

Climate change

Electricity networks are getting smart

- We reiterate our positive long-term view on energy efficiency and renewable energy. The imperative for using energy in a smarter way is strong and measures should be taken regardless of the emotional climate change debate.
- In this report, we focus on the electricity networks required by such a transformation. Building smarter grids entails the modernization of existing electricity networks using different technologies. Pure-play companies are mainly involved in advanced metering infrastructure (AMI) and demand response (DR).
- We maintain our focus on energy-efficiency stocks and include renewable stocks very selectively. We prefer broadly diversified and actively managed investment products such as funds to reduce the risks of single-stock investments.

It's not just about climate change

Skeptics have used recent cases of non-professional science to raise their voices in the climate change debate. One example is "Glaciergate", arising from an incorrect study by the United Nations about glacier retreat in the Himalayas. As a result, the UN Intergovernmental Panel on Climate Change (IPCC) has announced to undergo an independent review of its processes and procedures by the InterAcademy Council, a grouping of international science academies, in a bid to restore its credibility. Without doubt, it makes sense to question the scientific results of climate change research and to unveil rare cases of serious mistakes. However, these episodes do not alter the big picture. The scientific consensus is still unambiguous with respect to human contribution to climate change, and there is a high probability that extreme weather events in the form of droughts, floods, heat and cold waves will increase. Currently, the climate change debate is emotionally loaded, and this could hinder a constructive dialog on strategies for efficient and intelligent energy use.

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Fig. 1: Climate change mitigation measures

There are plenty of sources that would provide for a future of more sustainable energy.

Energy efficiency		
Building	Transportation	Industrial Processes
Electricity production and transmission	Information technology	Various energy efficiency
Renewable energies		
Hydro	Solar thermal	Photovoltaic
Wind	Geothermal	Biomass

Source: UBS WMR

Please see Figure 14 on page 9 for a list of companies with business exposure in climate change mitigation measures. As the companies mentioned in this list may change, we advise you to always check for our latest update.

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That said, we argue that the reasons for using energy in a smarter way are persuasive and that appropriate measures should be taken independent of the whole climate change debate. This is evident as trends in energy demand are still clearly pointing up while fossil fuel resources are finite. Furthermore, energy security is high on the political agenda in numerous countries seeking to decrease energy dependence on unstable countries. Ultimately, increasing energy efficiency and deploying renewable energy on a substantial scale are sound forward-looking strategies. Perhaps in a few years, we will ask ourselves why there has been such a resistance for a faster breakthrough in smart energy use.

Climate change under SEC focus

In February, the US Securities and Exchange Commission (SEC) issued an interpretative guidance on climate change. Publicly traded companies are now required to disclose actual and potential material risks and opportunities associated with climate change. This should allow investors to get timely, consistent and material information on climate change-related effects. The guidance focuses on the following circumstances where climate change may trigger corporate disclosure:

- The impact of any existing or pending material legislation and regulation on the business. Examples are the costs and benefits of a "cap and trade" system or the costs required to reduce emissions to comply with tightening regulation.
- The indirect effects of regulation on customer preferences, for example, an increased demand for goods with lower greenhouse gas emissions.
- The physical impacts of climate change. For example, damage to plants or decreased agricultural production due to severe weather conditions could have a material effect on companies.

It is worth mentioning that the disclosure of financial and legal impacts of potential environmental liabilities has been a requirement under the Superfund law for several years. The SEC guidance is similar to that of the Carbon Disclosure Project (CDP), the world's largest institutional-investor collaboration on climate change-related information. The CDP maintains a large database of information on companies' investment risks and commercial opportunities, allowing for comparisons and benchmarking. As of 2008, around 2,200 companies have disclosed their climate change strategies within the CDP framework.

We have yet to see what effect the new SEC guidance will ultimately have on reporting. Our hope is that this will not be limited to boilerplate texts that are just legally secured. What is needed are material information showing management commitment and a clear strategy on climate change and its impacts. Initiatives such as the CDP and the SEC guidance may foster consistency and comparability and put climate change on management's agenda particularly in companies with high exposure and unconvincing strategies.

What is a smart grid?

