

## Energy efficiency – hidden capital

How investors can benefit from the “cheapest source of energy”

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## Summary

Global demand for energy still soaring

The population boom and steadily increasing levels of prosperity are constantly fuelling global energy demand. By 2030 the International Energy Agency (IEA) expects demand to increase by more than 50%, driving levels of carbon dioxide emissions (CO<sub>2</sub>) even higher and exacerbating the problem of global warming. At the same time, fossil fuels (crude oil, natural gas, coal) are becoming increasingly scarce. We therefore have to attempt to decouple the link between economic growth and energy consumption, by improving energy efficiency.

Energy efficiency: the cheapest source of energy with ample potential

The potential for improving energy efficiency is enormous. Energy savings of more than 20% are possible up to 2020 without incurring high costs. Technologies and services that enhance energy efficiency will continue to become more attractive, since energy prices will remain high in the long term and climate protection will be a major priority in the years ahead.

Market barriers require a selective investment approach

Energy-efficient and cost-efficient technologies are available, but in many cases have not managed to achieve commercial success to date. Current market barriers include a lack of information for consumers, a relatively low proportion of energy costs in consumers' budgets, higher initial investments and in some cases compromises on perceived product benefits. Energy-saving lamps are a typical example: so far they have not been a huge commercial success despite the fact that their overall costs are lower than for conventional lamps due to the amount of energy they save and their longer service life (although they are more expensive to buy initially).

Energy efficiency covers a broad spectrum of technologies in different industries. Their market appeal varies considerably due to the barriers mentioned. Attractive segments exist where energy price sensitivity is high or where state subsidies provide incentives for greater energy efficiency. Investors looking to benefit from the theme of energy efficiency must therefore take a selective approach and identify the most attractive segments.

Attractive segments

Energy supply (power station technology, electricity transmission), energy-intensive industries in general (chemicals, metals, paper, etc.) and to some extent industrial applications involving electric motors (conveyor-belt technology, mechanised production) are appealing due to their relatively high sensitivity to energy prices. Energy price sensitivity is low in the transport sector, and even more so in the home and office segment. Attractive markets exist here mainly where state measures offer incentives or impose conditions for greater energy efficiency. These include, for example, the entire segment of car engines, where Europe leads the way (CO<sub>2</sub> legislation), and the buildings segment (insulation, HVAC, lighting), especially in Europe. Strict energy efficiency standards already exist in Japan and are due to be introduced in Europe as well.

Investment opportunities

Given the broad spectrum of technologies and significant regional differences in state controls and incentives, it is important for investors to back the right horse if they are to benefit from the theme of energy efficiency. Professionally designed investment products, especially energy funds such as Sarasin New Power Fund or associated baskets of securities, are based on in-depth research into energy efficiency technologies and companies, and a finely judged balance between risks and rewards.

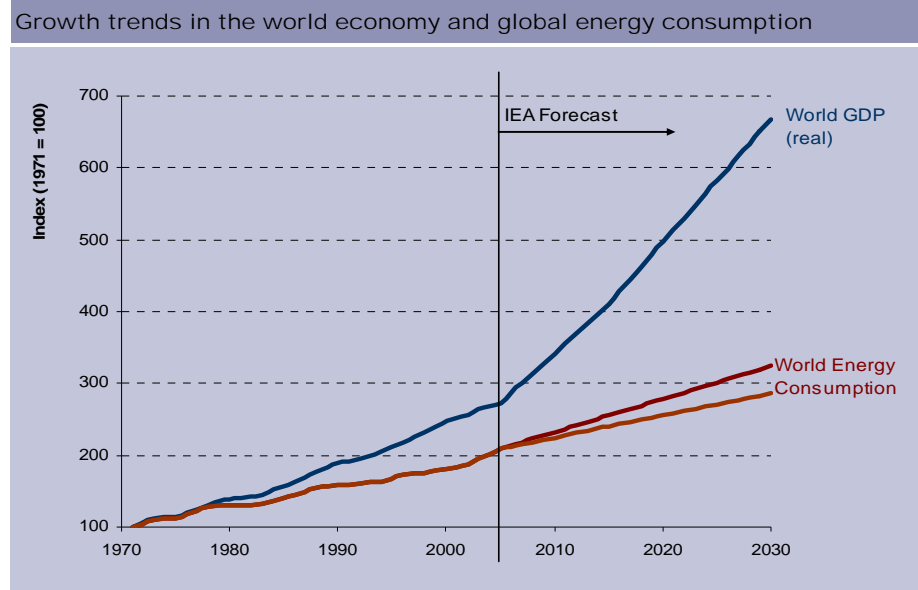
# Global hunger for energy is soaring

Demand for energy continues to boom

The relentless rise in energy consumption worldwide presents an enormous challenge to sustainable development. Since as fossil fuels such as oil, natural gas and coal are only available in finite amounts and the carbon dioxide emitted during their combustion is the main cause of global warming. As newly industrialised countries such as China and India scramble to close the gap with industrialised economies, pressure on energy resources is constantly growing. The International Energy Agency (IEA) expects energy consumption to grow at least another 50% by the year 2030, which will result in a parallel rise in CO<sub>2</sub> emissions of 57%.

