

Investment Theme STRATEGIC CALL

Energy Efficiency

Asset Class: Equity

Investing in Sustainable Energies Part II Update

At a glance

Strong drivers for more energy efficiency

Energy efficiency offers a growing number of interesting long-term investment opportunities mainly due to three factors: future energy scarcity and a stronger focus of governments on security of their energy supply; high energy prices; and stricter policies worldwide related to climate change. In this update, we analyze the effects of the current economic crisis on these driving factors and energy efficiency companies. We are adding Juniper Networks to our recommendation list.

Energy efficiency in times of economic downturn

In our view, all three important drivers remain intact.

- The current economic crisis has indeed strengthened most governments' will to strive for higher energy independence and better security of energy supply.
- Tumbling energy prices and budget constraints may reduce the urgency to implement energy efficiency investments in the short term. However, in the medium- to long-term, we believe the picture has not really changed: times of cheap energy are over.
- Certain climate change targets are likely to get watered down due to industrial lobbying. At the same time, the EU has emphasized that it is determined to adhere to its climate change strategy. In addition, the election of Barack Obama as the next US president bodes well for sustained action to fight climate change.

Investment opportunities in five key areas

We have analyzed energy efficiency in five key areas: building; transport; electricity production and transmission; industrial processes; IT and power electronics. Within each area, we screened companies that offer solutions to reduce energy consumption and identified those set to profit from these drivers.

High sensitivity to economic cycle

Most companies that offer energy efficiency opportunities operate in industries that are sensitive to the economic cycle. Even though most companies on our recommendation list have performed quite well relative to their sector peers, recession fears have pushed down performance of several companies well below the MSCI World level. Clearly exhibiting high beta properties, the list can be expected to underperform if the stock market downturn continues. At the same time, the list should correct more strongly in case of an upward movement. We would like to re-emphasize that energy efficiency is a long-term theme and the investment horizon for this Strategic Call is at least 3-5 years.

Lead Analyst
Agathe Bolli

What is a Strategic Call?

A Strategic Call seeks to exploit investment opportunities among a wide range of asset classes. The calls are based on long-term trends and themes, and have a corresponding investment horizon and holding period assumption of greater than 12 months. Consequently, the views expressed in a Strategic Call can at times diverge from our shorter-term tactical recommendations.

Recommendations: At a glance

Name	Industry	Country	Price
Johnson Controls	Auto Comp.	US	USD 15.68
BorgWarner	Auto Comp.	US	USD 17.75
Michelin	Auto Comp.	FR	EUR 38.44
ABB	Electr. Equipm.	CH	CHF 13.48
Siemens	Ind. Conglom.	DE	EUR 41.15
Intel	Semiconductors	US	USD 13.93
Cypress Semic.	Semiconductors	US	USD 4.14
Juniper Networks	Techn. Hardware	US	USD 16.26

Source: UBS WMR, as of 11 November 2008

As individual stock recommendations of this Strategic Call may change, we advise you to always check our latest updates.

Past performance is no indication of future performance. The market prices provided are closing prices on the respective principal stock exchange. This applies to all performance charts and tables in this publication.

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Challenging environment, but the drivers remain intact

First promoted in the 1970s, energy efficiency is not a new concept. Today, however, we see the concurrent strengthening of three factors that are increasing society's focus on energy efficiency which we believe favor considerable business opportunities:

- Future energy scarcity and a stronger focus of governments on security of their energy supply
- High energy prices
- Stricter policies worldwide related to climate change

Energy efficiency offers answers to all of these challenges. It is a cost-efficient way to achieve significant reductions in CO₂ emissions and improve energy security. We have analyzed energy efficiency in five key areas: building; transport; electricity production and transmission; industrial processes; IT and power electronics. Within each area, we screened companies that offer solutions to reducing energy consumption and identified those set to profit from these drivers. More information can be found in our first Investment Theme about energy efficiency published on 23 June 2008.

The recent market turmoil and looming recession have heavily affected energy efficiency companies, as most of them operate in industries that are sensitive to the economic cycle. In this update, we analyze the effects of the current economic crisis on the aforementioned drivers and the companies on our recommendation list. In our view, all three important drivers remain intact, although they may indeed be somewhat inhibited in the short term.

Energy independence: More important than ever

The current economic crisis exposed the vulnerability of countries to the interdependencies in today's globalized world, e.g., in terms of financial liquidity, energy or food prices. The crisis has certainly not helped to alleviate global geopolitical tensions either. These factors are motivating many governments to place ever more importance on energy independence and security of supply.

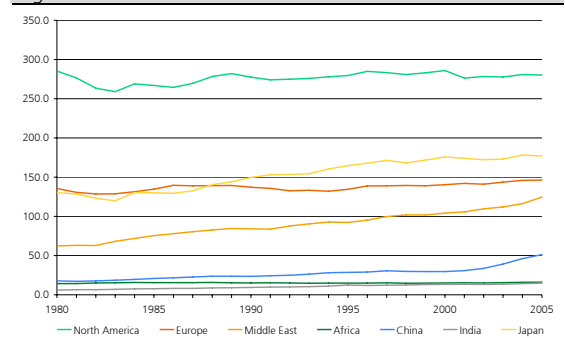
Energy independence was on the top of the agenda in the race for US presidency. The winner of the election, Barack Obama, appears determined to induce a "green revolution". In his election campaign, Obama promised investments of USD 150bn in renewable energy and energy efficiency over the next ten years, thus creating five million new "green collar" jobs that pay well and cannot be outsourced, and also help end the dependency of the US on oil imports. Apart from investments in renewables, Obama's strategy clearly aims at reducing the US thirst for energy by becoming more efficient. Figure 1 suggests the existence of considerable improvement potential, with North America still using nearly double as much energy per capita than Europe while having comparable standards of living.

In spite of current lows, times of cheap energy are over

The logic is quite simple: the higher the energy price, the shorter the payback period for an energy efficiency investment. The currently tumbling energy prices and budget constraints may therefore reduce the sense of urgency to implement energy efficiency measures in the short term. However, in the medium- to long-term, we believe the picture has not really changed: times of cheap energy are well and truly over. Our commodities analysts forecast the oil price to increase to a level of USD 90 towards the end of 2009 (not excluding temporary price dips

Figure 1: Per capita energy use

Per capita energy use in Asian countries and the Middle East is increasing, but North America's is still considerably higher.



Source: Energy Information Administration (EIA) 2007

to USD 50), and a further increase to slightly above USD 100 in the following year (see Figure 2). Such price levels still leave little doubt about the fact that saving energy would pay off.

Climate change strategy: Stronger focus on cost-efficiency

In our view, the most important driver for energy efficiency is tightening of climate change policies worldwide. At an EU summit at the end of October, Italy and several eastern European nations had doubts on the emission reduction timetable due to the impact of the economic crisis on several industries. Indeed, the prevailing recession should slow down the rise in CO₂ emissions due to reduced oil consumption, at least in the short term. Industrial lobby groups are therefore putting pressure on governments to "postpone saving the climate" and to water down climate change goals (e.g., in the case of the car industry and the EU emission targets for 2012). So far the EU has managed to withstand the pressure and has confirmed its stand to reduce CO₂ emissions by 20% by 2020, however stressing the importance of achieving this in a "cost-effective" manner, which should in theory benefit energy-efficiency investments.

The election of Barack Obama as the next US president can be seen as a positive signal for global climate change negotiations. Obama is committed to re-engage in the UN Framework Convention on Climate Change and announced the implementation of an economy-wide cap-and-trade program to reduce greenhouse gas emissions by 80% by 2050. Obama plans to auction Emission allowances, and the receipts generated in the process will partly be used to finance the earlier mentioned "green revolution". An important focus of the planned measures is on transportation, striving for the US motor industry to take a lead in producing environmentally friendly vehicles rather than heavy 4x4 SUVs, increasing fuel economy standards, pushing plug-in hybrids, and supporting car manufacturers financially to achieve these goals (see Figure 3). Further, the Obama-Biden New Energy plan calls for deploying the "cheapest, cleanest, fastest energy source – energy efficiency". This aggressive energy efficiency strategy aims to achieve an electricity demand that is 15% below the Department of Energy's projected levels by 2020. This goal would be partly achieved by setting annual demand reduction targets to be met by Utility companies. The rest would come from more stringent building and appliance standards.

"Green New Deal" offers big opportunity

In a speech in October, UN Secretary General Ban Ki-Moon promoted the UN Environment Program's call for a "Green New Deal", emphasizing that green growth is the key to development for the poor and the way of the future for the rich. He called upon the international community to recognize that we are on the threshold of a new era: green economics. Indeed, there appears to be a growing acceptance among economists that a "Green New Deal" should represent a crucial part of the solution to the financial crisis and to the US' long-term security concerns. An increase in environment-related investments also seems to be a central part of other economic rescue plans across the world. Britain, for example, has announced similar measures. Japan's Prime Minister, Taro Aso, wants to build on a green economy and announced to "achieve the low-carbon society that is compatible with growth ahead of the rest of the world."

