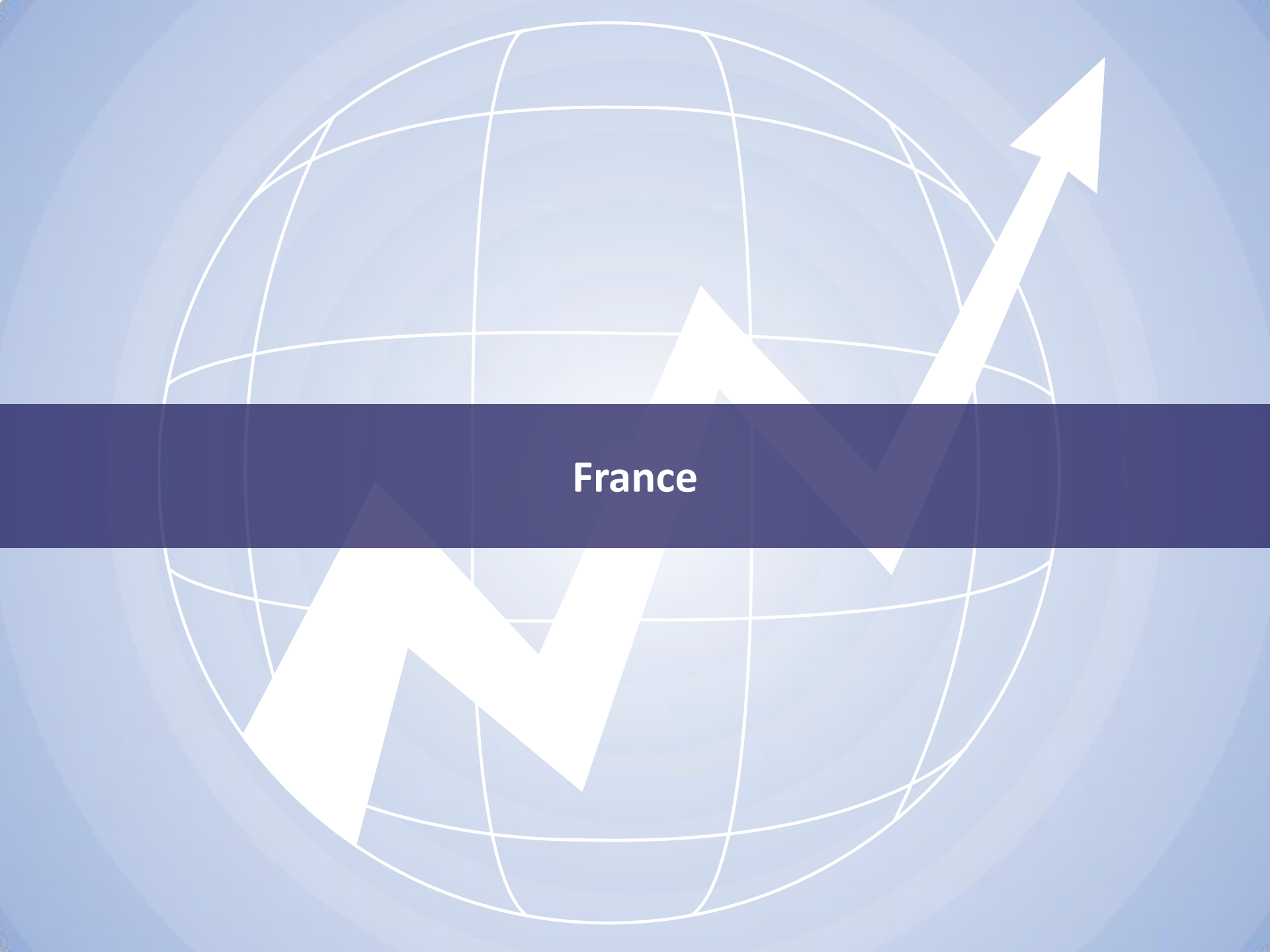
Financial Highlights

(USD million)	2010	2011	1H2012
Revenues	335.1	293.0	42.3
EBITDA	63.2	26.1	(10.3)
EBITDA Margins	*18.9%*	*8.9%*	*(24.2%)*
EBIT	45.8	3.7	(19.5)
EBIT Margins	*13.7%*	*1.3%*	*(46.0%)*
Net Profit	30.9	(84.8)	(36.3)
Net Profit Margins	*9.2%*	*(28.9%)*	*(85.6%)*
Total Assets	550.5	457.0	374.9
ROA	*5.6%*	*(18.5%)*	*(9.7%)*
Total Equity	375.3	281.5	243.0
ROE	*8.2%*	*(30.1%)*	*(14.9%)*