Rising energy consumption despite greater energy efficiency

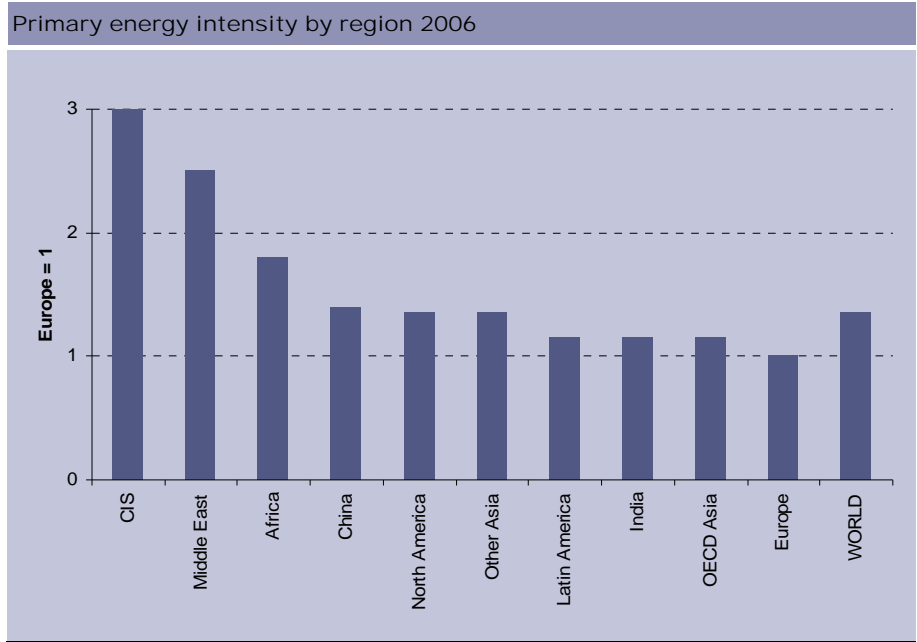
The increase in global energy consumption is mainly caused by population growth and rampant economic prosperity. The task is to “decouple” economic growth and energy consumption, which basically means improving energy efficiency. This has been partly successful in the past: global energy consumption has grown more slowly than gross domestic product (GDP). So far, however, it has not been possible to stop the absolute rise in energy consumption. IEA expects this rise to continue up to 2030.



Source: IEA (World Energy Outlook 2007) and World Bank (World energy forecast: “Reference Scenario” and “Alternative Policy Scenario” (mobilisation of additional energy efficiency potential))

Regional differences

There are significant national and regional differences in energy efficiency or its “reciprocal value”, energy intensity (energy consumption per unit of GDP). Countries of the former Soviet Union (CIS), the Middle East and Africa generally have a high energy intensity. This implies strong potential for improving energy efficiency. In fact this high energy intensity is only partly due to the inefficient infrastructure and technology, but is also down to differences which are impossible to influence, such as the economic structure (the importance of energy-intensive industrial sectors) and climatic conditions (demand for heating and cooling).



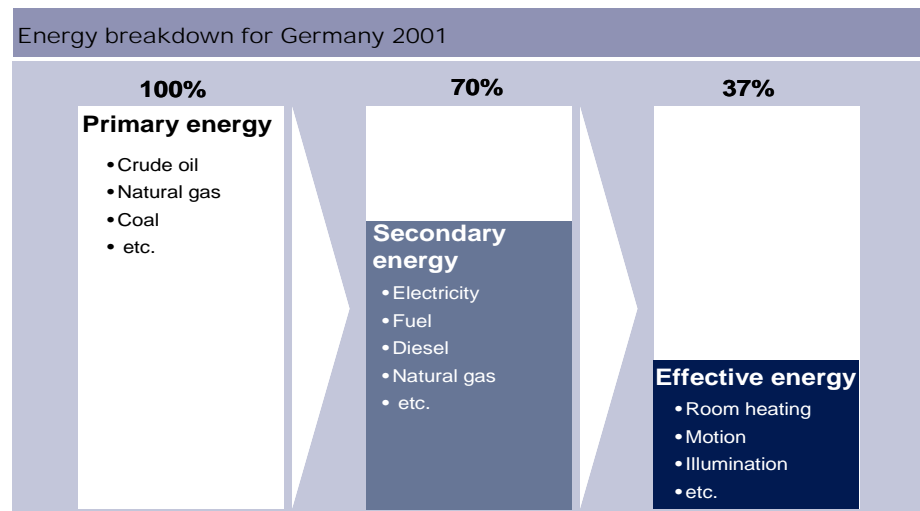
Source: EnerData

## Energy efficiency: the cheapest source of energy

Energy efficiency ...  
... high theoretical savings  
potential

Basically the potential for increasing energy efficiency (beyond the existing level) is quite considerable: an unexploited potential that could help us to achieve climate protection goals in future and become less dependent on oil. This theme has therefore attracted keen interest recently. Studies by international and national organisations (IEA, World Energy Council, US EPA)<sup>1</sup>, industrial associations and companies (Vattenfall, McKinsey)<sup>2</sup> and investment houses (Merrill Lynch, JP Morgan et al.) on this topic have mushroomed in recent months.