There is no generally established definition for smart grid as it encompasses many different technologies. But broadly defined, smart grid pertains to technology that improves the efficiency and reliability of the electricity grid. It includes electricity generation, grid-level storage, transmission, distribution networks, meters, electric vehicles' charging infrastructure, and improvements in the efficiency of buildings and homes. Smart grid requires the use of advanced hardware (i.e., power electronics, communication networks, meters or end-use devices) and advanced software and materials (e.g., cables and superconductors).

Source: UBS WWMR

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Smart grids – A prerequisite for a more complex world

Decades of under-investment in electricity grids has led to a transmission and distribution infrastructure that is strained to the limit and is prone to transmission congestion and subsequent power outages (see Fig. 2). We think it is quite impossible for a 20th century infrastructure to cope with the 21st century challenges of the energy market. As such, modernizing electricity grids is an imperative. Improving transmission efficiency should mean making electricity grids more "intelligent" or "smarter" in terms of providing a reliable service to customers (see Table 2). Smart grids try to address this, as they can automatically adapt to new, challenging supply/demand situations while increasing efficiency (see Figs. 3 and 4).

A key element of smart grids is the deployment of information and communication technologies (ICT). ICT improves the control, security, reliability and efficiency of an electricity grid (see Table 3). These applications enable two-way communication between electricity suppliers and consumers and a better control and management of power flows. They also give grid operators a real-time view of supply, storage and demand.

How much investment can be expected?

There are still many unknowns as most projects are at an early stage. However, the Electric Power Research Institute and the Pacific Northwest National Laboratory estimate that US investments alone could reach USD 200bn over the next 10-15 years. Equipment, software and integration costs account for about two-thirds of smart grid investments and labor costs the remaining one-third. Much of the two-thirds are split between metering infrastructure and grid communication, sensing and automation.

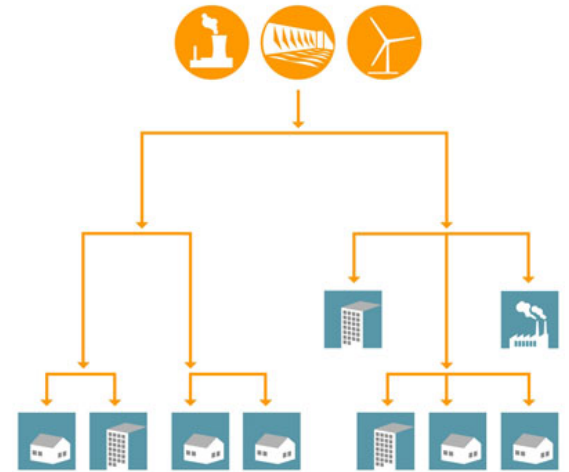
In the US, China and Korea, improving electricity grids is a substantial part of governments' stimulus programs. The European Parliament also issued a mandate that 80% of Europe's grid – a total of about 250 million electricity meters – should be upgraded to become smart-grid compliant by 2022. This should support an above-average growth trend for smart-grid appliances for several years. The increased urgency to improve old electricity networks opens opportunities for companies offering global smart grid solutions. Numerous technologies are already available to improve the reliability and efficiency of existing grids and to better synchronize supply and demand.

The smart-grid value chain is rather long. From the demand side, a great number of advanced sensors are needed on different levels to measure data and allow grid operators to detect problems and repair disturbances. They need computers and software that evaluate and process data in real-time. They also need software to manage production, storage, distribution and consumption of electricity in a decentralized structure. Smart meters are used as information platforms between energy suppliers and end-users.

From a supply side, the growing number of scattered small-scale power producers using renewable sources such as wind and solar makes it difficult to keep the existing grid system stable and therefore makes the development of intelligent grids most urgent. Germany, for instance, intends to increase the share of renewables for power generation from 15% currently to 30% in 2020.

Fig. 2: Traditional electricity grid (schematic)

A one-way system with centrally produced electricity based on consumer demand.