Key Performance Indicators

Key Performance Indicator	2010	2011	1H2012
Wafer shipments (MW)	378.0	384.0	61.0
Production capacity (MW)	430.0	750.0	305.0
Utilization	87.9%	51.2%	20.0%

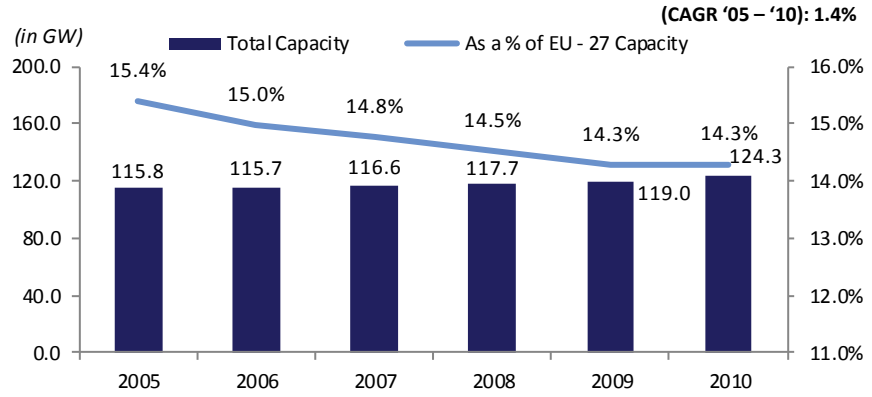
(1) Source: Bloomberg.
(2) Note: Companies selection based on Share of renewable in its generation mix, institutional holdings, and analyst recommendation.



