



# GLOBAL TRENDS IN RENEWABLE ENERGY INVESTMENT 2011



*Analysis of Trends and Issues in the Financing of Renewable Energy*



**Bloomberg**  
NEW ENERGY FINANCE

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Figure 1

Global new investment in renewable energy, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Financial new investment	19	43	76	111	132	122	143
SDC, corp RD&D, gov R&D	14	15	14	18	26	37	68
Total	33	57	90	129	159	160	211
% Growth		75%	57%	43%	23%	0.4%	32%

Footnote: SDC = small distributed capacity. New investment volume adjusts for re-invested equity.  
Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 2

Global transactions in renewable energy, 2010  
\$bn

Data:

Units: \$bn	2010
VC	+2
Corp RD&D	+3
Gov R&D	+5
PE	+3
Public markets new equity	+15
<b>Total company investment</b>	<b>29</b>
Re-invested	-6
Asset finance	+128
SDC*	+60
<b>Total investment</b>	<b>211</b>
M&A/buy-outs etc.	+58
<b>Total transactions</b>	<b>268</b>

Footnote: SDC = small distributed capacity. Total values include estimates for undisclosed deals. \* data based on estimates from various industry sources

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 3. Global Trends In Renewable Energy Investment 2010 data table, \$bn

Category	Year	2004 \$bn	2005 \$bn	2006 \$bn	2007 \$bn	2008 \$bn	2009 \$bn	2010 \$bn	2009-10 Growth %	2004-10 CAGR %
<b>1 Total Investment</b>										
1.1 New Investment		33	57	90	129	159	160	211	32%	36%
1.2 Total Transactions		41	83	125	187	224	225	268	19%	37%
<b>2 New Investment by Value Chain</b>										
<b>2.1 Technology Development</b>										
2.1.1 Venture capital		0.4	0.6	1.3	1.9	2.9	1.5	2.4	59%	36%
2.1.2 Government R&D*		1.1	1.2	1.3	1.5	1.6	2.4	5.3	121%	29%
2.1.3 Corporate RD&D*		3.8	2.9	3.1	3.3	3.7	3.7	3.3	-12%	-2%
<b>2.2 Equipment Manufacturing</b>										
2.2.1 Private equity expansion capital		0.3	0.8	3.1	3.2	6.6	3.1	3.1	-1%	45%
2.2.2 Public markets		0.4	4.0	11.0	22.0	12.8	12.5	15.4	23%	87%
<b>2.3 Projects</b>										
2.3.1 Asset finance		18.3	37.2	62.1	90.1	114.7	107.5	127.8	19%	38%
Of which re-invested equity		0.0	0.0	1.1	5.7	4.5	2.4	6.0		
2.3.3 Small distributed capacity*		8.6	10.7	9.4	13.2	21.1	31.2	59.6	91%	38%
<b>Total Financial Investment</b>		<b>19</b>	<b>43</b>	<b>76</b>	<b>111</b>	<b>132</b>	<b>122</b>	<b>143</b>	<b>17%</b>	<b>40%</b>
Gov'n R&D, Corporate RD&D, Small projects		14	15	14	18	26	37	68	82%	31%
<b>Total New Investment</b>		<b>33</b>	<b>57</b>	<b>90</b>	<b>129</b>	<b>159</b>	<b>160</b>	<b>211</b>	<b>32%</b>	<b>36%</b>
<b>3 M&amp;A Transactions</b>										
3.1 Private equity buy-outs		0.8	3.3	1.6	3.3	5.5	2.8	0.8	-71%	0%
3.2 Public markets investor exits		0.0	1.3	2.1	3.9	1.0	2.0	1.3	-34%	243%
3.3 Corporate M&A		2.4	8.6	13.2	18.7	18.0	21.6	20.0	-7%	42%
3.4 Project acquisition & refinancing		5.3	12.7	18.1	31.5	40.7	39.3	35.6	-9%	37%
<b>4 Financial New Investment by Technology</b>										
4.1 Wind		11.3	21.9	29.7	51.1	62.7	72.7	94.7	30%	43%
4.2 Solar		0.5	3.2	10.4	21.8	33.3	25.3	26.1	3%	91%
4.3 Biofuels		1.6	6.0	20.4	20.0	18.7	6.9	5.5	-20%	23%
4.4 Biomass & w-t-e		3.7	6.7	10.0	11.4	10.1	11.5	11.0	-5%	20%
4.5 Small hydro		1.1	4.4	4.2	5.0	5.8	4.1	3.2	-22%	19%
4.6 Geothermal		1.0	0.4	1.3	1.9	1.6	1.4	2.0	44%	12%
4.7 Marine		0.0	0.0	0.5	0.4	0.1	0.2	0.1	-44%	33%
<b>Total</b>		<b>19</b>	<b>43</b>	<b>76</b>	<b>111</b>	<b>132</b>	<b>122</b>	<b>143</b>	<b>17%</b>	<b>40%</b>
<b>5 Financial New Investment by Geography</b>										
<b>5.1 Global</b>										
5.1.1 Europe		9.0	18.4	27.3	46.6	47.6	45.0	35.2	-22%	25%
5.1.2 North America		3.8	10.3	24.6	29.4	32.3	19.7	30.1	53%	41%
5.1.3 South America		0.5	2.8	4.7	7.7	15.7	9.4	13.1	39%	70%
5.1.4 Asia & Oceania		5.6	11.0	18.3	26.2	34.4	45.7	59.3	30%	48%
5.1.5 Middle East & Africa		0.3	0.1	1.5	1.5	2.4	2.4	5.0	104%	57%
<b>Total</b>		<b>19</b>	<b>43</b>	<b>76</b>	<b>111</b>	<b>132</b>	<b>122</b>	<b>143</b>	<b>17%</b>	<b>40%</b>
<b>5.2 Selected Developing Countries/Regions</b>										
5.2.1 Brazil		0.4	1.8	4.2	6.4	13.2	7.3	6.9	-5%	62%
5.2.2 China		1.5	4.7	9.2	14.2	23.9	38.3	48.9	28%	80%
5.2.3 India		1.3	2.7	3.8	5.1	4.1	3.0	3.8	25%	19%
5.2.5 Africa		0.3	0.1	0.6	0.7	1.1	0.7	3.6	384%	51%