It remains to be seen how much will be left in a few months of all these announcements to steer economies in a more "sustainable" direction. Far ranging changes in the next year are somewhat hard to imagine in view of depleted government coffers, rising unemployment,

Figure 2: WMR energy price forecasts (USD)

Energy prices are forecasted to remain volatile for the next months, with a view to moving towards higher prices

	1-3 months view		9-12 months view	Yearly averages		
	Lower R.	Higher R.	Target	2008E	2009E	2010E
Crude oil	63	86	90	102	83	105
Nat. Gas	6.2	8.3	8.6	9	7.4	9.1

Source: WMR, as of 7 November 2008

Figure 3: The Obama-Biden New Energy Plan

The Obama-Biden New Energy for America plan promises far-reaching changes.

- Provide short-term relief to American families facing pain at the pump
- Help create five million new jobs by strategically investing \$150 billion over the next ten years to catalyze private efforts to build a clean energy future.
- Within 10 years save more oil than we currently import from the Middle East and Venezuela combined
- Put 1 million Plug-In Hybrid cars – cars that can get up to 150 miles per gallon – on the road by 2015, cars that we will work to make sure are built here in America
- Ensure 10 percent of our electricity comes from renewable sources by 2012, and 25 percent by 2025
- Implement an economy-wide cap-and-trade program to reduce greenhouse gas emissions 80 percent by 2050

Source: www.barackobama.com; Barack Obama and Joe Biden: New Energy For America, as of November 2008

tight credit markets and plunging profits across most industries. Even though many of the announced measures are unlikely to be implemented, it can be assumed that budget constraints will in fact force governments to increasingly turn to energy efficiency as the most cost-efficient way to combine climate change strategies with energy security and job creation (see Figure 4).

Company Recommendations

As we mentioned, most of the companies offering energy efficiency opportunities operate in industries that are sensitive to the economic cycle. Even though most companies on our recommendation list have performed quite well relative to their sector peers, recession fears have pushed down performance of most companies below the MSCI World level. Whereas companies with operations related to the building sector have already taken a beating in the beginning of the year, the last few months were particularly painful for auto components manufacturers as their customers, the automotive manufacturers, are suffering from slowing consumer demand. Latest US data show a year-over-year decline in October new vehicle sales of around 32% (see Figure 5). Industrials companies with high exposure to emerging markets have also suffered due to significantly reduced growth forecasts in these countries.

Clearly exhibiting high beta properties, our list can be expected to underperform if the stock market downturn continues in the light of continued credit contraction and deteriorating consumer confidence. At the same time, the list should correct more strongly in case of an upward movement. We would like to emphasize energy efficiency is a long-term theme and that the investment horizon for this Strategic Call is at least 3-5 years.

We are not removing any company from our recommendation list this time but add one more, i.e., Juniper Networks.

Juniper Networks (Technology Hardware & Equipment, US)

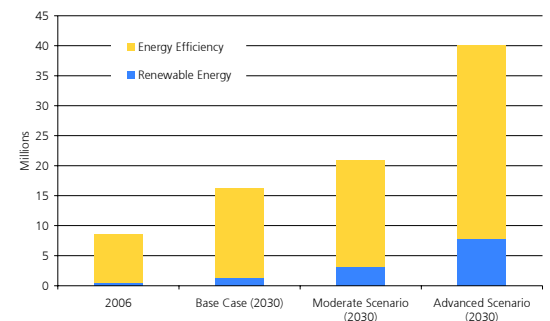
Juniper Networks designs, and sells products and services that together provide Internet Protocol (IP) secure networking solutions to its customers. The company's network infrastructure solutions enable service providers and other network-intensive businesses to support and deliver services and applications on a highly efficient and low cost integrated network. Juniper has implemented so-called "Design for the Environment" as an element of the overall product design process, with energy efficiency being an important element of it, contributing to reducing energy bills and therefore, operating expenses of networks. For example, the company's T1600 router consumes substantially less energy than competitive products.

Appendix

To provide background information on this update, the pages that follow were excerpted from the original Strategic Call, which was published on 23 June 2008.

Figure 4: Energy efficiency creates "green collar" jobs

Estimated job creation in the US through renewable energy and energy efficiency for different scenarios.

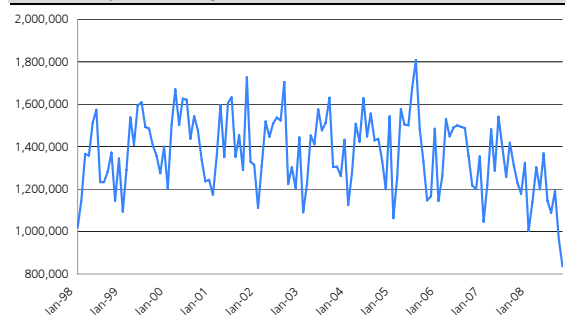


Base Case: Business-as-usual with no major policy changes
Moderate Scenario: Moderate, incremental federal and state initiatives
Advanced Scenario: Pushing the envelope" in terms of what realistically feasible both economically and technologically

Source: American Solar Energy Society, 2007

Figure 5: US car sales on downwards trend

US monthly car and light truck sales (in units)



Source: Autodata Corporation, as of October 2008

Energy Efficiency – the best "alternative fuel"

Part I of this Investment Theme looked at possibilities available on the energy supply-side to reduce dependence on fossil fuels and diminish CO₂ emissions. However, it is clear that significant reduction in CO₂ emissions, which is necessary to contain global warming, cannot be achieved by only increasing the use of renewables (renewable sources of energy) or nuclear energy. It is obvious that the energy demand-side needs to be tackled as well. Apart from behavioral changes and end-of-pipe solutions, such as carbon capture and storage (CCS), the main source of energy savings and CO₂ reductions is energy efficiency. The International Energy Agency's (IEA) "Alternative Policy Scenario" (see Fig. 1) attributes about two-thirds of total energy savings and avoided CO₂ emissions to energy efficiency.

In fact, energy efficiency is often referred to as the best "alternative fuel". A study carried out by McKinsey (2007) evaluated the aggregated global CO₂ abatement potential of measures costing less than EUR 40 per ton of saved CO₂. As can be seen in Figure 2, saving one ton of CO₂ emissions through energy efficiency, for example, in building insulation, can actually lead to savings of more than EUR 150 over the life cycle, whereas saving one ton of CO₂ emissions through renewables still costs money (in the case of wind, for example, EUR 20). The International Energy Agency estimates that, on average, an additional dollar spent on more efficient electrical equipment, appliances, and buildings reduces more than two dollars in investment in electricity supply.

Most important driver: Tightening regulation

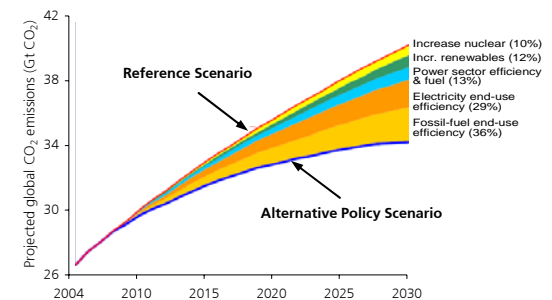
Considering that energy efficiency makes so much sense, the question arises is it already being pursued? Indeed, improvement of energy efficiency has always been an integral part of technological progress and improvement of operational efficiency. However, the rate of energy efficiency improvements since 1990 has been half of that in previous decades (see Fig. 3). Between 1990 and 2004, incremental annual energy efficiency gains were only around 1%. In order to achieve significant reduction in absolute energy use, however, energy efficiency gains must more than compensate, e.g., increases in traffic volumes or increases in floor space used per person. Based on "business as usual" (Reference Scenario), the IEA projects the world's primary energy needs to grow at an average annual rate of 1.8%. Therefore, if energy efficiency is to make a significant contribution to CO₂ reduction strategies, the annual improvements must be significantly higher than this growth rate.

There are several obstacles to increased energy efficiency; the important ones being agency issues and a combination of lack of information and incentive at the consumer level (see Fig. 4). However, as improving energy efficiency offers so many low-hanging fruit compared to other CO₂ reduction strategies, there is a good reason to assume that climate change policies will increasingly focus on removing these obstacles, mainly the agency and information problems. In fact, evidence of this development is emerging in several regions as illustrated by the following examples.

- The **EU** targets a 20% reduction of greenhouse gases (GHG) compared to 1990 levels and a concurrent 20% improvement of energy efficiency by 2020. Based on this target, an *Action Plan for Energy Efficiency* was developed, which targets, e.g., more efficient transportation systems, improved energy performance of existing buildings and products (e.g., boilers, water heating, television, air condi-

Fig. 1: IEA Alternative Policy Scenario

Improved end-use efficiency accounts for two thirds of avoided emissions in 2030 in the alternative policy scenario



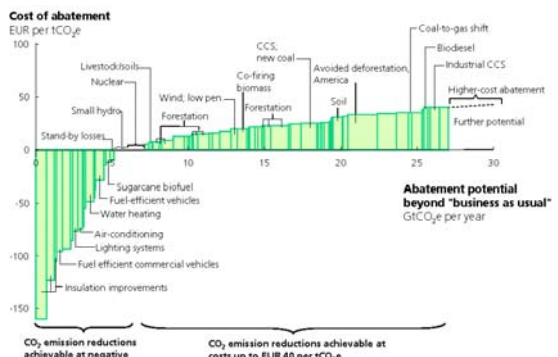
The IEA's **Reference Scenario** takes into account of government policies and measures that have been enacted or adopted as of date and presents a baseline vision of how energy markets would evolve if governments do nothing beyond what they have already committed to.