There is enormous **theoretical potential** to improve energy efficiency: along the energy chain, more than two thirds of the energy resources utilised are wasted before final use. In the area of electricity (power generation and consumption) the figure is as high as 80%.



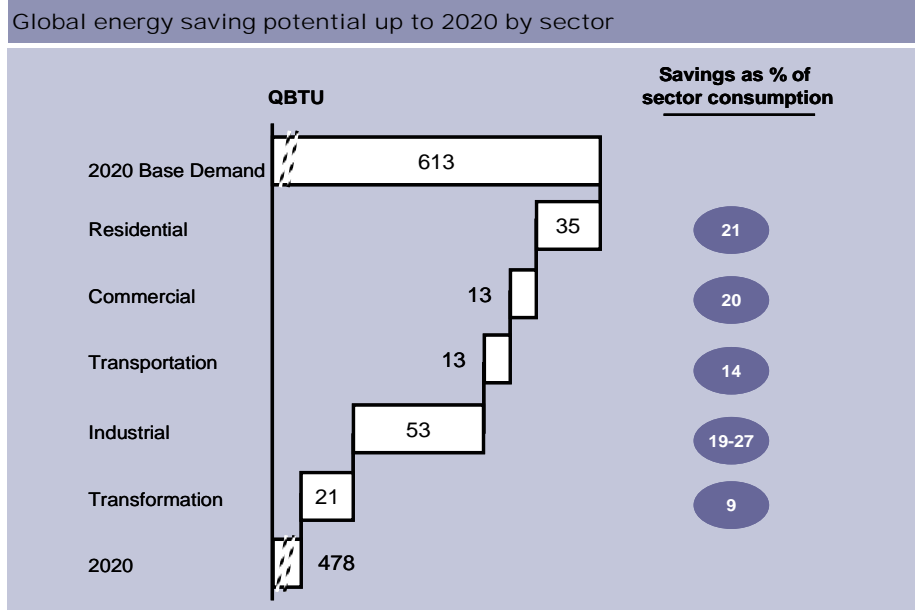
Source: Scientific Advisory Committee to the Federal Government on Global Climate Change: Energy Shift Towards Sustainability; 2003

... as well as high savings  
potential in practice

Estimates of the **realistically achievable energy efficiency savings using available technologies** come to over 20% for the period up to 2020. In its “Green Book on Energy Efficiency”, the EU also came to the conclusion in 2005 that it could save at least 20% of its current energy consumption up to 2020 by deploying economical methods. The McKinsey Institute has analysed the “bottom-up” savings potential based on the technologies available in the individual energy consumption sectors. Overall there is a very broad spectrum of technologies and products available in different branches and sectors. The greatest potential in absolute terms is to be found in private households (building segment), industry and energy supply.

<sup>1)</sup> International Energy Agency (IEA): Promoting Energy Efficiency Investments. Case Studies in the Residential Sector, 2008; World Energy Council (WEC): Energy Efficiency Policies around the World: Review and Evaluation, US Environmental Protection Agency (EPA): Energy Trends in Selected Manufacturing Sectors: Opportunities and Challenges for Environmentally Preferable Energy Outcomes; 2007.

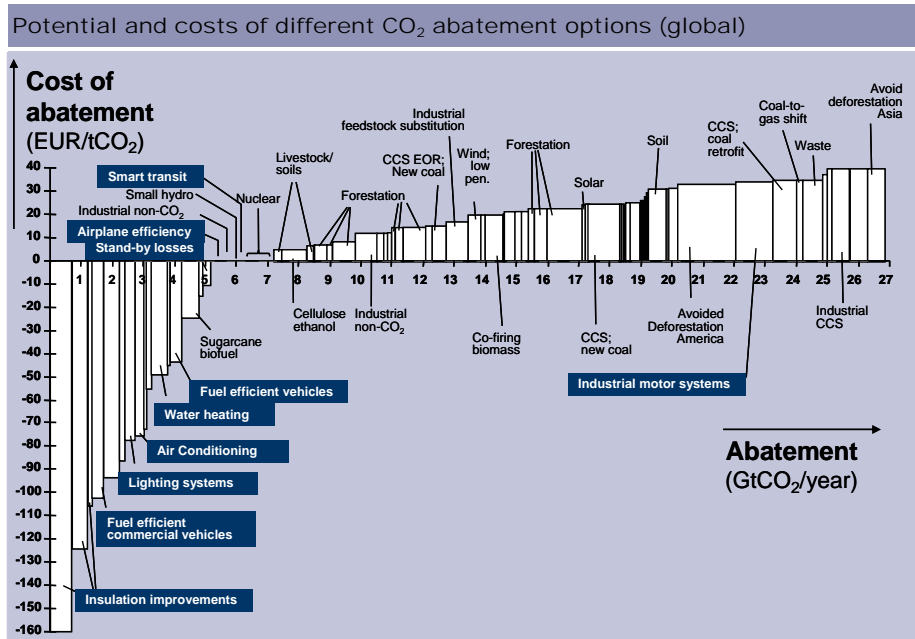
<sup>2)</sup> Vattenfall: Global Mapping of Greenhouse Gas Abatement Opportunities, 2007; Mc Kinsey Global Institut: Energy Efficiency Policies around the World: Review and Evaluation, 2007; Mc Kinsey Global Institut: The Case for Investing in Energy Productivity; 2008.