Footnote: New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance, UNEP

Figure 4

Financial new investment and small distributed capacity in renewable energy: developed v developing countries, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
developed FNI	15	31	55	80	82	67	70
developed SDC	9	10	8	11	19	28	56
<b>Developed total</b>	<b>24</b>	<b>41</b>	<b>64</b>	<b>91</b>	<b>101</b>	<b>95</b>	<b>126</b>
developing FNI	4	12	21	32	51	55	72
developing SDC	0	1	1	2	2	3	4
<b>Developing total</b>	<b>4</b>	<b>13</b>	<b>22</b>	<b>34</b>	<b>53</b>	<b>59</b>	<b>76</b>
<b>Total</b>	<b>28</b>	<b>53</b>	<b>86</b>	<b>125</b>	<b>154</b>	<b>153</b>	<b>202</b>

Footnote: FNI = financial new investment; SDC = small distributed capacity. New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 5

Financial new investment in renewable energy: developed v developing countries, 2004-2010

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Developed	15	31	55	80	82	67	70
Developing	4	12	21	32	51	55	72
Total	19	43	76	111	132	122	143
% Growth		120%	79%	46%	19%	-7.7%	17%

Footnote: New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 6

Financial new investment and small distributed capacity in renewable energy by technology, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010	% growth on 2009
Marine	0.1	-44%
Geothermal	2	44%
Small hydro	3	-22%
Biofuels	6	-20%
Biomass & w-t-e	11	-5%
Solar	86	52%
Wind	95	30%

Footnote: New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance, UNEP

Figure 7

VC/PE new investment in renewable energy by technology, 2010  
\$bn

Data:

Units: \$bn	2010 % growth on 2009	
Solar	2.2	30%
Wind	1.5	17%
Biofuels	0.7	-36%
Small hydro	0.5	1704%
Biomass & w-t-e	0.4	8%
Geothermal	0.1	53%
Marine	0.1	6%

Footnote: VC/PE new investment excludes PE buy-outs. Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01



Figure 8

Public markets new investment in renewable energy by technology, 2010  
\$bn

Data:

Units: \$bn	2010 % growth on 2009	
Wind	8.2	58%
Solar	5.3	-17%
Biofuels	0.8	113%
Small hydro	0.5	248%
Biomass & w-t-e	0.4	2413%
Geothermal	0.1	-70%
Marine	0.01	0 in 2009

Footnote:

<None>

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 9

Asset finance of new-build renewable energy assets by technology, 2010  
\$bn

Data:

Units: \$bn	2010	% growth on 2009
Wind	89.7	33%
Solar	18.9	5%
Biomass & w-t-e	10.2	-10%
Biofuels	4.7	-19%
Small hydro	2.3	-43%
Geothermal	2.0	108%
Marine	0.04	-74%

Footnote: Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 10

Global financial new investment in renewable energy quarterly trend, Q1 2004-Q1 2011  
 \$bn