Source: ABB

Table 2: Current versus smart grid

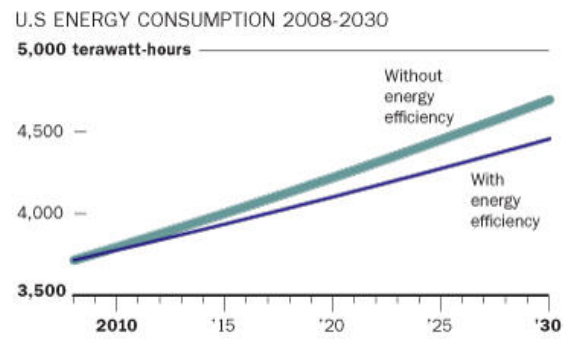
Some fundamental shifts

	Current grid	Smart grid
Communication	none or one-way, typically not real-time	two-way, real-time
Customer Interaction	limited	extensive
Metering	electromechanical	digital
Generation	centralized	centralized and distributed
Power Flow Control	limited	comprehensive
Reliability	prone to failures and outages	real-time protection
Restoration	manual	self-healing
Topology	radial	network

Source: Research Reports International, ABB

Fig. 3: Smart grids – less power, more savings

US energy efficiency programs enabled by a smarter grid could potentially reduce the yearly energy consumption growth rate significantly.



Source: Electric Power Research Institute

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How grids get smart

Advanced metering infrastructure (AMI) is a system capable of collecting detailed, real-time grid data. It enables grid operators to balance supply and demand intelligently by supporting time-based pricing programs for customers, and to achieve other benefits relating to energy delivery and customer empowerment via informed energy usage choices.

Advanced metering is also a prerequisite for **demand response (DR)**, which has gained popularity as a result of power outages. Demand response is a concept that enables electricity customers to reduce their demand during expensive peak times, helping utilities and grid operators manage power loads.

All parties benefit from this development: Consumers reduce their power bills and utilities spend less money on expensive peak-power capacities that stand idle most of the time. Based on real-time price information, consumers can reduce their demand or be motivated by contractual incentive schemes. In the opposite case, if supply exceeds demand, they can consume more power as bill rates are lower. In the future, cheap power can be stored in batteries of electric vehicles in order to sell it later back to the grid during peak demand. This means an energy consumer can also become an energy supplier in certain times. The goal for utility companies is to lower system-wide demand during peak times through controlled loads rather than building additional power generation infrastructure. According to Converge, a leading DR company, demand-side management solutions are up to 40% cheaper than building and operating a new gas-fired power plant. Thanks to AMI and DR programs, energy can be saved and fewer power plants have to be built to meet peak demand. As these peak power plants are normally based on fossil fuel sources, this is also good news for the environment.

Generally speaking, grid modernization provides a positive side-effect to climate change in that it offers significant CO₂ savings.

Who are the potential beneficiaries?

While it is still too early to identify specific winners and losers, a number of companies are involved in AMI and DR (see Fig. 5). We expect the build-out of AMI to be the first step. As of today, only 8% of US buildings are equipped with smart electric meters (source: Barclays Capital). Smaller companies focused on AMI include Itron and Echelon, while EnerNOC and Converge are focused on the area of DR.

From a large company perspective, some companies mainly from the industrial and IT sectors are already on the smart grid value chain, including General Electric, ABB, Siemens, IBM, SAP, Cisco and Google. Because investments are still at an early stage, exposure for these giants is still small but are expected to grow in the next decade.

Table 3: Goals for smart grids

- Increased reliability
- Increased security
- Greater economic and energy efficiency
- Increased safety
- Improvements to the environment

Source: US Department of Energy

Fig. 4: Smart grid (schematic) – more of a network structure

A two-way system with centralized and de-centralized production (e.g., solar) and real-time managed supply, demand and storage (e.g., batteries from electric vehicles, flywheels or pumped storage).