Source: McKinsey Global Institute 1 QBTU = 1.06 PJ

... cost-effective savings potential

Technologies and measures to improve energy efficiency have the crucial advantage of being **cost effective**: energy efficiency is the "cheapest source of energy" and therefore the most economical way of reducing CO<sub>2</sub> emissions. A study by Vattenfall has outlined the potential and costs of various measures to reduce CO<sub>2</sub> emissions and ranked these costs accordingly (see figure). It found that measures to improve energy efficiency (in the areas of building insulation, motor vehicle engines, lighting, heating and air conditioning) had a negative cost impact, i.e. they pay for themselves. This results in negative CO<sub>2</sub> abatement costs. Any cost-efficient strategy for avoiding CO<sub>2</sub> emissions should therefore give priority to measures to improve energy efficiency.



Source: Vattenfall (CCS = Carbon Capture and Storage); energy efficiency measures highlighted

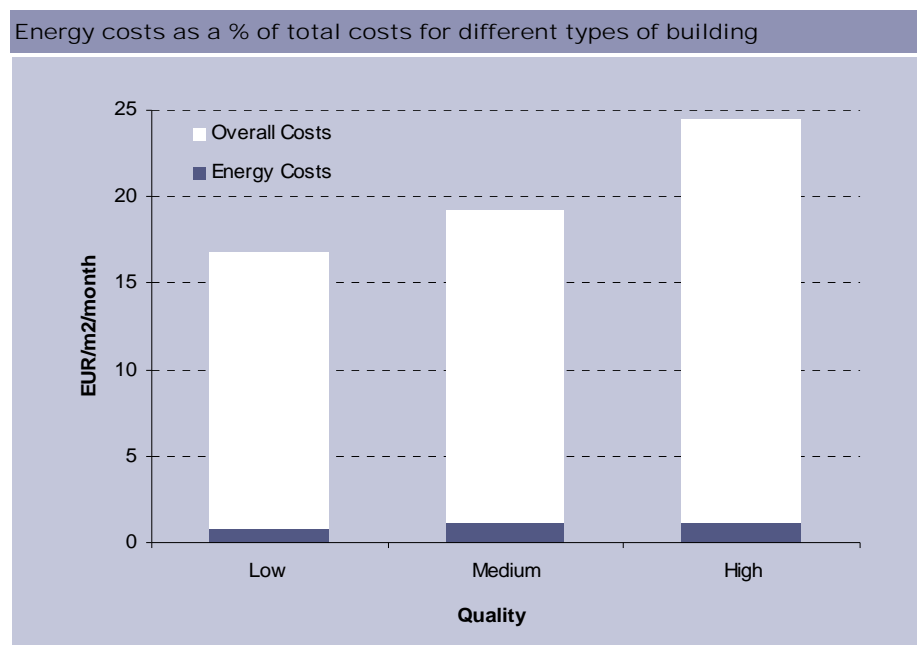
## Barriers have come down

Experiences from the “oil crises”: obstacles to realising efficiency potential

Despite being cost effective, many energy efficiency technologies have not been a commercial success. This was already demonstrated after the “oil crises” of the 1970s and 1980s. A prime example is energy-saving lamps which have been on the market some time now and are actually cheaper than conventional lamps considering the costs over their entire service life, but which have only had a limited uptake so far. As a result, after a temporary dip in the summer of 1985, energy consumption has moved back onto a growth path that shadows the rate of global economic growth (see above).

There are a number of barriers preventing the spread of energy-saving measures purely as a result of market forces:

- **Energy costs have a low economic relevance:** In many sectors of the economy, energy costs only make up a very small percentage of total costs. This also applies to the building segment (see figure). When it comes to building private housing, the problem of the so-called “principal agent” is an obstacle: owners of rented properties frequently have no major incentive to invest in energy-saving measures (such as heat insulation), as the beneficiaries of the lower energy costs are the tenants, not the owner. Another barrier is that energy-saving measures frequently require a higher initial investment which is only recouped over a lengthy time period through reduced energy costs. Where bigger investment sums are involved (in the building segment, for example) this can lead to credit restrictions.



Source: World Business Council for Sustainable Development (WBCSD)

- **Lack of information:** In many cases end consumers do not have enough information about the available energy-saving technologies and their impact on costs. It is quite common, for example, for end users not to be familiar with the available technologies and products. In the building sector, energy charges in many countries and regions tend to be billed as a lump sum

(e.g. per household) rather than on the basis of actual consumption, because there are no individual electricity or gas meters, for example. There is therefore no information available on the actual individual energy consumption and associated incentives to potentially save energy. End users often focus on what are generally higher acquisition costs for installing energy-saving measures and underestimate the potential savings they can make on energy costs, as these extend over a much longer time frame.