Data:		Q1 04	Q2 04	Q3 04	Q4 04	Q1 05	Q2 05	Q3 05	Q4 05	Q1 06	Q2 06	Q3 06	Q4 06	Q1 07	Q2 07	Q3 07	Q4 07	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09	Q3 09	Q4 09	Q1 10	Q2 10	Q3 10	Q4 10	Q1 11	
Units: \$bn																															
Total		5	4	5	6	9	10	9	14	13	19	17	27	21	22	28	41	27	38	35	33	19	35	34	34	32	31	35	44	31	
4Q running average					5	6	7	9	11	12	14	16	19	21	22	24	28	29	33	35	33	31	30	30	31	34	33	33	36	35	

Footnote: New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2010.04

Figure 11

Financial new investment and small distributed capacity in renewable energy by country, 2010, and growth on 2009  
\$bn

Data

Units: \$bn	2010	% growth on 2009
Czech Republic	3.6	102%
India	4.0	29%
France	4.0	26%
Spain	4.9	-53%
Canada	5.2	52%
Brazil	6.9	-5%
Italy	13.8	136%
United States	29.6	56%
Germany	41.0	100%
China	49.8	28%

Footnote: Top 10 countries. Adjusted for re-invested equity

Source: Bloomberg New Energy Finance, UNEP

Figure 12

Financial new investment in renewable energy: developed v developing countries, 2010, and total growth on 2009  
\$bn

Data:

	Developed		Developing		Total
	2010	% growth on 2009	2010	% growth on 2009	% growth on 2009
Units: \$bn					
Marine	0.1	-43%	0.01	-46%	-44%
Geothermal	1.0	5%	1.0	143%	44%
Small hydro	0.7	-34%	2.5	-18%	-22%
Biofuels	1.6	-46%	3.9	0%	-20%
Biomass & w-t-e	5.1	-25%	5.9	24%	-5%
Solar	18.9	-7%	7.2	48%	3%
Wind	44.1	27%	50.6	33%	30%

Footnote: Total values include estimates for undisclosed deals. Adjusts for re-invested equity. This comparison does not include small-scale projects.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 13

Financial new investment in renewable energy by region, 2010  
\$bn

Data:

Units: \$bn	2010	% growth on 2009
Asia & Oceania	59.3	30%
Europe	35.2	-22%
North America	30.1	53%
South America	13.1	39%
Middle East & Africa	5.0	104%

Footnote: New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals. This comparison does not include small-scale projects.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 14

Financial new investment in renewable energy by region, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Europe	9.0	18.4	27.3	46.6	47.6	45.0	35.2
North America	3.8	10.3	24.6	29.4	32.3	19.7	30.1
Asia & Oceania	5.6	11.0	18.3	26.2	34.4	45.7	59.3
South America	0.5	2.8	4.7	7.7	15.7	9.4	13.1
Middle East & Africa	0.3	0.1	1.5	1.5	2.4	2.4	5.0

Total

Footnote: New investment volume adjusts for re-invested equity. Total values include estimates for undisclosed deals. This comparison does not include small-scale projects.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 15

Small distributed capacity investment by country, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010 % growth on 2009	
Israel	0.4	90%
Belgium	0.6	16%
China	0.9	43%
Australia	0.9	74%
Czech Republic	2.3	163%
France	2.7	150%
Japan	3.3	48%
United States	4.5	49%
Italy	5.5	59%
Germany	34.3	132%

Footnote:

Top 10 countries. Represents investments in solar PV projects with capacities below 1MW

Source:

Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01



Figure 16

Financial new investment in renewable energy in China by sector and asset class, 2010

\$bn

Data

Units: \$bn	Asset finance	Public markets	VC/PE	Total
Wind	38.1	3.2	0.1	41.4
Solar	2.0	1.8	0.01	3.8
Biomass & w-t-e	3.7	-	-	3.7

Footnote: Asset finance adjusts for re-invested equity.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 17

Financial new investment in renewable energy in India by sector and asset class, 2010

\$bn

Data

Sector/asset class	Asset finance	Public markets	VC/PE	Grand Total
Wind	2.3	0.3	-	2.6
Biomass & w-t-e	0.4	0.2	0.02	0.6
Solar	0.4	0.1	0.03	0.5

Footnote: Asset finance adjusts for re-invested equity.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 18

Financial new investment in renewable energy in Brazil by sector and asset class, 2010

\$bn

Data

Units: \$bn	Asset finance	Public markets	VC/PE	Grand Total
Biofuels	2.1	0.3	-	2.4
Wind	2.3	0.1	-	2.4
Small hydro	1.0	-	0.2	1.2
Biomass & w-t-e	0.8	-	0.1	0.9