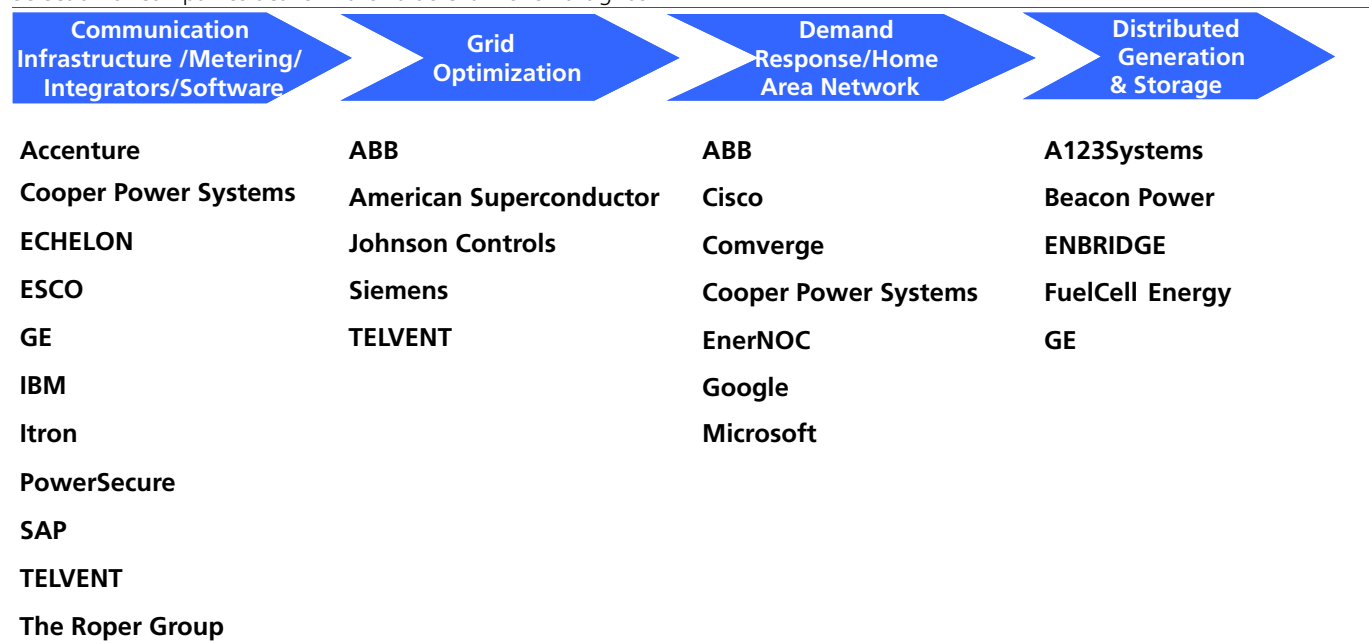


Source: ABB

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Fig. 5: Smart grids – value chain

Selection of companies active in the value chain of smart grids.



Source: R. W. Baird & Co., UBS WMR

Smart grid – No quick win, but a major growth trend

Smart grid is not a quick win. The transformation process should be gradual given obstacles such as regulation, cost restraints and consumer privacy concerns. However, smart grid represents an attractive sub-sector in the energy and climate change arena, with continuously increasing investment opportunities. We expect efficient electricity supply/demand management via smart grids to become a major growth trend for the next decades and prove to be relatively immune to economic cycles. We expect a transformation from centralized and producer-controlled networks to ones that are decentralized and interactive. ICT and energy markets are supposed to move closer over time.

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Solar – Commodification proceeds

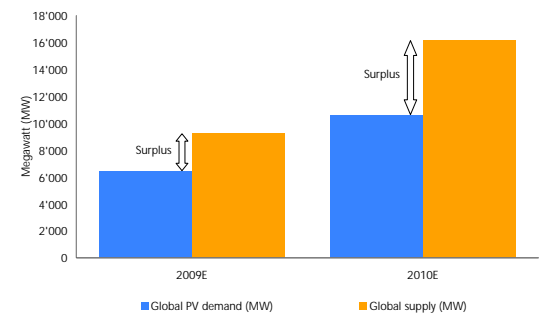
In the last years, European photovoltaic (PV) manufacturers benefited from considerable price premiums versus Asian peers because of better branding and, in part, better quality and reliability. However, quality and reliability issues are now being sorted out and modules from top-tier Asian companies hardly differ from those of European peers. In fact, some European producers have already outsourced parts of their value chain to Asia. In our view, the Asian companies have a more sustainable business model, based on cost advantages. European wafer, cell and module producers are confronted with the unpleasant situation of ongoing capacity expansions, mostly in East Asia, paired with sharp feed-in tariff cuts in Germany, the largest PV market. The additional cuts in 2010 are a result of very high returns (IRR) for solar electricity production projects such as on residential roofs. The oversupply situation expected this year will likely lead to further price and margin pressure (see Figs. 6 and 7). We expect European producers to further lose market share, increasing the risk for some to even go out of business.