The IEA's **Alternative Policy Scenario (APS)** analyses the impact of a range of policies and measures that countries in all regions are considering adopting or might reasonably be expected to adopt at some point over the projection period. Note that the APS leads to a reduced growth rate but not to an absolute reduction in CO₂ emissions.

Source: OECD/IEA, 2006, World Energy Outlook

Fig. 2: McKinsey global cost curve for green house gas abatement – year 2030

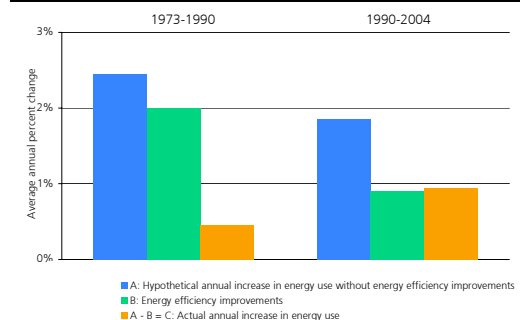
Energy efficiency offers some of the cheapest options for reducing CO₂ emissions



Source: McKinsey Climate Change Special Initiative 2007

Fig. 3: Energy efficiency development

Energy efficiency improvements dropped significantly in IEA-11 countries (AU, DK, FI, FR, DE, JP, IT, NO, SE, UK, US)



Source: OECD/IEA, 2007

tioners or washing machines), and improved efficiency of heat and electricity generation, transmission and distribution.

- The **US President** announced, in his 2007 State of the Union Address, a nationwide goal to reduce US oil consumption by 20% from the current projected levels by 2017. The goal includes specific measures such as raising the fuel economy standards and a number of energy efficiency provisions in the area of energy efficient appliances, federal building energy efficiency, or incentives for the use of mass transit. Though progress at the national level regarding climate change issues may appear slow in the US, it should be borne in mind that policies and initiatives at the state (e.g., California) or city level are often far more advanced.
- The **Chinese government's** 11th five-year plan aims to cut energy use per unit of GDP by 20% by 2010. Apart from specifying the share of each major fuel in the primary mix, the plan also sets efficiency targets for power generation and industrial processes. In the past, China has proven that it can decouple GDP growth from energy demand. As a result of President Deng Xiaoping's reforms, energy demand grew less than half as fast as GDP between 1979 and 2000. But, relatively, energy demand started soaring since the late 1990s, and from 2001, it exceeded GDP growth rate. The potential for energy efficiency in China is enormous: currently, China uses five times more energy per unit of GDP than Japan (see Fig. 5).

Whereas climate change may be the main driver in Europe, security of energy supply clearly constitutes a further and important motivation for formulating energy efficiency policies in many parts of the world. Whereas this may be geopolitically motivated in the US, energy efficiency in Asian countries (e.g. China) is simply becoming a key prerequisite in order to sustain the current economic growth momentum.

Based on the drivers just described, we believe that energy efficiency offers good investment opportunities. In the following pages, we will take a closer look at opportunities in five key areas: building, transport, electricity production and transmission, industrial processes, and IT & power electronics. There is no clear demarcation among these areas and there are obvious overlaps. Solutions discussed in one area might be applicable to other areas as well.

Building

Buildings account for approximately 40% of energy use in OECD (Organization for Economic Cooperation and Development) countries and offer the single largest potential for energy efficiency and reduction of greenhouse gas emissions (see also Fig. 6). As buildings usually have a long life, today's construction decisions will influence a large share of the world's energy use for several decades. For example, the rapid growth of urban residential living space in China (see Fig. 7) demonstrates the urgency to set the course for higher energy efficiency in buildings now. Urban residential living space increased by 50% from 2000 to 2005. Compliance rates with building standards in new buildings in China range from 60% in the northern region to only 8% in the south. Apart from the increasing living space, the steady increase in appliance ownership strongly contributes to soaring energy use.

Improvements in the building area could be done at a lower cost compared to other CO₂ abatement options. In fact, most of the options identified in the McKinsey study that offer lifecycle savings can be attributed to buildings (see Fig. 2).

If the potential for CO₂ reductions and cost savings is so large in buildings – why hasn't it already been exploited a long time ago? This is be-

Fig. 4: Barriers to energy efficiency improvements

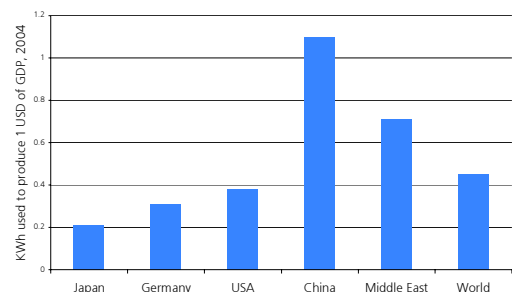
Market imperfections and policy distortions seen today act as barriers to further energy efficiency improvements

Agency issues	Two parties engaged in a contract can have different goals and levels of information → misaligned incentives Example of landlord/tenant, or producer/consumer of electrical appliances: Party which is in a position to decide about energy efficiency improvements is not the one paying the energy bill
Lack of information	Energy savings potential is not always that obvious as it often comes in many small pieces and not big chunks. Consumers are often unaware of the savings potential.
Lack of incentive	Large impact of energy efficiency only at aggregated level (e.g. electricity savings through energy efficient refrigerators), but little incentives on consumer level (even if it pays off), as energy cost is simply too low relative to other factors.
Policy distortions	External costs (e.g. of climate change, acid rain) are not fully included in the price of fossil fuels Fossil fuel subsidies (e.g. fuel subsidies for transport in Middle East, cheap natural gas for households in Russia).
The psychological angle	Higher energy consumption as a sign of prosperity, efficiency improvement associated with rationing, loss of comfort and therefore a priori dismissed. This argument is particularly applicable in the case of developing and emerging countries.

Source UBS WMR, as of June 2008

Fig. 5: Comparison of energy intensity

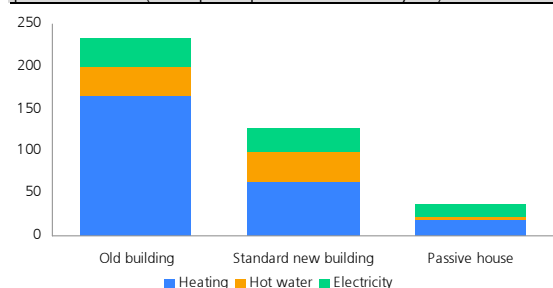
China uses five times more energy per unit of GDP than Japan



Source: OECD/IEA, 2007

Fig. 6: Building energy use

An old building uses five times more energy than a new passive house (kWh per square meter and year)



Source: Energy Conservation in Buildings and Community Systems (EBCS), 2006

cause buildings are a typical example of the earlier mentioned agency problem with misaligned incentives (see Fig. 4). Several parties can be involved in the building value chain, all with very different motivations, priorities and information. According to a survey carried out by Lippincott Mercer (2007), building professionals clearly overestimate the cost premium for a sustainable building. Their estimate of 15-20% is far higher than the actual premium, which is likely to be around 5% and seldom higher than 10% in developed countries.

However, the good news is that there are policy developments throughout the world aimed at reducing these market failures with respect to energy efficiency (see Fig. 8). The EU's newly implemented Directive on the Energy Performance of Buildings (EPB) is probably the most effective regulatory change with a direct impact on building standards.

Investment opportunities

In saturated construction markets, like most of Europe and the US, energy efficiency legislation has become an important business driver, particularly in the renovation market (e.g., for insulation companies). High energy prices in the last few years have of course supported this development. Globally, the largest growth driver is construction activity, which is highest in developing and emerging countries.

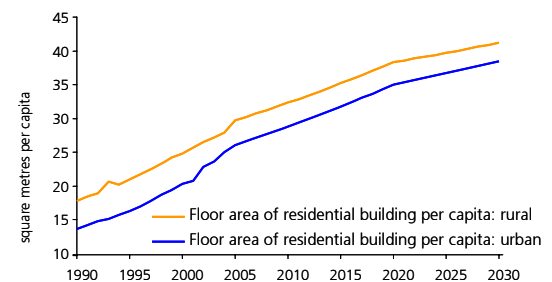
Large improvements in energy efficiency can be achieved through appropriate orientation of the building and by making optimal use of sunlight/daylight and shade, thereby greatly reducing the need for space heating and cooling. Such principles are of course easier and cheaper to implement in new buildings rather than through renovation. Overall, in our view, the choice of core building material is hardly going to change significantly; however, we expect the demand for thermally efficient versions of each material to increase. When it comes to installations and appliances, we expect a shortening of the replacement cycle. Companies with energy-efficient products and services in the following areas should profit from the policy changes in terms of higher demand as well as lower compliance costs.