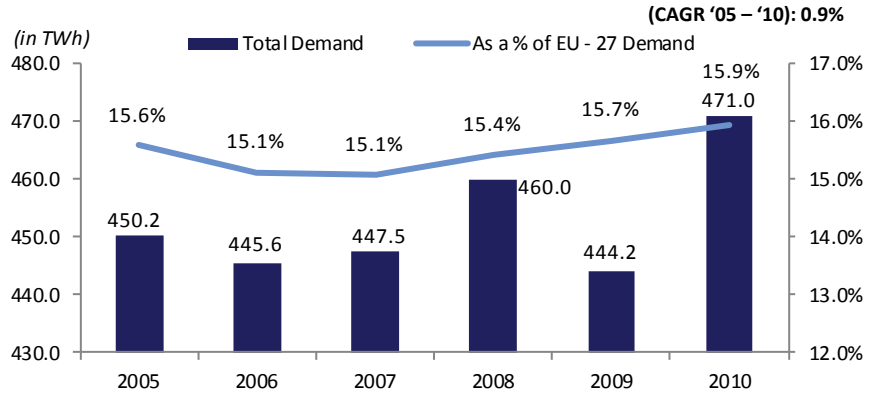
France

France

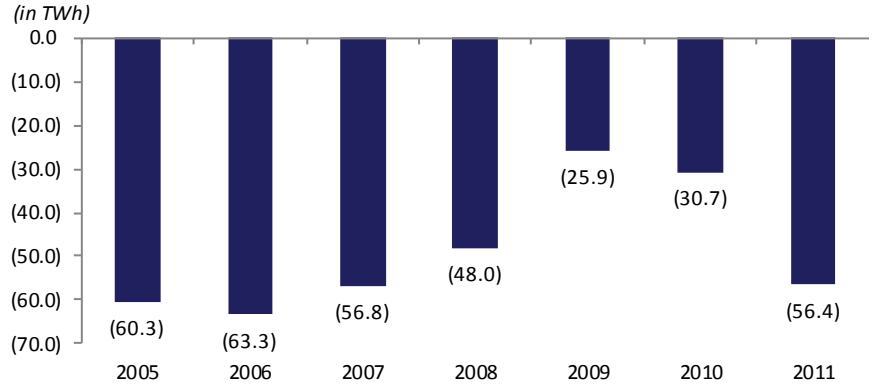
Installed Capacity



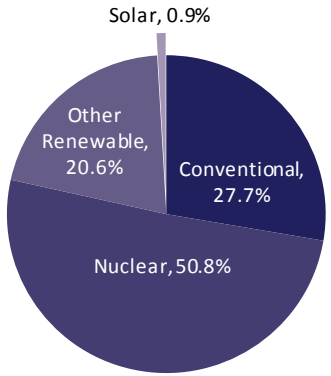
Total Demand



Net Electricity Imports



Generation Mix

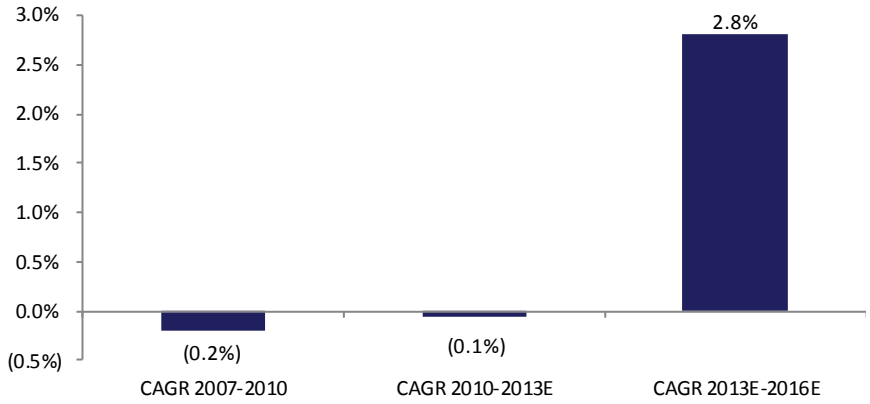


With the objective of reducing dependence on nuclear energy, the government is promoting the use of renewable energy

(1) Source: EIA 2010.

France

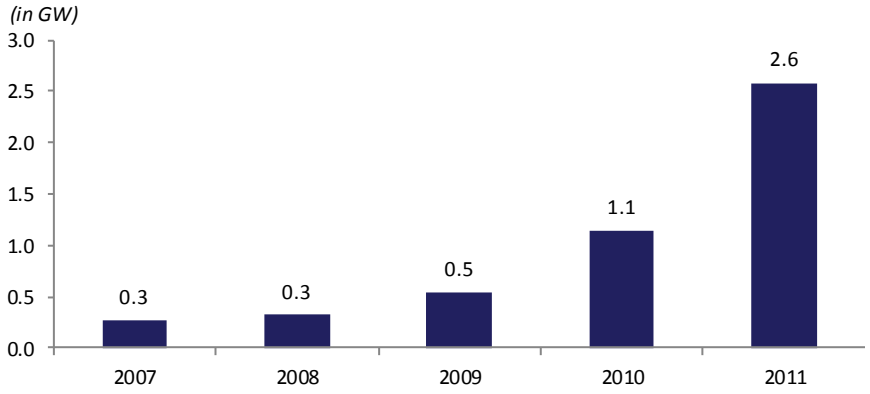
GDP Growth (3 year CAGRs)[1]