On the demand side this year, we expect a continued strong growth in Germany in spite of the feed-in-tariff cuts, a robust Italian market, strong growth in Japan and France, and emerging volume growth in the US and China. We see some other countries as wildcards. In particular, the Czech Republic, Canada and Belgium could surprise positively (albeit coming from a low base). This year, the US is developing slower than expected as politicians are concentrating on healthcare and job creation and not climate change. Despite strong demand in the first half of 2010, we see no relief in the global supply/demand imbalance. In our solar model, we see a continued oversupply in 2010, as the forecast 60% demand growth is offset by an even higher ramp-up of capacities (see Fig. 6). On the supply side, ongoing capacity expansions especially in East Asia indicate overcapacities, and without a strong local demand in China, supply will further exceed demand.

European manufacturers still have price premiums of around 30% versus their Asian competitors. According to company statements from Chinese manufacturers, they are already preparing for a 10-16% price reduction to offset the lowered feed-in tariff in Germany beginning in July 2010. The problem we see is that a further round of price cuts in 2010 would push gross margins of European producers below break-even. After an almost 40% price decline from end-2008 to 1Q10 (see Fig. 7), European manufacturers have suffered an enormous margin squeeze and many became loss-making in 2009. This has had a negative impact on their balance sheets, raising the question of when they might be forced to tap the capital market to raise fresh money, which would dilute current shareholders. On top of the dilution effect, we fear that some might not even get fresh money to refinance their liabilities. This could even lead to bankruptcies.

Our conclusion is that we would be cautious regarding investment in European wafer, cell and module producers and recommend investors in this sector take a closer look at top-tier Asian competitors.

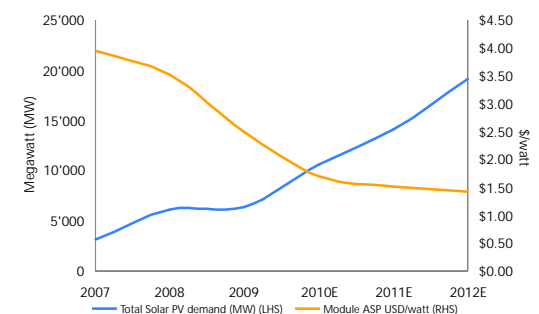
Fig. 6: Solar module oversupply expected to persist
 Estimated global supply and demand for PV modules



Source: UBS

Fig. 7: Chinese producers and commodification have slashed prices

We expect global module demand to grow strongly and module prices to further decline.



Source: UBS

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Wind – New breeze coming from offshore

According to the Global Wind Energy Council (GWEC), the world’s wind power capacity grew 31% in 2009 (see Fig. 8). The wind industry market was worth about EUR 45bn and employed about half a million people.

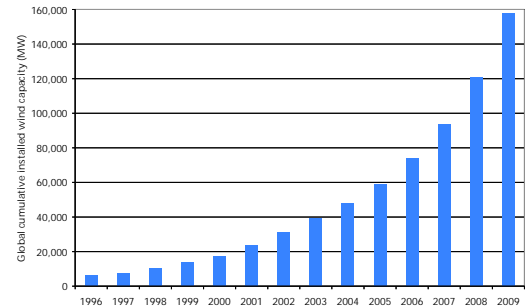
Asia: Asia has become the largest market. About a third of the 37.5 GW additions were made in China, followed by a surprisingly strong US and Europe.

US: Despite headwinds, the US surprised on the upside last year with almost 10 GW new installations. However, legal uncertainties and low gas prices are currently putting a drag on new projects. We expect growth in new installations to cease but nevertheless see a yearly build-out in the order of 7-13 GW in the coming years. Fig. 9 shows that the trend for large conglomerates like GE and Siemens increasingly winning turbine contracts was confirmed in 4Q09.

Europe: The European Commission’s "Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth" should further foster smart grids and renewable energy market expansion especially for wind energy. According to the European Wind Energy Association (EWEA), 39% of all new capacity installed in the EU was wind power and 16% was solar PV, with all renewable energy technologies accounting for the majority (61%) of new power-generating capacity in 2009. In Europe, offshore generation is finally taking off with a trend toward larger turbines installed farther out and in deeper waters. Eight new wind farms with about 200 offshore turbines were connected to the grid in Europe in 2009. For 2010, EWEA expects the completion of 10 additional European offshore wind farms and growth rates of more than 50% for the offshore market. Given their potential, the United Kingdom and Denmark are not surprisingly the leading countries in installed capacity (see Fig. 10). Siemens and Vestas currently form the duopoly in offshore wind turbine manufacturing with 71% and 19% market share, respectively, but new entrants and alliances have emerged. The main bottlenecks are installation vessels, but this issue has also been addressed and more capacity can be expected.