- **Insulation.** One of the most cost-efficient options to reduce CO₂ emissions overall (in cold as well as hot climates). All insulation types should benefit from this, but in saturated markets, we expect higher growth in premium products.
- **Energy management and efficient HVAC.** Energy management including intelligent metering and efficient HVAC (heating, ventilation, air conditioning) and water heating systems.
- **Lighting.** Energy-saving technologies such as compact fluorescent light bulbs, light emitting diodes (LED) or fiber optics (short replacement cycle in lighting compared to changes in building envelope).
- **Household appliances and electronic goods.** Appliances with high energy efficiency rating such as EU Class A or B energy label or US EPA Energy Star label (shorter replacement cycle).

Figure 9 gives an overview of companies with exposure to energy efficiency in buildings. This is not a recommendation list, and the list is by no means exhaustive.

Fig. 7: Residential floor area in China

Constant increase in residential floor area per capita



Source: OECD/IEA, 2007, World Energy Outlook

Fig. 8 Policy/regulation developments regarding buildings and appliances

Region	Important developments
Europe	<p>EU Directive on the Energy Performance of Buildings (EPB, 2006): requires energy pass which will increase transparency on energy use by tenants.</p> <p>Specific measures announced (2007) in several European countries (e.g. France: goal to double the number of buildings renovated each year).</p> <p>Eco-design Directives (adopted 2008): include labelling requirements and minimum energy performance standards for appliances and other energy-using equipment (starting with 15 priority product groups)</p> <p>EU plans to ban the sale of ordinary incandescent light bulbs by the end of the decade.</p>
US	<p>US 2005 Energy Policy Act: incentives e.g. credits for high-efficiency air conditioners or insulation and sealing.</p> <p>Energy Independence and Security Act (2007): reduction of light bulb energy use: 25-30% by 2012-2014; 70% by 2020.</p>
Asia	<p>"Comprehensive Action Plan for Energy Saving and Emissions Reduction" by Chinese NDRC (June 2007): better enforcement of building codes, energy conservation level of residential and public buildings targeted to be close to or reach modern medium developed countries level by 2020.</p>

Source: UBS WMR, as of June 2008

Fig. 9 Building – Investment areas

Area	Company	Country
Thermal insulation — producers of insulation, high-performance windows and window frames	Saint Gobain	FR
	Kingspan	IE
	Rockwool	DK
	Owens Corning	US
	SIG plc	UK
	Uralita	ES
Efficient energy management and HVAC	Johnson Controls	US
	Siemens	DE
	Schneider Electric	FR
	Centrotec	DE
	Zehnder	CH
	Schulthess	CH
Lighting — producers of LED	Itron	US
	Echelon	US
	Philips	NL
	Siemens (Osram)	DE
	Epistar	TW
	Cree	US
Household appliances and Electronic goods	Zumtobel	AT
	Schulthess	CH
	Rational	DE

Source: UBS WMR, as of 23 June 2008

Transport

Currently, transportation alone accounts for slightly more than 20% of global CO₂ emissions. What is more worrying is the predicted rapid increase in transport emissions, mainly in non-OECD countries, where car ownership and freight transport are expected to grow rapidly (see Fig. 10 for IEA's estimates on China and India).

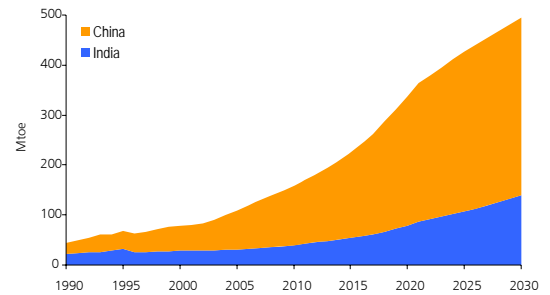
Due to the relatively short replacement cycle compared to buildings, energy efficiency gains in transport (particularly cars) can yield quicker results in controlling CO₂ emissions. It is clear that significant reduction in transport CO₂ emissions is hardly possible without corresponding changes in user behavior and optimization of the whole transport system (e.g., through a more efficient combination of individual and mass transportation). As of date, these options are not yielding the desired results. For example, consumer demand is still not seen as a large driver for fuel efficiency, unless supported by fiscal measures and even higher energy prices.

As per the IEA, the predicted annual growth in transportation demand is around 2%; hence, efficiency improvement would have to be higher than this rate in order to compensate and achieve absolute reductions in CO₂ emissions. In the past, this has not been the case. However, currently, there are several policy developments that should lead to intensified energy efficiency efforts in transportation in the future (see Fig. 11). The EU is putting the car industry under pressure by moving from voluntary to mandatory targets on CO₂ emissions, and hence, the fuel consumption, for new vehicles sold (see Fig. 12). These targets are tied to a scheme of fines in case of non-compliance. The European Federation for Transport and Environment (T&E) expects EU's action to make cars more fuel efficient to have a big impact on the development of the global car market and future global oil consumption, as almost all of Asia follows European air pollution laws ('Euro standards') for cars. Also, the US is tightening its fuel efficiency requirements, albeit far less stringent than the European ones (see Fig. 13). Car manufacturer's margins are expected to be squeezed due to the higher technology and compliance costs.

Pressure is also increasing on air travel, as the European Commission has proposed the inclusion of airlines into the European Emission Trading scheme. This means that airlines flying to and from Europe will be subject to an increased cost burden. As a result, low cost airlines may be hit harder, as the additional costs will represent a higher portion of both total costs and revenues. Due to the current high oil prices, aircraft manufacturers are already strongly focusing on fuel efficiency: according to its manufacturer, the Boeing 787 uses 20% less fuel per passenger than similarly sized airplanes.

Fig. 10: Road transport fuel consumption in China and India

The IEA projects soaring transport fuel consumption by China and India in its Reference Scenario



Source: OECD/IEA, 2007, World Energy Outlook

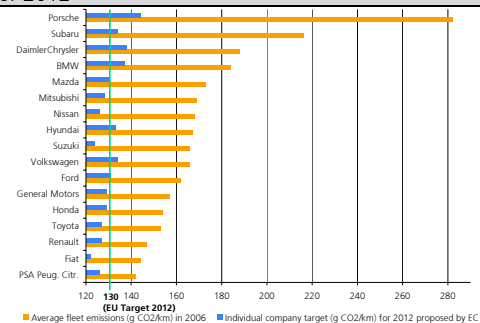
Fig. 11: Policy/regulation developments in transportation

Region	Important developments
Europe	<p>European Commission objective to reduce average emissions from new vehicles sold in the EU to 120g CO₂/km by 2012 (corresponds to 4.5 liter diesel/100 km diesel and 5 liter petrol/100 km). Car manufacturers are expected to achieve a reduction to 130g CO₂/km, while additional measures such as increased use of biofuels or tire efficiency should deliver a further reduction of 10g CO₂/km.</p> <p>European Commission announced tighter norms regarding maximum rolling resistance limits and labeling for road vehicle tires</p> <p>Fiscal measures announced in several countries such as "bonus-malus system" for cars (rebates on fuel efficient cars and purchase taxes on gas guzzlers) e.g. in France or Spain.</p> <p>Congestion charge schemes (e.g. in London) with charges based on fuel consumption of the cars.</p> <p>Proposal of European Commission to include airlines into European Emission Trading scheme from 2011/2012.</p>
US	<p>Energy Independence and Security Act (2007): Adjustment of Corporate Average Fuel Economy (CAFE) standard to 35 miles per gallon by 2020 for new cars and trucks (35 mpg = 6.7 liters /100 km). Previously: 27.5 mpg for cars and 22.7 mpg for light trucks.</p>
Asia	<p>Japan poised to introduce new fuel efficiency rules that imply a 20% cut from 2005 levels by 2015.</p>

Source: UBS WMR, as of June 2008

Fig. 12: Vehicle fleet emissions in EU vs. target

CO₂ emissions of new vehicles sold in the EU are still far from the voluntary 140g/km target set for 2008 and the mandatory 130 g/km target set by the European Commission for 2012



Source: European Federation for Transport and Environment (T&E), Nov. 2007

Investment opportunities

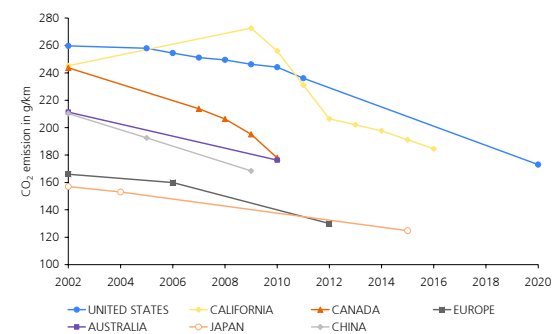
Overall, it appears that component suppliers will be more exposed to opportunities, whereas the car and aircraft manufacturers as well as the airlines should be more exposed to the risks regarding energy efficiency. We expect companies offering solutions in the following areas to benefit from tighter energy efficiency legislation in transportation.