- In some cases compromises also have to be made on product benefits when replacing conventional products with energy-saving products. For a long time energy-saving lamps, for example, had the drawback that they only achieved full luminosity after an extended warm-up period, and the light they emitted was slightly colder than conventional lamps.

Strong long-term driver for greater energy efficiency

The relevance of these barriers for wider use of energy efficiency technologies is far less today than it was in the period following the “oil crises”:

- Energy prices fell back sharply after these “oil crises” and remained low for quite some time, so the economic incentives to save energy were far less. The situation is different today: given the limited oil and gas reserves and booming demand for energy – especially from developing countries – energy prices are widely expected to remain high in the long term.
- Climate change has risen to the top of the political agenda and has led to a series of legislative measures that have had (or will have) a positive impact on the overall conditions for energy efficiency measures, such as state subsidy programmes.

So there are now strong incentives, with a sustained effect, for reducing energy consumption. Improving energy efficiency is the most cost-effective way to do this, and is therefore a top priority for all players.

## Energy efficiency as an investment theme: attractive segments

Energy efficiency as an investment theme: not attractive in all cases

We have now arrived at the point, therefore, where energy efficiency technologies and services are starting to look attractive for investors.

The biggest energy-saving potential lies in the area of buildings, industry (including power consumption by electric motors), electricity generation (power station and energy technology) and road transport, as well as in household appliances.

Because of the barriers mentioned for the market dissemination of energy efficiency technologies, not all segments will benefit to the same extent, however. The following factors determine market appeal:

1. **Cost efficiency:** The bigger the net cost saving produced by the energy-reducing measure, the greater the economic incentive.
2. **Energy price sensitivity:** Adequate incentives to save energy are only effective in situations where the players are sensitive to rising energy prices. This is particularly the case in energy-intensive industries (chemicals, iron and steel, pulp and paper, etc.) and the transport sector, but much less so in industries with low energy consumption. Energy price sensitivity in the private sector (residential building, household appliances, private cars) is relatively low in general.
3. **State subsidies:** In areas with low sensitivity to energy prices, government rules on building insulation and the energy consumption of household appliances, as well as incentives such as tax breaks for energy-saving measures, are required. This is particularly true of private house building and consumer goods.

Attractive segments

In view of the three requirements mentioned above for the market appeal of potential energy efficiency measures, we think the following product and market areas look attractive in the long term given the current overall conditions relating to technology, legislation and energy policy:

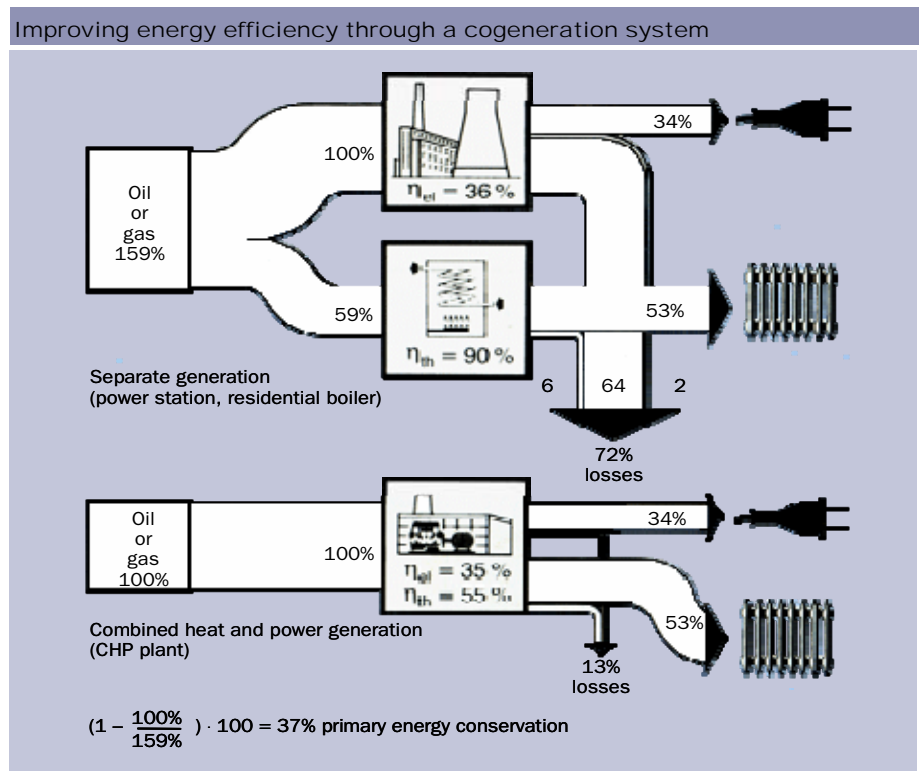
Assessment of the market appeal of various energy saving options <sup>a)</sup>					
Sector	Option	Commercial cost efficiency	Energy price sensitivity	State subsidy	Attractive segments
<b>Electricity generation</b>	Efficient thermodynamic circuit concepts (gas & steam; supercritical steam)	(+)	+		Global (mainly industrialised countries)
	Cogeneration systems		+	(+)	Europe; investments with biogas as fuel
	Reduction in transmission and distribution losses <sup>b)</sup>	(+)	+		Global
<b>Industry</b>	Cogeneration systems	(+)	(+)		Global (factories with heat/steam recycling)
	More efficient electric motors	(+)	(+)		Sectors/businesses with significant electricity costs (mainly industrialised countries)
	Sector-specific measures in energy-intensive sectors (esp. Iron & steel, pulp and paper, refineries)	(+)	+		Global
<b>Transport</b>	Optimisation of fuel efficiency in motor vehicles <sup>c)</sup>	+		(+)	Global (EU initiative)
	Expansion of public transport in cities			(+)	in conglomerations with state investments in transport infrastructure
	Freight transport shifted to rail or boat			(+)	
<b>Housing &amp; offices</b>	Building insulation	+		(+)	Mainly Europe
	Efficient lighting technologies	+		(+)	Mainly Europe
	Improved efficiency of heating/ventilation/AC	+		(+)	Mainly Japan and Europe
	Improved efficiency of electronic office equipment <sup>d)</sup>	+	(+)	(+)	Global (Japanese initiative); computer centres
	Improved efficiency of household appliances	+		(+)	Mainly Japan and Europe