Fig. 8: Global cumulative installed wind power capacities reached 158 Gigawatt (GW)

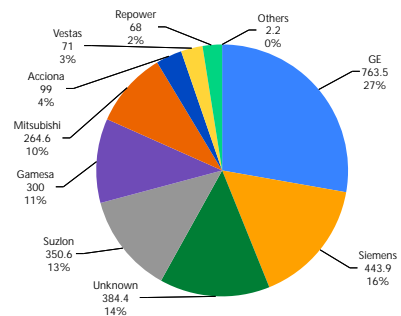
Global total power production capacity: 4,700 GW



Source: Global Wind Energy Council, UBS WMR

Fig. 9: Turbines used in US wind farm projects under construction in 4Q09 (in Megawatt)

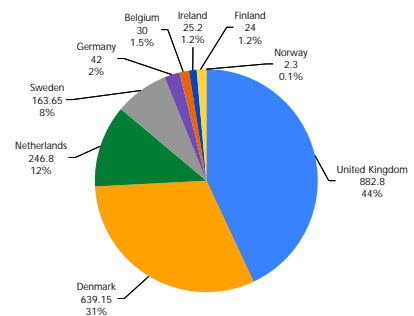
GE and Siemens are currently the preferred turbine producers for projects in the US.



Source: AWEA, UBS WMR

Fig. 10: Total installed offshore wind capacity in Europe by end of 2009 (in Megawatt)

The UK and Denmark are leading in installed capacity.



Source: EWEA, UBS WMR

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Performance review and outlook

By and large, energy-efficiency related stocks achieved a significantly better performance than the solar and wind sectors in 2010. Companies involved in industrial processes and IT showed the best performance in the climate change universe, whereas stocks in the power area performed relatively poorly. Wind and solar companies have been among the weakest performers in our climate change universe (see Figs. 11 and 12). The uncertainty surrounding German solar subsidies loomed large for the solar sector. We expect the structural oversupply to linger. We put the focus on top-tier Asian companies and volume plays.

Some wind turbine producers have guided cautiously for 2010 as the US market has only picked up slowly. We believe 2010 will be a transition year for the wind industry and expect more robust growth from 2011 onward. Given the oversupply situation and order delays, we favor defensive wind park operators.

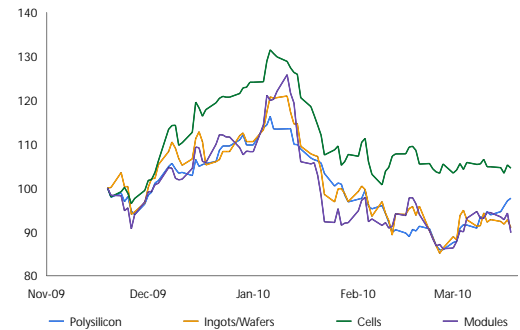
Energy efficiency remains our focus

We stick to our recommendation to focus on energy efficiency and include renewable stocks only selectively. We prefer broadly diversified and actively managed investment products such as funds to reduce the risks of single-stock investments (see Fig. 13).

Fig. 14 on the next page is a selection from a universe of about 200 stocks with significant exposure to energy-efficient buildings, industrial processes, IT, electricity production, transport as well as renewables. This list should not be interpreted as a recommendation but rather as a reference for energy efficiency and renewables markets, providing a balanced representation of stocks in terms of sub-themes and energy sources.

Fig. 11: Share price performance of selected equal-weighted peers in solar energy (EUR)

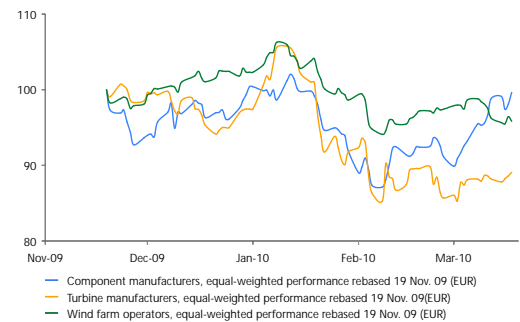
Polysilicon: Wacker, REC, MEMC, Tokuyama. **Ingots / Wafers:** REC, LDK, Solarworld, ReneSola. **Cells:** Sharp, Q-Cells, Suntech, Motech, JA Solar. **Modules:** Suntech, Yingli, Trina, Solon