- **Lightweighting.** As the energy required in moving an object is directly related to its weight, reduction of weight is a key strategy in transport energy efficiency. We see opportunities for aircraft and auto suppliers with lightweight solutions (e.g., lighter interior design, smaller and lighter engines, lighter components made from aluminium, titanium, or carbon fiber) and chemicals companies active in carbon fiber production.
- **Technological improvements in engine technology and propulsion system and transmission.** Hybrids (vehicles combining a conventional propulsion system with an on-board rechargeable energy storage system (RESS) to achieve better fuel economy) are gaining market share, and fuel cells may appear as the ultimate solution – though it is not clear yet which technology will emerge as the best to reduce CO₂ emissions. However, it is clear that there is still large efficiency improvement potential for the "traditional" internal combustion engines, e.g., through petrol direct injection, downsizing of engines, turbo technology, variable valve timing, or the switch from petrol to diesel. We expect suppliers offering innovative solutions in any of the above-mentioned technologies to benefit from increased business opportunities. In addition, emission controls companies that make diesel "cleaner" are expected to benefit, as are companies involved in manufacturing catalysts and particle filters.
- **Reduce rolling resistance of tires.** The role of tires in fuel efficiency is often underestimated. Roughly 20% of the fuel consumed in a car is used in overcoming the rolling resistance of tires. The current technology's better tires and optimal tire pressure can already improve vehicle fuel efficiency by more than 5%. Industry sees a reduction potential of rolling resistance of up to 50% in the future, which would imply an improvement of overall fuel efficiency of 10%. We see increased opportunities for manufacturers with a high share of low rolling resistance tires.

Figure 14 gives an overview of companies with exposure to energy efficiency in transport. This is not a recommendation list, and the list is by no means exhaustive.

Fig. 13: Worldwide CO₂ standards

Actual and projected CO₂ emissions for new passenger vehicles by country, 2002-2020



Values normalized to New European Driving Cycle (NEDC) in grams of CO₂-equivalent per km
For Canada, the program includes in-use vehicles. The resulting uncertainty on new vehicle fuel economy was not quantified.

Source: International Council on Clean Transportation (ICCT), 2007, updated 2008

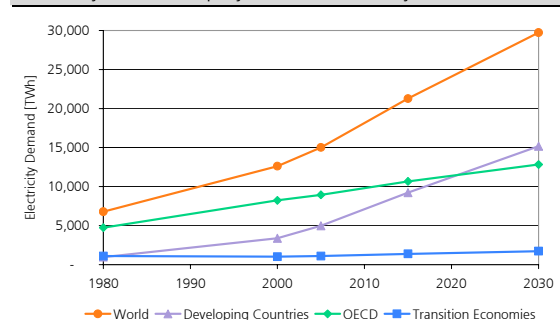
Fig. 14: Transport – Investment areas

Area	Company	Country
Lightweighting	Gurit	CH
	Toray	JP
Improving conventional motors and drive trains	BorgWarner	US
	Continental	DE
	Denso	JP
	Johnson Matthey	UK
	Umicore	BE
	Beru	DE
Hybrids, fuel cells, electric cars	Johnson Controls	US
	Johnson Matthey	UK
	Umicore	BE
Low rolling resistance	Michelin	FR

Source: UBS WMR, as of 23 June 2008

Fig. 15: Projected electricity demand

Electricity demand is projected to double by 2030



Source: OECD/IEA, 2007, World Energy Outlook

Electricity production and transmission

Assuming "business as usual", the IEA projects global electricity demand to double by 2030, growing faster than the overall energy demand (see Fig. 15). Coal will clearly remain the most widely used fuel (see Fig. 16). According to the IEA, in 2006, nearly 90% of new power generation capacity in China was coal-fired, compared to 70% in 2000. Hence, even if climate change policies may drive a stronger growth in renewables and low-carbon fuels, there is still considerable CO₂ reduction potential through improving generation and transmission efficiency of coal-fired power plants.

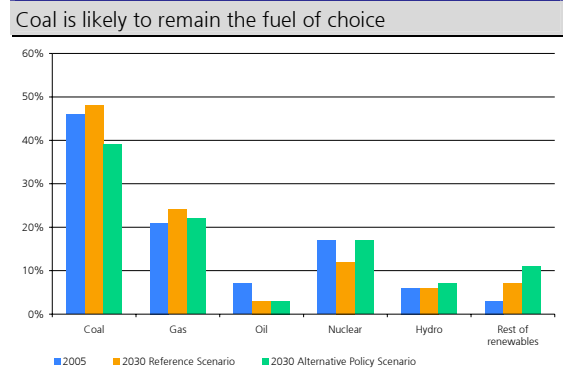
The regulatory structure in most regions of the world has historically rewarded utilities for building infrastructure and selling energy, while energy efficiency was low priority, even when energy-saving measures cost less than constructing new infrastructure. However, market liberalization as well as climate change policy developments are now beginning to take a front seat (see Fig. 17). The most important legislative change affecting utilities in Europe is the launch of the European Emission Trading Scheme (EU ETS) in 2005. Phase I allowed most European utilities to generate windfall profits without substantially reducing their GHG emissions. However, Phase II, which started in 2008, will require emitters to gear up efforts, and Phase III, starting in 2012, is likely to be even more stringent. The EU is also promoting decentralized small-scale generation with combined heat and power. Meanwhile, energy efficiency efforts in the US, particularly in transmission, are more driven by the need to reduce the probability of power outages. While in China, where more than 80% of electricity is produced using coal, the main reason behind closing down old inefficient plants is to reduce pollution in general.

Investment Opportunities

Energy efficiency gains can be achieved along the supply chain. Overall, we see the main beneficiaries of energy efficiency efforts as being the suppliers of electricity generation and transmission infrastructure and not the utilities themselves.

Improved generation efficiency: Average transformation efficiency for coal and oil-based electricity generation is 30-35%; new generation capacity can achieve efficiency close to 60% in the case of high-efficiency natural gas power plants (see Fig. 18). As still over 40% of electrical power worldwide is expected to be produced using coal in the next few decades, it is essential to improve efficiency of coal-fired power plants, as it can lead to larger reductions in CO₂ emissions (see Fig. 19), in absolute terms. Electrical companies have been working on developing cleaner coal generation technologies, such as supercritical and ultra-supercritical or integrated gasification combined cycle (IGCC). Large efficiency improvements can also be achieved by increasing steam temperature of conventional steam-cycle coal and lignite plants. Further, whichever fuel is used, a lot of energy is lost if the heat produced is not used. With cogeneration, also called combined heat and power (CHP), both the electricity and heat produced is used together, thus reducing energy wastage and CO₂ emissions. CHP installations can achieve energy efficiency levels of up to 90%. CHP systems are ideally installed close to users, thereby reducing power transmission losses. Overall, companies offering more efficient turbines or high efficiency transformers as well as CHP are expected to benefit from efforts towards higher energy efficiency. Metering companies should also benefit, especially in the context of CHP.

Fig. 16: Fuel mix in world power generation in 2005 and projections for 2030



Source: OECD/IEA, 2007, World Energy Outlook

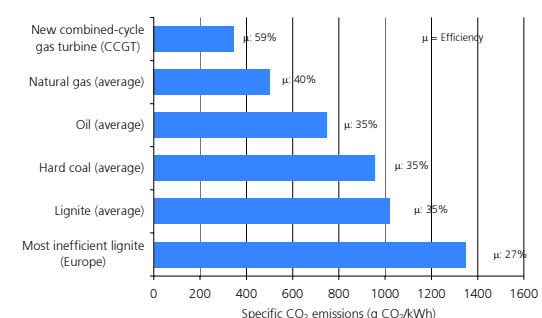
Fig. 17: Policy/regulation developments in electricity production and transmission

Region	Important developments
Europe	<p>EU Emission Trading Scheme (EU ETS): Phase II started in January 2008.</p> <p>European Commission (by 2008): minimum binding efficiency requirements for new, smaller-scale energy production units (smaller than 20 MW).</p> <p>EU Directive on the Promotion of Cogeneration</p> <p>EU Directive on Energy End-Use Efficiency and Energy Services</p>
US	<p>US Electric Reliability Organisation to set enhanced national standards for transmission and distribution networks in 2007.</p> <p>US Department of Energy to designate National Interest Electric Transmission Corridors in 2007.</p>
Asia	<p>China: New pollution regulations for power generation on reduction of SO emissions by 23% by 2010 - effect will be positive for CO emissions.</p> <p>China: Target to optimise mix of thermal power generation by phasing out of small-scale backward units. Target to reduce unit coal consumption of coal-fired generation by 10g/kWh (3%) per annum.</p>

Source: UBS WMR, as of June 2008

Fig. 18: Specific CO₂ emissions of different power plants in Europe

An average coal-fired plant emits twice as much CO₂ per produced electricity as a natural gas-fired plant



Source: European Bank for Reconstruction and Development (EBRD) /UBS Investment Bank

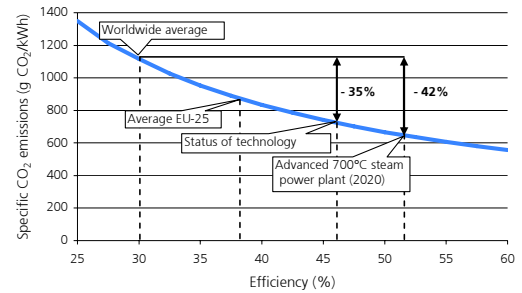
- **Improved transmission efficiency.** Transmission and distribution (T&D) losses are typically between 6% and 8% and sometimes can be as high as 10%. Companies with leading solutions in low-resistance transmission, such as high voltage direct current, gas insulated transmission lines, superconductors, and the reduction of transformer losses, are expected to benefit. Improvements in transmission efficiency often have to be seen in the context of the need to make electricity grids more "intelligent" or "smart" in general, providing reliable service to customers and optimizing the use of geographically distributed and diverse energy resources. In the US, for example, under-investment in network expansion and modernization in the past decades has led to a T&D infrastructure which is very prone to transmission congestion and subsequent power outages, leading to massive economic costs. The increased urgency to improve old electricity networks – not only in the US – opens up opportunities for companies offering solutions in the area of "intelligent grids".