Source: Vattenfall (national economic cost efficiency) and Sarasin 2008  
 Values in brackets: dependent on actual application, industry/company or country/region

- <sup>a)</sup> Measures with significant energy saving potential in quantitative terms (source: McKinsey, Vattenfall)
- <sup>b)</sup> Gas-insulated distribution stations and transport lines; DC transmission; superconductor technology
- <sup>c)</sup> Optimisation of motor technology, rolling resistance tyres, aerodynamic bodywork; weight, etc.
- <sup>d)</sup> Mainly reduction of consumption in stand-by mode

In the industrial sector, the market potential is concentrated on those segments that are most sensitive to energy prices, i.e. electricity supply and energy-intensive industries and production processes. The market appeal of energy-efficient options in private house building (building materials, HVAC) and consumer-related products (electrical appliances, lighting) varies enormously from one country to the next, due to the reliance on state subsidies. The main initiatives are in Europe and Japan at present. There is also substantial energy-saving potential in developing countries, but this can already be mobilised in many cases through the use of conventional technology:

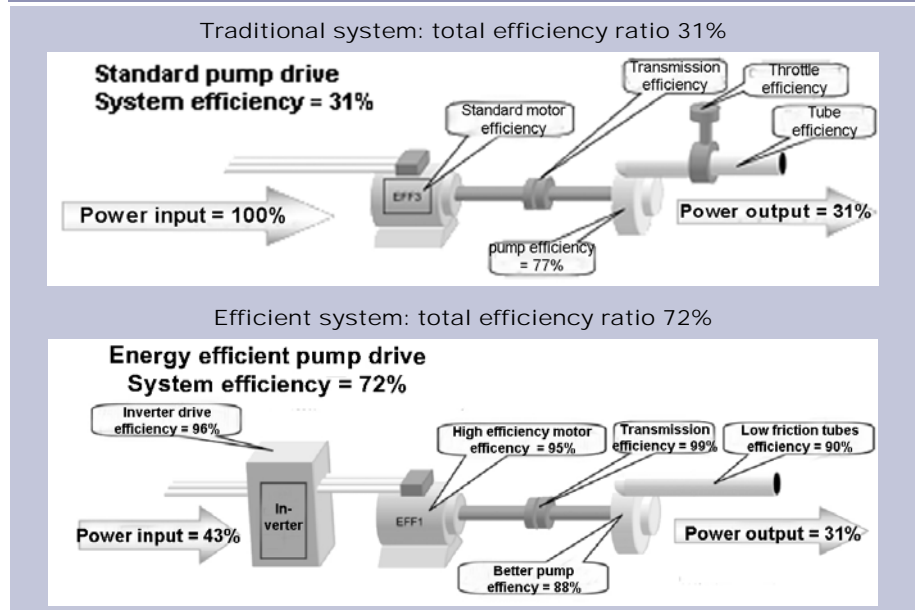
- Energy / power station technology:** In the energy supply sector, there are enormous incentives to increase energy efficiency purely for cost reasons. Efforts are constantly being made to improve the efficiency of power station technology. Cogeneration offers enormous energy-saving potential in principle (see figure), especially in industry. However, its practical implementation depends on the actual site conditions, especially the availability of large customers wanting to buy the heat. Ultimately the entire sector of electricity transmission and distribution is attractive, because of the need to steadily reduce transmission losses (for cost reasons) and the substantial investments required particularly in developing countries in the electricity transmission infrastructure.