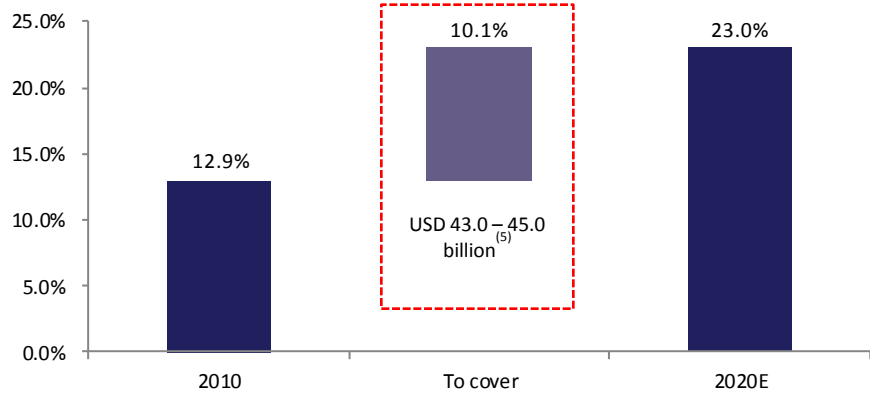
Private Equity Participation in Energy[2]

Year	Total Investments	Total Deals	Energy Investments	Energy Deals	Energy Investments as a % of Total Investments
2005	17,599.3	137	197.2	2	1.1%
2006	31,618.8	194	-	0	0.0%
2007	24,429.5	181	10.0	2	0.0%
2008	6,010.0	177	55.5	2	0.9%
2009	3,641.6	95	6.1	1	0.2%
2010	8,231.0	135	1,241.2	4	15.1%
2011	26,299.9	183	21.5	5	0.1%
2012	1,949.4	119	15.6	2	0.8%
Total	**119,779.4**	**1221**	**1,547.2**	**18**	**1.3%**

Solar Capacity[3]



Final Demand Mandate by EU[4]



Strong economic growth and the country's objective of ecological patriotism is leading to higher investments in solar power generation

(1) Source: IMF.
(2) Source: Bloomberg. Time Frame: 2005 – 2012. Value in USD million.
(3) Source: EIA, BP statistical report, 2012.
(4) Source: Eurostat.
(5) Represents Investment Opportunity in Solar. Calculation as on Slide 11.

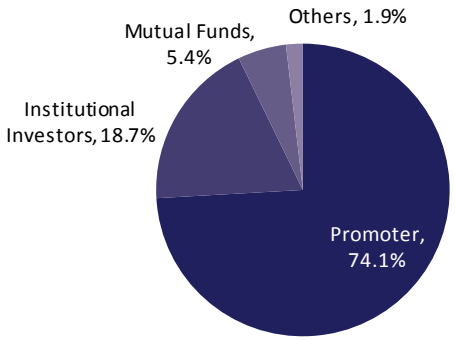
France

Sechilienne - Sidec

Overview

- Is an independent producer of electricity. The Group designs, builds, finances and operates thermal, wind, and photovoltaic in Europe, in the Indian Ocean and the Caribbean

Ownership



Financial Highlights

(USD million)	2010	2011	9M2012
Revenues	404.4	503.5	247.7
EBITDA	126.3	155.6	84.6
EBITDA Margins	*31.2%*	*30.9%*	*34.2%*
EBIT	89.8	97.6	58.3
EBIT Margins	*22.2%*	*19.4%*	*23.5%*
Net Profit	53.7	44.8	21.7
Net Profit Margins	*13.3%*	*8.9%*	*8.8%*
Total Assets	1,556.7	1,547.4	1,515.6
ROA	*3.4%*	*2.9%*	*1.4%*
Total Equity	460.1	442.6	425.9
ROE	*11.7%*	*10.1%*	*5.1%*
Capex (Solar)	56.5	51.5	N/A
Capex to Total Revenues	*14.0%*	*10.2%*	*NA*

Key Performance Indicators

Key Performance Indicator	2010	2011	1H2012
Installed Capacity (MW)	622.0	693.0	693.0
Thermal Capacity	*85.0%*	*81.8%*	*81.8%*
Solar Capacity	*6.8%*	*10.0%*	*10.0%*
Wind Capacity	*8.2%*	*8.2%*	*8.2%*
Capacity Utilization (GWh)	54.9%	54.1%	56.9%
Available Capacity (GWh)	5,448.7	6,070.7	6,070.7
Total Electricity Production (GWh)	2,992.0	3,284.0	3,456.0

(1) Source: Bloomberg.
(2) Note: Companies selection based on Share of renewable in its generation mix, institutional holdings, and analyst recommendation.