- **Improved end-use energy efficiency.** Utilities can help their customers to reduce their energy use. AMI (advanced metering infrastructure) and demand response are the key words here. Demand response is the concept of end-use customers changing their electric energy usage in response to changes in electricity rates or incentives provided by utility companies. AMI are systems capable of collecting detailed and frequent energy usage data, which enables utilities to support time-based pricing programs for their customers, as well as 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, which is not a new concept but has now gained popularity as a result of several power outages with devastating effects on economic activity. The goal for utility companies is to lower system-wide demand during peak times through controlled loads rather than building additional power generation infrastructure. Normally, customers participating in a demand response program earn revenue for agreeing to reduce electricity consumption when the utility calls for a demand response event. Companies offering metering and demand response products and services are expected to enjoy increased demand. They also play an important role in the development of the "intelligent grids".

Figure 20 gives an overview of companies with exposure to energy efficiency in electricity production and transmission. This is not a recommendation list, and the list is by no means exhaustive.

Fig. 19: Specific CO₂ emissions of hard coal-fired power plants

There is still large potential for improving efficiency of coal-fired power plants



Source: Eurelectric, Alstom

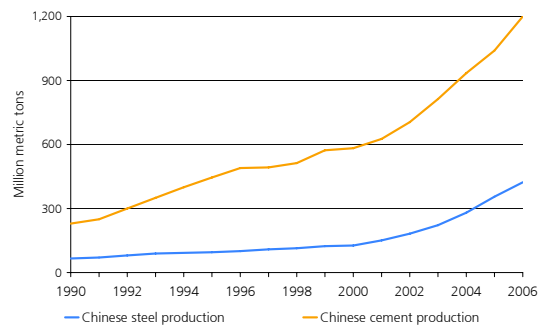
Fig. 20: Electricity Production – Investment areas

Area	Company	Country
Efficient generation	ABB	CH
	Siemens	DE
	Alstom	FR
	Gurit	CH
	Von Roll	CH
Efficient transmission	ABB	CH
	Siemens	DE
	Schneider Electric	FR
End-use efficiency	Echelon	US
	Itron	US
	Comverge	US
	EnerNoc	US

Source: UBS WMR, as of 23 June 2008

Fig. 21: Chinese cement and steel production

Both Chinese cement as well as steel production have more than quintupled since 1990



Sources: U.S. Geological Survey, Mineral Commodity Summaries; International Iron and Steel Institute

Industrial Processes

While the industries in OECD countries have done a lot in the past two decades to improve energy efficiency, there is still scope for further improvement. In its Action Plan for Energy Efficiency, the European Commission estimates the overall potential of energy-use reduction for the manufacturing industry to be around 25% by 2020, wherein peripheral equipment such as motors, fans and lighting offer the most significant savings potential. Even larger improvement potential exists in emerging countries.

For energy-intensive industries such as steel, cement, pulp and paper, or industrial gases, reduction in operational costs is a main driver for improving energy efficiency. However, energy conservation has not been a priority, especially, in countries with heavy subsidies on fossil fuels. Most of Chinese cement, for instance, is still produced using small shaft kilns, which are highly inefficient. Considering that China's cement production has sharply increased in the last few years, accounting for nearly 50% of the world's cement production, changes here can make a big difference. The same is true for steel production in China, which has also more than quintupled since 1990 (see Fig. 21).

Energy efficiency improvements in industry have so far mostly been achieved through voluntary commitments. However, as large point sources, such as industrial facilities, are easy targets for climate change policies, they were also included in the European Emission Trading Scheme. Similar schemes in other regions of the world (e.g., the US) are under discussion (see Fig. 22).

Investment Opportunities

- Improving current processes:** Industrial companies who offer energy efficient machinery or components, such as pumps, motors or automation systems, are expected to benefit due to stronger pressure to improve energy efficiency. For example, more than 65% of industrial electrical energy is used by motors, and less than 12% of the motors used worldwide are equipped with variable speed drives which could reduce energy consumption considerably up to 30%. As these variable speed drives across the range have become smaller and cheaper over the past few years, it is becoming increasingly attractive to install them in smaller motors as well.
- Replace processes:** Energy efficiency can be significantly increased by replacing obsolete technology, especially in emerging markets. Sometimes, the solution lies in having a completely different approach to doing things. Hence, there are huge opportunities for companies using the so-called "disruptive technologies". Industrial biotechnology is once such example that can replace traditional chemical product processes with a more energy-efficient and less wasteful process. Not only can biotechnological processes be operated with less energy, the products of biotechnological production themselves can often contribute to energy savings in other processes, e.g., enzymes.

Figure 23 gives an overview of companies with exposure to energy efficiency in industrial processes. This is not a recommendation list, and the list is by no means exhaustive.

Fig. 22: Policy/regulation developments in industrial processes

Region	Important developments
Europe	The EU Emission Trading Scheme (ETS) includes industries such as steel or cement. EU Ecodesign Directive – indirect influence on processes.
US	No strong regulatory developments at federal level, but several high-profile programs, partly in co-operation with Department of Energy and Environmental Protection Agency, e.g., Industries of the Future, Climate Vision, Energy Star for Industry, Save Energy Now
Asia	China's medium and long term plan for Energy Conservation: includes measures in industrial manufacturing (particular focus on steel, building materials, chemicals, non-ferrous metals). Important priority: Upgrading of low-efficiency coal-fired industrial boilers. China's target to stabilise emissions of nitrous oxide from industrial processes to 2005 levels – will also affect efficiency and CO ₂ emissions.

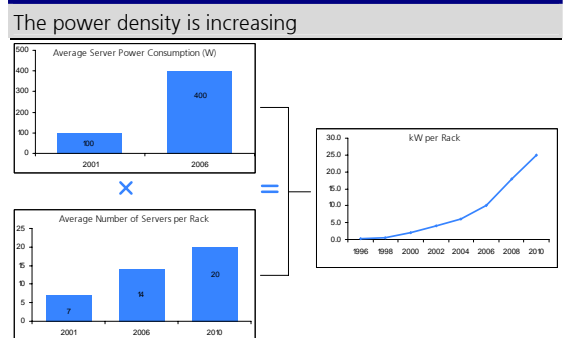
Source: UBS WMR, as of June 2008

Fig. 23: Industrial Processes – Investment areas

Area	Company	Country
Efficient automation	Schneider Electric	FR
	ABB	CH
	Siemens	DE
	Rockwell Automation	US
Efficient motors	ABB	CH
	Siemens	CH
	Baldor Electric	US
Efficient steam systems and heat transfer	Spirax-Sarco	UK
	Alfa Laval	SE
Enzymes	Novozymes	DK

Source: UBS WMR, as of 23 June 2008

Fig. 24: Power density of server racks



Source: VMWare/IDC, 2007

IT and Power Electronics

Information technology (IT) and power electronics are typical cross-cutting technologies used in all sectors and almost all applications and cannot be clearly attributed to any of the above-mentioned areas. Information technology is an integral part of business processes, goods, control systems, information and telecommunication systems. While IT can contribute to the so-called dematerialisation of society, its support infrastructure is increasingly consuming vast amounts of electricity. The average server today consumes four times as much power as 10 years ago, and the server density has increased in the same time span (see Fig. 24). This increased electricity use paired with soaring electricity prices is fast resulting in a situation where the electricity bill for operating IT infrastructure and cooling may actually become close to the amount that data centers spend on new hardware (see Fig. 25). Hence, reduction of energy use is becoming a main driver for reducing operational costs for IT organisations.

Climate change policies may also have an influence on these technologies via efficiency standards of electronic equipment and appliances. However, R&D in IT and electronics is primarily driven by the desire for increased speeds, voltages, currents and miniaturisation. IT and power electronics have great potential to reduce energy use of current systems and applications. For example, the Fraunhofer Institute estimates that appropriate power management measures could save up to a quarter of the total electrical energy produced. Nevertheless, it has to be borne in mind that the role of these technologies is ambivalent. The overall effect of energy efficiency improvements in IT and electronics has in the past probably been an increase in absolute energy use, as IT's contribution to economic growth can cause a so-called rebound effect: the resources freed thanks to the energy savings are being used to fund new energy-wasting consumption, thereby partly or wholly compensating the efficiency gains.