Source: Arbeitsgemeinschaft für sparsamen und umweltfreundlichen Energieverbrauch e.V. (ASUE)

- Rising energy prices have also increased the incentive for **energy-intensive industries** (iron and steel, chemicals, paper and pulp, etc.) to save energy. Attractive market opportunities therefore exist for companies active in plant engineering and process technology for these branches of industry.
- About two thirds of the energy consumed by industry is used by plant operated by electric motors (pumps, conveyor belts, machine tools, etc.). Installing **more efficient electric motors and drives** (especially variable motor controls) significantly improves the efficiency of these systems. According to EU studies, savings of around 30% can be achieved across the entire industry. More efficient technologies are not always cheaper than conventional systems, however. The main market potential is in energy-intensive sectors in industrialised nations.

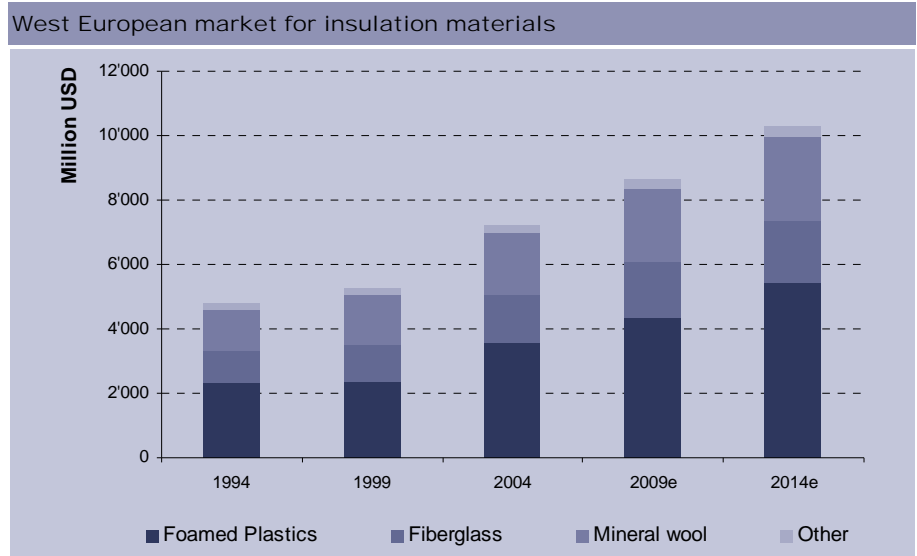
Energy-efficient electric drives (with pumps as an example)



Source: European Copper Institute 2004

- In the **car industry** there is substantial market potential for more energy-efficient engines (from improvements to conventional engine technology through to hybrid and electrically powered vehicles) and constructions (lightweight materials and bodywork). The main drivers here are the new EU targets for the reduction of vehicle CO<sub>2</sub> emissions.
- In the transport sector, considerable potential for energy savings can be achieved by expanding the **local public transport system** in cities and giving it priority over private cars. This applies especially to developing countries with booming economies and the associated traffic problems. However, the market potential for manufacturers or operators of public transport means and infrastructure is restricted to those conglomerations where this infrastructure is well supported by the state or local authority.
- Massive and low-cost energy-saving potential is available in the **building sector** (building insulation; HVAC). But since the entire sector is not particularly sensitive to energy price rises (see above), the market potential for energy efficiency technologies is heavily dependent on the imposition of state targets or the granting of government subsidies. These vary from one country to the next. In the EU especially, building regulations are due to be tightened up significantly in the coming years, which presents suitable market opportunities for providers of products in building insulation and HVAC technology (see figure). New and renovated buildings in the EU must consume 50% less energy by 2020. The EU directive on the overall energy efficiency of buildings requires member states to adapt their national regulations (minimum energy efficiency standards for buildings, uniform calculation of energy efficiency, building energy certificates). The directive has already been implemented in Germany, Denmark, France, the UK, Ireland and the Netherlands. who Japan has already introduced national energy efficiency standards for buildings, although they are not binding. By contrast, HVAC systems in Japan do have to comply with an energy efficiency standard. Although the US does offer tax incentives, it has no na-
















tional energy efficiency standards for buildings. Stricter regulations only apply in certain federal states, such as California, and at municipal level.



Source: HSBC, Freedonia, Steico

- The electrical and electronic appliances segment is also heavily affected by energy efficiency regulations and initiatives. Japan has the “Top Runner” energy efficiency standard. This requires new electrical appliances to be as good as the most efficient devices available on the market. Since the market for most electronic appliances, such as TVs and computers, is dominated by global manufacturers, this is also a long-term driver for improved efficiency on a global scale. Comparable efficiency standards are also due to be introduced in the EU in 2008 and in the coming years, governing power supply units, losses in stand-by mode, TVs, computers, various household appliances, HVAC components, etc.). Similar rules are also being drawn up for the lighting sector. Substantial savings of up to 80% can be achieved in efficiency here (see figure). Since lighting accounts for roughly 19% of global electricity consumption, major energy savings can be achieved in this way in absolute terms as well.