Footnote: Asset finance adjusts for re-invested equity.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 19

Financial new investment in renewable energy in the United States by sector and asset class, 2010  
\$bn

Data

Units: \$bn	Asset finance	Public markets	VC/PE	Total
Wind	14.9	0.4	0.8	16.1
Solar	2.6	1.0	1.9	5.5
Biofuels	0.2	0.3	0.7	1.2
Biomass & w-t-e	1.3	0.1	0.05	1.4
Geothermal	0.6	0.01	0.1	0.7

Footnote: Asset finance adjusts for re-invested equity.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 20

Financial new investment in renewable energy in Italy by sector and asset class, 2010  
\$bn

Data

Units: \$bn	Asset finance	Public markets	VC/PE	Total
Wind	1.0	3.6	-	4.5
Solar	3.1	-	-	3.1
Biomass & w-t-e	0.7	-	0.04	0.8

Footnote: Asset finance adjusts for re-invested equity.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 21

Financial new investment in renewable energy in Latin America (excluding Brazil) by country, 2010  
\$bn

Data

Units: \$bn	2010
Colombia	0.12
Nicaragua	0.18
Panama	0.29
Honduras	0.40
Peru	0.48
Venezuela	0.65
Argentina	0.74
Chile	0.96
Mexico	2.32

Footnote: Omits countries with less than \$0.1bn investment

Source: Bloomberg New Energy Finance, UNEP

Figure 22

Financial new investment in renewable energy in non-OECD Asia (excluding China and India) by country, 2010  
\$bn

Data

Units: \$bn	2010
Laos	0.10
Indonesia	0.25
Vietnam	0.38
Taiwan	0.66
Thailand	0.70
Pakistan	1.45

Footnote: Omits countries with less than \$0.1bn investment

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 23

Financial new investment in renewable energy in Africa by country, 2010  
\$bn

Data

Units: \$bn	2010
Sudan	0.10
Libya	0.15
Cape Verde	0.16
Morocco	0.18
Zambia	0.18
Kenya	1.33
Egypt	1.33

Footnote: Omits countries with less than \$0.1bn investment

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01



Figure 24

Renewable power generation and capacity as a proportion of global power, 2004-2010  
%

Data:

Unit: %	2004	2005	2006	2007	2008	2009	2010
Renewable power capacity change as a % of global power capacity change (net)	10.2%	14.8%	13.4%	16.2%	25.9%	34.1%	34.2%
Renewable power generation change as a % of global power generation change (net)	3.5%	4.5%	5.0%	7.9%	17.3%	29.4%	29.9%
Renewable power as a % of global power capacity	4.3%	4.6%	5.0%	5.4%	6.1%	7.1%	8.1%
Renewable power as a % of global power generation	3.5%	3.5%	3.6%	3.8%	4.0%	4.7%	5.4%

Footnote: Renewable power excludes large hydro. Renewable capacity figures based on Bloomberg New Energy Finance global totals.

Source: EIA, IEA, Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01 (for renewable energy portion)

Figure 25

Investment in clean energy v conventional capacity, 2004-2010

\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Fossil fuel investment	132	132	187	201	196	212	219
Renewable energy investment	27	48	72	103	136	139	187
Difference	-106	-84	-116	-97	-60	-74	-31
Total investment	159	180	259	304	332	351	406

Footnote: Values represent investment for new build capacity, where fossil fuel investment is calculated from EIA & IEA data and clean energy investment is sourced from Bloomberg New Energy Finance (comprising new build asset finance and small distributed capacity investment).

Source: EIA, IEA, Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01 (for renewable energy portion)

Figure 26

Forecast annual net capacity additions, 2010-2012  
GW

Data:

Units: GW	2010	2011	2012
Renewable energy	60	69	79
Fossil fuel	92	95	97

Footnote: Renewable forecast based on Bloomberg New Energy Finance projections for wind, solar, bioenergy and geothermal. Conventional thermal capacity projection based on IEA compound growth rate

Source: Bloomberg New Energy Finance, EIA, IEA

FINAL: Waterfall version no: 2011.01 (for clean energy portion)

Figure 27

Financial new investment in energy-smart technologies by region, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
North America	1.0	1.3	2.2	3.0	2.5	3.1	3.3
Europe	0.2	0.4	0.7	0.7	0.3	0.4	0.5
Asia & Oceania	0.1	0.04	0.1	0.1	0.4	0.6	1.2
Middle East & Africa	-	0.03	0.02	0.03	0.01	0.01	0.02
South America	-	0.004	-	-	-	-	-
Disclosed deal count	119	148	180	213	174	166	182
Total deal count	136	173	207	231	185	188	192

Footnote: Includes fundraisings of energy smart technology companies through VC/PE or PM transactions. Does not include investment in energy smart technology projects.