Investment Opportunities

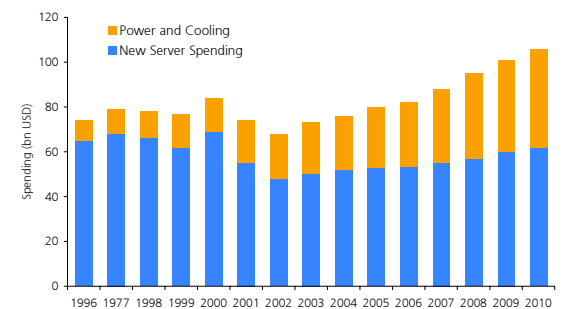
Even though the role of these technologies may be ambivalent due to concerns about their contribution to a reduction of absolute energy use, progress in these technologies is indispensable for further energy efficiency. Companies that can help reduce energy use of electric and electronic goods and IT organisations should be well positioned. We consider the following two areas to be particularly promising.

- **Virtualisation** is a technology that can significantly reduce power and cooling consumption by consolidating underutilised servers and improving power management across a farm of servers. Physical machines are thereby converted into fully functional virtual machines, increasing the utilisation of its server hardware from 10-15% to as much as 80%, according to VMWare.
- **Power electronics** is the application of electronic circuits to energy conversion. The task of power electronics is to control and convert electrical energy as efficiently as possible. Power electronics is everywhere, as an integral part of transformers, switches, motors and generators and is contained in almost all electronic products used in modern homes, communication, industrial production, energy technology and transportation.

Figure 26 gives an overview of companies with exposure to energy efficiency in IT and Power Electronics. This is not a recommendation list, and the list is by no means exhaustive.

Fig. 25: Worldwide IT spending on servers and on power and cooling

Costs for power and cooling are approaching spend on new servers



Source: VMWare/IDC, 2007

Fig. 26: IT and Power Electronics – Investment areas

Area	Company	Country
IT and efficient IT use	VMWare	US
Power Electronics and Semi-conductors	Intel	US
	Texas Instruments	US
	Cypress Semiconductors	US

Source: UBS WMR, as of 23 June 2008

Investment horizon and risk

Energy efficiency is a long-term theme (at least 3-5 years) and the described drivers may take several years to fully materialize. Further, diminishing commitment by governments to tackle climate change, and strongly falling energy prices are the two main negative risks, which could weaken our investment case.

We also point out that investing in companies availing energy efficiency opportunities gives exposure to very specific sectors, which are highly correlated to the economic cycle: Industrials, Consumer Discretionary, Materials and IT. Hence, those companies may offer good long-term opportunities within their respective sector and industry. However, in the short term, the current challenging macroeconomic environment may negatively impact these sectors and overshadow the identified strong drivers.

Socially Responsible Investments (SRI) comment

Many of the companies listed in Figures 9, 14, 20, 23 and 26 are active in the Industrials sector, which has high exposure to activities excluded by certain SRI investors, such as defense or nuclear power. The company universe has been screened to make sure none of the mentioned companies have an exposure greater than 5% of revenues to either of these activities. Some of the recommended companies do have minor exposure, such as Siemens.

The companies listed in Figures 9, 14, 20, 23 and 26 have product and service strategies to address a specific sustainability challenge: energy efficiency. Furthermore, most of our recommended companies (as listed on page one) have leading sustainability practices in general (e.g. human capital management, corporate governance), others however only average or even below average, though mostly with a positive outlook as viewed by outside institutions that monitor sustainability criteria (e.g. InnoVest Strategic Value Advisors). It also has to be noted that areas in which some energy efficiency companies are typically active (construction, infrastructure) have high exposure to corruption and projects generally viewed as controversial (e.g., large construction projects such as dams). With increasing expansion of these companies into emerging markets, this risk is unlikely to decrease. Some of the top sustainability leaders are confronted with such issues too.

Investment Recommendations

On page one, we provide a list of our recommendations. For these companies, energy efficiency is an important driver for a large part of profitability and/or a key growth business area. These companies, described below, appear to be most attractive to us from a valuation point of view.

Companies with multiple exposure

Siemens (Industrial Conglomerates, DE)

Siemens is an industrial conglomerate with major businesses in Power Generation, Power Transmission and Distribution, Medical and Automation, and Drives. Siemens is exposed to energy efficiency in multiple ways, mainly through activities in electricity transmission, variable speed drives and automation systems, building comfort/HVAC solutions, or the energy efficient appliances of its Bosch-Siemens JV. Further, its lighting business, Osram, is one of the two leading lighting manufacturers in the world.

Johnson Controls (Auto Components, US)

Johnson Controls (JC) operates in three main businesses: auto interiors, battery technology, and building efficiency. JC has exposure to energy efficiency in the two areas with the largest potential to achieve CO₂ reductions at low costs: buildings and transportation. Mainly driven by the need to save costs and improve comfort, JC's building efficiency business helps customers achieve high environmental and energy efficiency standards. In transportation, being one of the world's leading battery producers, JC has a direct advantage in the growing market for hybrid vehicles. In 2009, it plans to introduce its first lithium ion battery for a European hybrid vehicle.

ABB (Electrical Equipment, CH)

ABB is an engineering conglomerate with two divisions: Automation and Power Equipment. Both are significantly exposed to energy efficiency. Almost 50% of revenues are derived from the efficient transmission of electricity, with ABB supplying transformers, switchgear, software and solutions to utilities and large users of electricity. ABB's suite of products includes HVDC (high voltage, direct current) technologies, which minimize current loss over longer distances. The company's exposure to energy efficiency in industrial processes is mainly through its automation products and related systems that help optimize the efficiency of manufacturing plants and process industries. With over 40% of sales in emerging markets, ABB is also well positioned to profit from the increasing need to improve energy efficiency in these countries.

Companies with exposure to transportation

BorgWarner (Auto Components, US)

BorgWarner (BWA) is an automotive supplier that designs and manufactures engineered systems and components in two areas: drivetrain & engine. BWA is the second-leading global supplier of turbochargers, and is a primary beneficiary of increasing diesel penetration in various markets, which is driven by better fuel efficiency of diesel versus petrol. The company also offers a wide array of engine and driveline systems and components that help improve fuel economy and reduce emissions.

Michelin (Auto Components, FR)

With slightly below 20% market share, Michelin is one of the top three tire producers globally; the top three together account for roughly 55% of global tire sales. Michelin sells tires for cars, trucks, motorcycles, construction machinery and aircraft. It is the top producer of premium tires with low rolling resistance. Being among the top three with the highest exposure to Europe, Michelin is in a good position to profit from European Commission's plans to address tire efficiency within their climate change strategies.

Companies with exposure to IT/Power Management

Intel (Semiconductors and Semiconductor Equipment, US)

Intel is the world's largest semiconductor chip maker, based on revenue. Intel provides chips, boards, systems and software building blocks to the communication and computing industries. The company's goal is to be the preeminent provider of semiconductor chips and platforms for the worldwide digital economy. Through advancement of energy-efficient technologies that deliver rapid gains in performance, Intel enables increased productivity for computing applications such as servers

and notebooks.

Cypress Semiconductor Corporation (Semiconductors and Semiconductor Equipment, US)

Cypress Semiconductor manufactures digital and mixed-signal integrated circuits (ICs). The company is well positioned to profit from the increasing need for energy efficiency in digital consumer and industrial markets, particularly with its proprietary programmable systems-on-chips (PSoC). In many designs, such as portable devices, PSoC replaces a dozen or more other components, not only reducing the cost of their customers' designs, but making their circuit boards smaller and power consumption lower. Additionally, the company has a 50-52% stake in SunPower, an industry leading solar products and services company. Sunpower solar panels have the highest efficiency ratio in converting solar energy into electricity.

For background information, the text on this page was excerpted from an update to the original Strategic Call. The update was published on 18 August 2008.

High energy prices support investments in energy efficiency

High energy prices certainly support energy efficiency. Somewhat oversimplified, when energy prices double, the payback period for an energy efficiency investment halves. The steeply rising energy prices of the past few years has reduced the payback period of many energy efficiency investments to just a few years, or even months, making these projects more competitive.

Even in one area where energy efficiency previously had little impact on consumer demand, the US car market, we observe a significant change in trend over the past six months. US consumers are increasingly choosing smaller, more fuel-efficient cars. This is also reflected in the market share losses of SUVs and pickup trucks. The recent slight upticks in bigger vehicles can be attributed to heavy discounting in the last two months. The concurrent drop-off in small car sales is mainly due to low inventories at dealers because of the previous strong sales.