Source: Datastream as of 19 March 2010, UBS WMR

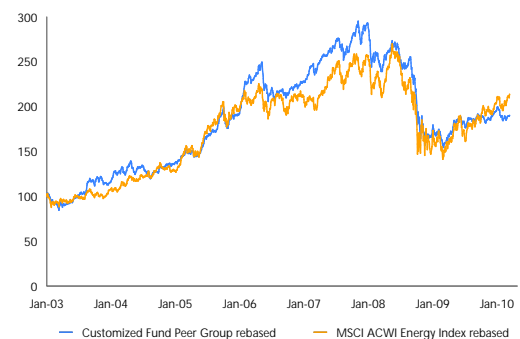
Fig. 12: Share price performance of selected equal-weighted peers in wind energy (EUR)

Components: Gurit, Hansen, SKF. **Turbines:** Gamesa, Nordex, REpower, Vestas. **Wind farm operators:** EDPR, EDF E N, FPL, IBER



Source: Datastream as of 19 March 2010, UBS WMR

Fig. 13: Alternative energy fund performance
Customized equal-weighted fund peer-group performance (EUR)



Source: Datastream as of 19 March 2010, UBS WMR

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Fig. 14: Companies with business exposure in climate change mitigation measures

Area	Name	Country	Description of opportunity
Energy efficiency			
Building	Philips	NL	Efficient lighting and electronic appliances
	Saint Gobain	FR	Insulation, high-performance glazing
	SIG Plc	UK	Insulation
	Zumtobel AG	AT	Lighting solutions
Industry	GEA Group AG	DE	Mechanical and plant engineering
	Baldor Electric Company	US	Electric motors, generators, and mechanical power transmission
	Spirax Sarco Engineering	UK	Efficient steam systems, installations, audits, maintenance
IT	Cisco Systems Inc	US	Efficient network infrastructure and data centres
	EMC Corp.	US	Efficient data storage platforms, green data centres
	Intel Corp.	US	Leading semiconductor producer
Power	Alstom SA	FR	A world leader in transport and energy infrastructure
	EnerNOC Inc.	US	Energy management solutions, demand response management
	Itron	US	Smart metering for energy and demand response management
Transport	Borg Warner Inc	US	Improving conventional motors e.g. turbo-chargers
	Denso Corporation Ltd	JP	Improving conventional motors e.g. engine management systems, components for hybrid cars
	Michelin	FR	Energy efficient tyres with low rolling resistance
	Saft Groupe SA	FR	Lithium-ion batteries for electric cars
Various energy efficiency	ABB Ltd.	CH	Efficient power transmission, process efficiency, efficient generators
	Schneider Electric SA	FR	Energy management, efficient power transmission, process efficiency
	Siemens AG	DE	Power generation, transmission and lighting, wind turbines, process efficiency
	Spectris	GB	Productivity enhancing control systems and precision instrumentation
Renewable energies			
Geothermal	Ormat Technologies Inc	US	Geothermal power, recovered energy generation
Solar	SMA Solar Technology AG	DE	Global leader in converters for solar produced electricity (>40% market share)
	Wacker Chemie AG	DE	Best in class polysilicon producer
	Yingli Green Energy	CN	Integrated solar module producer
Wind	China High Speed Transmission	CN	Gearbox manufacturer for wind turbines
	Gamesa Corp Technologica SA	ES	No 4 wind turbine manufacturer
	Iberdrola Renovables SA	ES	Leading global wind operator
	Xinjiang Goldwind Science & Technology Co. Ltd.	CN	Leading Chinese wind turbine manufacturer

Source: Factset as of 22 March 2010, UBS WMR

Figure 14 lists some companies engaged in various energy efficiency and renewable energy activities. Our list of companies is a selection from a universe of about 200 companies. We selected the companies with the highest climate change related revenues, with a market capitalization larger than EUR 200m, taking a maximum of 5 companies per area. This is not a list of recommendations and is by no means comprehensive.