Source: Bloomberg New Energy Finance

Figure 28

R&D investment in renewable energy, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Corporate R&D	4	3	3	3	4	4	3
Government R&D	1	1	1	2	2	2	5
Total	5	4	4	5	5	6	9
% Growth		-16%	6%	10%	11%	14%	40%

Footnote:

<none>

Source: Bloomberg, Bloomberg New Energy Finance, IEA, IMF, various government agencies

FINAL: Waterfall version no: 2011.01

Figure 29

Corporate and government R&D renewable energy investment by technology, 2010, and total growth on 2009  
\$bn

Data:

	Corporate R&D		Government R&D		Total
	2010	% growth on 2009	2010	% growth on 2009	% growth on 2009
Units: \$bn					
Small hydro	0.03	-18%	0.07	177%	60%
Marine	0.01	-11%	0.17	167%	135%
Geothermal	0.03	4%	0.41	62%	56%
Biomass & w-t-e	0.26	5%	0.33	30%	18%
Wind	0.49	15%	0.81	220%	92%
Biofuels	0.33	-4%	2.01	142%	100%
Solar	2.12	-19%	1.48	108%	8%

Footnote:

<none>

Source: Bloomberg, Bloomberg New Energy Finance, IEA, IMF, various government agencies

FINAL: Waterfall version no: 2011.01

Figure 30

Corporate and government R&D renewable energy investment by region, 2010, and growth on 2009  
\$bn

Data:

	Corporate R&D		Government R&D		Total
	2010	% growth on 2009	2010	% growth on 2009	% growth on 2009
Units: nominal \$bn					
Middle East & Africa	0.00	0%	0.00	8%	0%
India	0.04	50%	0.04	10%	27%
AMER (exc. US & Brazil)	0.02	-4%	0.09	3%	2%
Brazil	0.01	-16%	0.10	8%	5%
China	0.13	21%	No data	No data	No data
United States	0.50	25%	1.01	3%	9%
Europe	0.87	-2%	1.11	2%	0%
ASOC (exc. China & India)	1.71	-25%	2.94	2591%	96%

Footnote:

<none>

Source: Bloomberg, Bloomberg New Energy Finance, IEA, IMF, various government agencies

FINAL: Waterfall version no: 2011.01

Figure 31

VC/PE new investment in renewable energy by stage, 2004 - 2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
VC early stage	0.21	0.25	0.65	1.15	1.50	0.66	0.93
VC late stage	0.17	0.32	0.63	0.74	1.37	0.87	1.49
PE expansion capital	0.33	0.80	3.05	3.15	6.59	3.12	3.10
<b>Total</b>	<b>0.7</b>	<b>1.4</b>	<b>4.3</b>	<b>5.0</b>	<b>9.5</b>	<b>4.6</b>	<b>5.5</b>
<b>% Growth</b>		<b>90%</b>	<b>217%</b>	<b>16%</b>	<b>88%</b>	<b>-51%</b>	<b>19%</b>
Disclosed deal count	52	76	143	209	236	179	202
Total deal count	73	95	178	242	278	207	209

Footnote: Buy-outs are not included as new investment. Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance, UNEP



Figure 32

VC/PE new investment in renewable energy by stage, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010	% growth on 2009	Disclosed deal count	Total deal count
PE buy-out	0.81	-71%	8	20
PE expansion capital	3.10	-1%	57	59
VC bridge/interim	0.08	-45%	13	13
VC further rounds	0.90	124%	22	22
VC series C	0.52	61%	16	16
VC series B	0.60	74%	28	30
VC series A	0.31	5%	61	64
VC seed/spin-off	0.02	0.1%	5	5

Footnote: Buy-outs are not included as new investment. Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 33

VC/PE new investment in renewable energy by sector, 2004-2010

\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Solar	0.21	0.45	1.47	2.44	4.69	1.69	2.21
Biofuels	0.07	0.50	1.46	1.30	1.69	1.10	0.70
Wind	0.35	0.20	0.87	0.52	1.81	1.30	1.53
Biomass & w-t-e	0.06	0.15	0.35	0.48	0.59	0.39	0.42
Small hydro	0.00	0.00	0.05	0.05	0.43	0.03	0.48
Geothermal	0.00	0.05	0.05	0.11	0.17	0.08	0.13
Marine	0.01	0.01	0.07	0.16	0.09	0.06	0.06
<b>Total</b>	<b>0.7</b>	<b>1.4</b>	<b>4.3</b>	<b>5.0</b>	<b>9.5</b>	<b>4.6</b>	<b>5.5</b>

Footnote:

Buy-outs are not included as new investment. Total values include estimates for undisclosed deals.