Strengthening of energy efficiency legislation still key

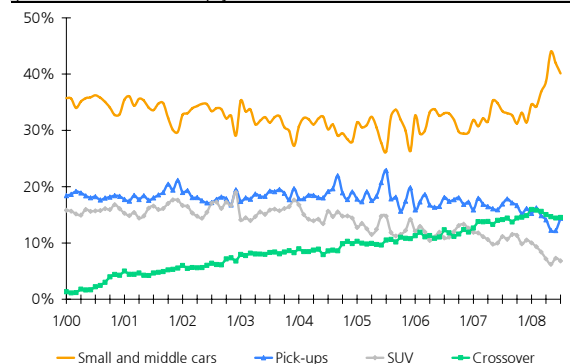
In fact, energy efficiency already makes sense at energy prices well below current levels. Nevertheless, energy efficiency projects are often not undertaken for various reasons, such as misaligned incentives, lack of information, or policy-driven distortions (such as subsidies on fossil fuels). This is why our other two drivers—tighter policies on climate change and considerations of energy supply security—are also important. In our opinion, they force the removal of many existing obstacles to energy efficiency, particularly in the areas of buildings and household appliances. The importance of legally binding targets in the area of energy efficiency was confirmed at the July 2008 meeting of EU energy and environment ministers. Energy efficiency "is our best tool to mitigate the effect of increasing oil prices on citizens' welfare, improve the EU's competitiveness and achieve our goals for security of supply," European Energy Commissioner Andris Piebalgs stressed in his speech. In his view, 2008 will be "the year of energy efficiency" for the Commission.

Most of the solutions are already here

The solutions to increased energy efficiency are often obvious: improved building insulation, energy-saving light bulbs, efficient motors, improved tires with lower rolling resistance, combined heat and power or electricity transmission with reduced losses. Companies with opportunities in these areas are found in the electrical equipment, auto suppliers, industrial conglomerates, building products or chemicals industries. Considering that most of these industries are closely tied to the economic cycle, the prevailing economic uncertainty may in fact overshadow some of these long-term drivers in the shorter term. Companies offering energy efficiency opportunities should, however, be better positioned than their industry peers, as savings opportunities – including energy savings – are increasingly attractive during economic downturns.

Share Trends of Key Vehicle Segments in the US

Since late autumn last year the share of small cars in the auto product mix has sharply increased*



*Shares of certain vehicle segments such as large and luxury cars are not displayed in order to reduce complexity

Source: Ward's and Citi Investment Research (data until 30 June 2008)

Appendix

Terms and Abbreviations		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.	Interest Coverage	Ratio that expresses the number of times interest expenses are covered by earnings
1Q, 2Q, etc. or 1Q07, 2Q07, etc.	First quarter, second quarter, etc. or first quarter 2007, second quarter 2007, etc.	Interest exp	Interest expense
2007E, 2008E, etc.	2007 estimate, 2008 estimate, etc.	ISIN	International securities identification number
ADR	American depositary receipt	LLP/Net Int Inc (%)	Loan loss provisions divided by net interest income
AUM	Assets under management = total value of own and third-party assets managed	LLR/Gross Loans (%)	Loan loss reserves divided by gross loans
bn	Billion (10 ⁹)	m/m	Month-over-month; month on month
bp or bps	Basis point or basis points (100 bps = 1 percentage point)	mn	Million (10 ⁶)
BVPS	Book value per share = shareholders' equity divided by the number of shares	n.a. or NA	Not available or not applicable
CAGR	Compound annual growth rate	NAV	Net asset value
Cant Inc/Capita	Cantonal income per capita (Switzerland only)	Net Debt	Short- and long-term interest-bearing debt minus cash and cash equivalents
Capex	Capital expenditures	Net Int Margin (%)	Net interest income divided by average interest-bearing assets
CFO	1) Cash flow from operations 2) Chief financial officer	Net Margin (%)	Net income divided by revenues
CFPS	Cash flow per share	n.m. or NM	Not meaningful
Cost/Inc Ratio (%)	Costs as a percentage of income	NPL	Non-performing loans
CPI	Consumer price index	Op Margin (%)	Operating income divided by revenues
CR	Combined ratio = ratio of claims and expenses as a percentage of premiums (for insurance companies)	p.a.	Per annum (per year)
CY	Calendar year	P/BV	Price to book value
DCF	Discounted cash flow	P/CFPS	Price/Cash flow per share
DDM	Dividend discount model	P/E	Price to earnings
Dividend Yield (%)	Dividend per share divided by price per share	P/E Relative	P/E relative to the market
DPS	Dividend per share	P/EmV	Price to embedded value
EBIT	Earnings before interest and taxes	PEG Ratio	P/E ratio divided by earnings growth
EBIT Margin (%)	EBIT divided by revenues	PPI	Producer price index
EBIT(D)A	Earnings before interest, taxes, (depreciation) and amortization	Prim Bal/Cur Rev (%)	Primary balance divided by current revenue (total revenue minus capital revenue)
EBITDA Margin (%)	EBITDA divided by revenues	Profit Margin (%)	Net income divided by revenues
EBITDA/Net Interest	EBITDA divided by net interest expense	q/q	Quarter-over-quarter; quarter on quarter
EBITDAR	Earnings before interest, taxes, depreciation, amortization and rental expense	ROA (%)	Return on assets
EFVR	Estimated fair value range	ROCE (%)	Return on capital employed = EBIT divided by difference between total assets & current liabilities
EmV	Embedded value = net asset value + present value of forecasted future profits (for life insurers)	ROE (%)	Return on equity
EPS	Earnings per share	ROAE (%)	Return on average equity
Equity Ratio (%)	Shareholders' equity divided by total assets	ROIC (%)	Return on invested capital
EV	Enterprise value = market value of equity, preferred equity, outstanding net debt and minorities	Solvency Ratio (%)	Ratio of shareholders' equity to net premiums written (for insurance companies)
FCF	Free cash flow = cash a company generates above outlays required to maintain/expand its asset base	Tax Burden Index	Swiss tax index; 100 = average tax burden of all cantons
FCF Yield (%)	Free cash flow divided by market capitalization	Tier 1 Ratio (%)	Tier 1 capital divided by risk-weighted assets; describes a bank's capital adequacy
FFO	Funds from operations	tn	Trillion (10 ¹²)
FY	Fiscal year / financial year	Valor	Swiss company identifier
GDP	Gross domestic product	WACC	Weighted average cost of capital
GF	Grandfathered status	UBS WMR	UBS Wealth Management Research
Gross Margin (%)	Gross profit divided by revenues	y/y	Year-over-year; year on year
h/h	Half-year over half-year; half on half	YTD	Year-to-date
Interbank Ratio	Interbank deposits due from banks divided by interbank deposits due to banks		

Appendix

Required Disclosures

Description and Methodology

The stocks for this investment theme have a significant exposure to energy efficiency, and are all expected to profit from strengthening energy efficiency policies. This means that energy efficiency is an important driver for a large part of the company's profits and/or is an important driver for a key growth business area of that company. The stocks also must have a Buy or Hold recommendation from Wealth Management Research (WMR) to be selected.

The investment theme is monitored and updated for rating changes. Changes to the list will occur when stocks are judged to offer better opportunities relative to the investment theme.

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Stock market returns are difficult to forecast because of fluctuations in the economy, investor psychology, geopolitical conditions and other important variables.

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Appendix

Stock Recommendation System

Analysts provide two ratings: an absolute rating and a relative rating. The absolute rating is based on the current Estimated Fair Value Range (EFVR) for the stock and the stock's recent trading price. The relative rating is based on the stock's total return potential against the total estimated return of the appropriate sector benchmark over the next year.

The EFVR is the price range within which the analyst estimates the stock to be fairly valued. The estimation of the EFVR is based on methods such as a discounted cash flow valuation or a valuation multiples comparison. In the definition of the EFVR, analysts take into account the risk profile (predictability) of the stock.

Absolute Stock Rating System

Buy

We believe the stock is undervalued relative to current market prices.

Hold

We believe the stock's current market valuation is within a fair range.

Sell

We believe the stock is overvalued relative to current market prices.

Under review

Upon special events that require further analysis, the stock rating may be flagged as "Under review" by the analyst.

Suspended

If data is not valid anymore, the stock rating may be flagged as "Suspended" by the analyst.

Restricted

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Industry Sector Relative Stock View

Outperform (OUT)	Expected to outperform the benchmark
Marketperform (MKT)	Expected performance in line with the benchmark
Underperform (UND)	Expected to underperform the benchmark

Current WMR Global Rating Distribution (as of last month-end)

Buy	29%** (52%*)	Outperform	33%*** (54%*)
Hold	59%** (57%*)	Marketperform	45%*** (44%*)
Sell	2%** (50%*)	Underperform	12%*** (42%*)

* Percentage of companies within this rating for which investment banking services were provided by UBS AG or UBS Securities LLC or its affiliates within the past 12 months. Source: UBS WMR, as of 1 November 2008.

** At present, not all securities in WMR's global coverage universe have been assigned an Absolute Stock Rating in a Corporate Report. The Absolute Stock Rating distribution calculation includes only securities that have been assigned an Absolute Stock Rating as of the last month-end.

*** Under our Industry Sector Relative Stock View system, "Outperform" most closely corresponds with a "Buy" recommendation, "Marketperform" most closely corresponds with a "Hold" recommendation, and "Underperform" most closely corresponds with a "Sell" recommendation.

Appendix

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