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Appendix

Terms and Abbreviations

Term / Abbreviation	Description / Definition	Term / Abbreviation	Description / Definition
1H, 2H, etc. or 1H07, 2H07, etc.	First half, second half, etc. or first half 2007, second half 2007, etc.	1Q, 2Q, etc. or 1Q07, 2Q07, etc.	First quarter, second quarter, etc. or first quarter 2007, second quarter 2007, etc.
2007E, 2008E, etc.	2007 estimate, 2008 estimate, etc.	ADR	American depository receipt
AUM	Assets under management = total value of own and third-party assets managed	bn	Billion
bp or bps	Basis point or basis points (100 bps = 1 percentage point)	BVPS	Book value per share = shareholders' equity divided by the number of shares
CAGR	Compound annual growth rate	Cant Inc/Capita	Cantonal income per capita (Switzerland only)
Capex	Capital expenditures	CFO	1) Cash flow from operations, 2) Chief financial officer
Cost/Inc Ratio (%)	Costs as a percentage of income	CPI	Consumer price index
CR	Combined ratio = ratio of claims and expenses as a percentage of premiums (for insurance companies)	CY	Calendar year
DCF	Discounted cash flow	DDM	Dividend discount model
Dividend Yield (%)	Dividend per share divided by price per share	DPS	Dividend per share
EBIT	Earnings before interest and taxes	EBIT Margin (%)	EBIT divided by revenues
EBIT (D)A	Earnings before interest, taxes, (depreciation) and amortization	EBITDA Margin (%)	EBITDA divided by revenues
EBITDA/Net Interest	EBITDA divided by net interest expense	EBITDAR	Earnings before interest, taxes, depreciation, amortization and rental expense
EFVR	Estimated fair value range	EmV	Embedded value = net asset value + present value of forecasted future profits (for life insurers)
EPS	Earnings per share	Equity Ratio (%)	Shareholders' equity divided by total assets
EV	Enterprise value = market value of equity, preferred equity, outstanding net debt and minorities	FCF	Free cash flow = cash a company generates above outlays required to maintain/expand its asset base
FCF Yield (%)	Free cash flow divided by market capitalization	FFO	Funds from operations
FY	Fiscal year / financial year	GDP	Gross domestic product
Gross Margin (%)	Gross profit divided by revenues	h/h	Half-year over half-year; half on half
Interbank Ratio	Interbank deposits due from banks divided by interbank deposits due to banks	Interest Coverage	Ratio that expresses the number of times interest expenses are covered by earnings
Interest exp	Interest expense	ISIN	International securities identification number
LLP/Net Int Inc (%)	Loan loss provisions divided by net interest income	LLR/Gross Loans (%)	Loan loss reserves divided by gross loans
Market cap	Number of all shares of a company (at the end of the quarter) times closing price	m/m	Month-over-month; month on month
mn	Million	n.a.	Not available or not applicable
NAV	Net asset value	Net Debt	Short- and long-term interest-bearing debt minus cash and cash equivalents
Net Int Margin (%)	Net interest income divided by average interest-bearing assets	Net Margin (%)	Net income divided by revenues
n.m. or NM	Not meaningful	NPL	Non-performing loans
Op Margin (%)	Operating income divided by revenues	p.a.	Per annum (per year)
P/BV	Price to book value	P/E	Price to earnings
P/E Relative	P/E relative to the market	P/EmV	Price to embedded value
PEG Ratio	P/E ratio divided by earnings growth	PPI	Producer price index
Prim Bal/Cur Rev (%)	Primary balance divided by current revenue (total revenue minus capital revenue)	Profit Margin (%)	Net income divided by revenues
ROA (%)	Return on assets	ROCE (%)	Return on capital employed = EBIT divided by difference between total assets & current liabilities
ROE (%)	Return on equity	ROAE (%)	Return on average equity
ROIC (%)	Return on invested capital	Solvency Ratio (%)	Ratio of shareholders' equity to net premiums written (for insurance companies)
Tax Burden Index	Swiss tax index; 100 = average tax burden of all cantons	Tier 1 Ratio (%)	Tier 1 capital divided by risk-weighted assets; describes a bank's capital adequacy
tn	Trillion	Valor	Swiss company identifier
WACC	Weighted average cost of capital	UBS WMR	UBS Wealth Management Research
y/y	Year-over-year; year on year	YTD	Year-to-date

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Appendix

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