Source:

Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 34

VC/PE new investment in renewable energy by sector, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010	% growth on 2009
Marine	0.1	6%
Geothermal	0.1	53%
Biomass & w-t-e	0.4	8%
Small hydro	0.5	1704%
Biofuels	0.7	-36%
Wind	1.5	17%
Solar	2.2	30%

Footnote: Buy-outs are not included as new investment. Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 35

VC/PE new investment in renewable energy by region, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Europe	0.48	0.35	1.36	1.36	2.56	1.00	0.75
North America	0.17	0.90	2.04	2.29	4.94	2.49	3.71
Asia & Oceania	0.06	0.12	0.93	0.80	1.17	0.28	0.21
South America				0.55	0.46	0.84	0.76
Middle East & Africa	0.01	0.00	0.00	0.04	0.34	0.04	0.09

Footnote: Buy-outs are not included as new investment. Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 36

VC/PE new investment in renewable energy by region, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010 % growth on 2009	
Middle East & Africa	0.09	133%
Asia & Oceania	0.21	-25%
Europe	0.75	-25%
South America	0.76	-9%
North America	3.71	49%

Footnote: Buy-outs are not included as new investment. Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 37

Public market new investment in renewable energy by stage, 2004-2010

\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
IPO	0.2	2.5	7.5	11.8	3.3	3.2	9.3
Secondary & PIPE	0.1	1.0	2.8	5.1	2.4	6.3	3.2
Convertible & Other	0.0	0.4	0.3	4.8	6.6	2.5	2.5
OTC	0.0	0.1	0.4	0.3	0.4	0.5	0.4
IPO/Secondary & PIPE/Convertible & Other/OTC deal count (7/12/4/7)	(30/47/29/13)	(39/53/37/41)	(41/89/54/40)	(18/63/62/30)	(11/90/42/25)	(28/73/44/25)	

Footnote:

<none>

Source:

Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 38

NEX vs selected indices

Data:

N/a

Footnote: Index Values as of 8 April 2011; AMEX Oil, NASDAQ and S&P 500 rebased to 100 on 30 December 2002

Source: Bloomberg New Energy Finance

Figure 39

Public market new investment in renewable energy by sector, 2004-2010 \$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Solar	0.06	1.74	4.76	7.79	6.74	6.40	5.32
Wind	0.05	1.24	1.62	10.84	3.60	5.18	8.22
Biofuels	0.08	0.72	3.63	1.45	1.74	0.36	0.76
Biomass & w-t-e	0.01	0.26	0.55	1.32	0.20	0.02	0.44
Geothermal	0.14	0.03	0.47	0.36	0.49	0.39	0.12
Small hydro	0.02	0.01	0.02	0.15	0.00	0.14	0.49
Marine	0.00	0.00	0.00	0.12	0.00	0.00	0.01
Total	0.4	4.0	11.0	22.0	12.8	12.5	15.4
Total deal count	30	119	170	224	173	168	170

Footnote:

<none>

Source:

Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01



Figure 40

Public market new investment in renewable energy by sector, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010 % growth on 2009	
Marine	0.01	0 in 2009
Geothermal	0.12	-70%
Biomass & w-t-e	0.44	2413%
Small hydro	0.49	248%
Biofuels	0.76	113%
Solar	5.32	-17%
Wind	8.22	58%

Footnote:

<none>

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 41

Public market new investment in renewable energy by region of exchange, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Europe	0.1	1.7	6.9	13.6	5.9	2.8	5.7
North America	0.2	1.1	3.2	5.6	4.7	3.1	2.6
Asia & Oceania	0.0	0.7	0.8	2.7	0.8	6.5	6.6
South America		0.4	0.2	0.1	1.4	0.0	0.5
Middle East & Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Footnote:

<none>

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 42

Public market new investment in renewable energy by exchange, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010	% growth on 2009
AIM (London)	0.42	2324%
Deutsche Börse - Official Market	0.49	27%
Toronto Stock Exchange	0.60	-7%
NASDAQ Global Market	0.71	-7%
Oslo Stock Exchange	0.77	-38%
Shenzhen Stock Exchange - ChiNext	0.82	489%
New York Stock Exchange	1.01	-4%
Shanghai Stock Exchange	1.04	424%
Hong Kong Stock Exchange	2.85	-31%
Borsa Italiana - MTA	3.55	0 in 2009

Footnote: Top 10 exchanges

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 43

Public market new investment in renewable energy by company nationality, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010	% growth on 2009
Brazil	0.42	1364%
United Kingdom	0.42	28646%
Germany	0.55	41%
India	0.56	-20%
Canada	0.61	-10%
Norway	0.77	-38%
United States	0.79	-31%
Taiwan	0.82	51%
Italy	3.55	221989%
China	5.92	34%

Footnote: Top 10 countries

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 44

Asset financing new investment in renewable energy by type of security, 2004-2010

\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Balance sheet	14.1	23.3	40.5	59.1	67.9	80.9	87.6
Debt	3.9	13.3	20.9	29.8	45.7	25.8	37.9
Bond/other	0.2	0.6	0.6	1.2	1.1	0.7	2.3
Disclosed deal count	208	536	697	930	955	769	595
Total deal count	460	866	1071	1506	1513	1372	1330

Footnote: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance

Figure 45

Asset financing new investment in renewable energy by region, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Europe	8.5	16.3	19.2	34.1	42.0	42.3	28.9
Asia & Oceania	5.5	10.1	16.7	22.9	33.0	39.2	56.0
North America	3.4	8.3	20.0	24.2	23.4	14.5	25.2
South America	0.5	2.4	4.6	7.3	14.2	9.0	12.6
Middle East & Africa	0.3	0.1	1.5	1.6	2.0	2.4	5.0
Disclosed deal count	208	536	697	930	955	769	595
Total deal count	460	866	1071	1506	1513	1372	1330

Footnote: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 46

Asset financing new investment in renewable energy by sector, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Wind	11	20	28	42	60	67	90
Solar	0	1	4	12	23	18	19
Biofuels	1	5	16	20	16	6	5
Biomass & w-t-e	4	6	9	10	9	11	10
Small hydro	1	4	4	5	6	4	2
Geothermal	1	0	1	2	1	1	2
Marine	0	0	0	0	0	0	0
Disclosed deal count	208	536	697	930	955	769	595
Total deal count	460	866	1071	1506	1513	1372	1330

Footnote: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance, UNEP

FINAL: Waterfall version no: 2011.01

Figure 47

Multilateral development banks: provision of finance for renewable energy projects  
\$bn

Data:

Units: \$bn	2007	2008	2009	2010
Total	4.5	11.0	8.9	13.5
% Growth		142%	-19%	52%

Footnote: Excludes debt and equity provided to renewable energy manufacturers, and debt and equity for energy efficiency

Source: Bloomberg New Energy Finance



Figure 48

Small distributed capacity investment, 2004 - 2010

\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Total	9	11	9	13	21	31	60
% Growth		24%	-11%	40%	60%	48.1%	91%

Footnote: Represents investments in solar PV projects with capacities below 1MW

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 49

Small distributed capacity investment by country, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010 % growth on 2009	
Israel	0.4	90%
Belgium	0.6	16%
China	0.9	43%
Australia	0.9	74%
Czech Republic	2.3	163%
France	2.7	150%
Japan	3.3	48%
United States	4.5	49%
Italy	5.5	59%
Germany	34.3	132%

Footnote:

Top 10 countries. Represents investments in solar PV projects with capacities below 1MW

Source:

Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 50

Global installations of glazed water collectors by region, 2009  
%

Data:

Units: %	2010
China	80.6%
Europe	10.2%
South America	2.0%
North America	2.3%
Oceania	2.2%
Asia (excl. China & Japan)	1.4%
Middle East	0.6%
Japan	0.3%
Africa	0.3%

Footnote: Newly installed capacity of glazed water collectors by economic region in 2009

Source: International Energy Agency

Figure 51

Acquisition transactions in renewable energy by type 2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
PE buy-outs	1	3	2	3	6	3	1
Public market investor exits	0	1	2	4	1	2	1
Corporate M&A	2	9	13	19	18	22	20
Asset acquisitions & refinancing	5	13	18	31	41	39	36
Total	9	26	35	57	65	66	58
Disclosed deal count	43	131	162	266	279	266	228
Total deal count	84	253	335	482	501	493	459

Footnote: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 52

Acquisition transactions in renewable energy by sector 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Wind	5	17	24	31	43	37	31
Solar	0	1	4	10	12	17	14
Biomass & w-t-e	1	3	1	2	2	2	3
Biofuels	0	1	4	6	4	6	7
Geothermal	0	1	0	7	1	2	2
Small hydro	2	2	1	1	2	3	1
Marine	0	0	0	0	0	0	0

Footnote: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 53

Acquisition transactions in renewable energy by technology, 2010, and growth on 2009  
\$bn

Data:

Units: \$bn	2010	% growth on 2009
Marine	0.2	6%
Small hydro	1	-65%
Geothermal	2	1%
Biomass & w-t-e	3	69%
Biofuels	7	20%
Solar	14	-15%
Wind	31	-16%

Footnote: Total values include estimates for undisclosed deals.

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 54

Acquisition transactions in renewable energy by region, 2004-2010  
\$bn

Data:

Units: \$bn	2004	2005	2006	2007	2008	2009	2010
Europe	4.8	14.6	19.6	25.0	36.8	30.8	21.4
North America	3.3	8.1	11.4	21.2	18.1	20.4	22.5
Asia & Oceania	0.1	2.8	3.0	7.6	5.7	10.1	7.6
South America	0.3	0.3	1.0	3.5	2.7	3.4	6.1
Middle East & Africa	0.1	0.0	0.01	0.1	1.8	1.0	0.01

Footnote: Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance

FINAL: Waterfall version no: 2011.01

Figure 55

Global acquisition transactions in renewable energy; quarterly trend, Q1 2004-Q1 2011  
 \$bn

Units: \$bn	Q1 04	Q2 04	Q3 04	Q4 04	Q1 05	Q2 05	Q3 05	Q4 05	Q1 06	Q2 06	Q3 06	Q4 06	Q1 07	Q2 07	Q3 07	Q4 07	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09	Q3 09	Q4 09	Q1 10	Q2 10	Q3 10	Q4 10	Q1 11
Total	1	3	1	3	4	5	5	11	8	9	6	12	9	12	17	19	20	14	15	17	11	18	15	21	19	12	13	14	11
4Q running average				2	3	3	4	6	7	8	9	9	9	10	13	14	17	17	17	16	14	15	15	16	18	17	16	14	12

Footnote: Total values include estimates for undisclosed deals

Source: Bloomberg New Energy Finance



Figure 56

Sustainable energy funds by focus and asset class, as at Q1 2011  
\$bn

Data:

Units: \$bn	Venture Capital	Private Equity	Public Equity	Project Equity	Project Debt	Emission Credits
Private funds						
Climate Change	0.2	0.1	1.6	0.5	0.1	4.3
Environment / Cleantech	8.5	10.2	6.0	0.6	0.3	5.5
Energy & Infrastructure	0.0	10.9	0.0	2.4	0.0	3.2
Clean Energy	4.2	12.3	6.6	12.6	5.5	8.5
Multilateral funds						
Climate Change	0.0	0.0	0.0	0.9	3.5	2.2
Environment / Cleantech	0.0	0.0	0.0	0.1	0.5	0.0
Energy & Infrastructure	0.0	0.0	0.0	0.0	0.0	0.0
Clean Energy	0.0	0.0	0.0	0.6	2.5	0.0
Government funds						
Climate Change	0.0	0.0	0.0	0.0	0.0	0.0
Environment / Cleantech	0.0	0.0	0.0	0.0	0.0	0.0
Energy & Infrastructure	0.0	0.0	0.0	0.0	0.0	0.0
Clean Energy	0.0	0.0	0.0	2.1	8.3	0.0
Total						
Climate Change	0.2	0.1	1.6	1.4	3.6	6.4
Environment / Cleantech	8.5	10.2	6.0	0.7	0.8	5.5
Energy & Infrastructure	0.02	10.9	0.0	2.4	0.0	3.2
Clean Energy	4.2	12.3	6.6	15.3	16.3	8.5

Footnote: Excludes SRI funds; Data as of 31 March; includes only funds with disclosed values

Source: Bloomberg New Energy Finance

Figure 57

Sustainable energy funds by asset class, as at Q1 2011  
%

Data:

Units: \$bn	Venture capital	Private equity	Public equity	Project equity	Project debt	Emission credits	Total
Climate change	1%	0%	11%	7%	0%	27%	8%
Environment / cleantech	66%	30%	42%	4%	5%	23%	26%
Energy & infrastructure	0%	32%	0%	12%	0%	13%	14%
Clean energy	33%	37%	47%	77%	95%	36%	52%
	100%	100%	100%	100%	100%	100%	

Footnote: Excludes SRI

Source: Bloomberg New Energy Finance

Figure 58

Sustainable energy public equity funds launched, 2004-2010

Data:

Units	2004	2005	2006	2007	2008	2009	2010
Total count	0	3	10	45	20	5	3

Footnote:

<none>

Source: Bloomberg New Energy Finance