Energy-saving potential of more efficient lighting technologies

Area of Lighting	Energy Saving
Road Lighting	HPL  57%   CosmoPolis
Shop Lighting	Halo  80%   CDM
Office & Industrial Lighting	TL8  61%   TL5
Home Lighting	GLS  80%   CFLi
LEDs	GLS  80%   LED

Source: Philips; HPL: High Pressure Mercury; CDM: Ceramic Discharge; GLS: Incandescent Bulb; CFLi: Compact Fluorescent

## Potential companies and investment opportunities

Concentration on attractive market segments

Energy efficiency is an attractive theme for investors, but it is still important to back the right horse. Not all of the many technologies and products available will be a commercial success, and the market appeal differs from one country to the next depending on the local conditions and regulations.

For investors looking to benefit from the theme of energy efficiency, the best way is to invest in a diversified portfolio containing a balanced mix of different technologies and market segments that comprises stocks selected through a rigorous process of in-depth financial analysis and assessment.

Limiting factors for sustainable investment

For sustainably minded investors, there are also three factors that restrict the eligible investment opportunities:

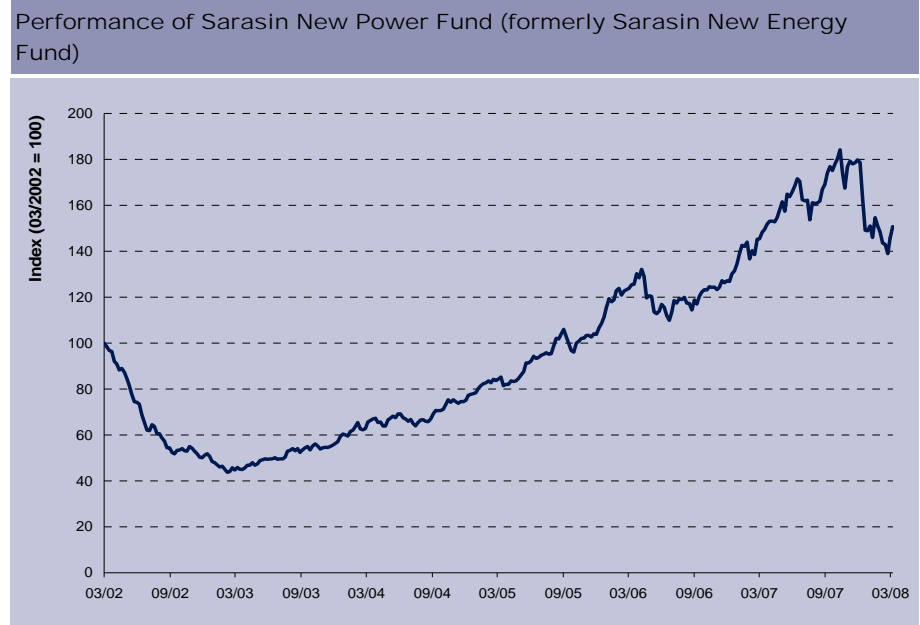
- **Shortage of listed “pure play” investments:** In some sectors (e.g. heating systems) there are only a handful of listed companies, while other market segments are dominated by large diversified companies active not just in energy efficiency but also in many other lines of business. This is particularly true of companies in the area of power station technology, where the market is dominated by broadly diversified providers such as Siemens, Alstom, General Electric and Hitachi. These companies also build all types of power station and therefore have diverse business interests in their portfolios such as industrial automation, transport facilities or financing. There are very few “pure play” providers of the core components of cogeneration systems, the motors: the market is dominated by companies whose core business lies in truck or marine engine manufacture (e.g. Cummins, MAN, Deutz).
- **Poor sustainability:** some of the companies offering energy efficiency technologies do not meet our sustainability criteria, for example due to no effort being made in environmental protection in business operations or products, or due to inadequate social standards in production or in the supply chain (where the production process is offshored to low-wage countries).
- **Poor short-term prospects:** The assessment of the market appeal of the individual energy efficiency areas is based on a long-term time scale (around five years). It is quite possible for market segments that are attractive in the long term to be unattractive in the short term because of high valuations on the stock market or a negative macroeconomic outlook. Recently this was true for the building segment (especially in the USA), due to a slump in the construction industry and the consequences of the credit crunch. In a diversified share portfolio of companies benefiting from energy efficiency, the task of controlling the short-term financial risks and opportunities is part of professional portfolio management.

Diversified investment products

There are a number of diversified, professionally management investment products available to investors who are interested in the theme of energy efficiency.

Sarasin Sustainable Investments manages suitable energy funds and offers specialised baskets of securities in this area.

Sarasin New Power Fund (formerly New Energy Fund) is a diversified energy fund that concentrates investments in the area of energy efficiency, along with renewable and low carbon energies.



Source: Bloomberg. Dividends automatically reinvested. Excludes any subscription/redemption fees and costs

Potential companies

The next table provides an overview of various companies in our sustainable universe that stand to benefit from the theme of energy efficiency in the long run.

Potential companies			
Company	Energy efficiency segment	Core markets	Energy-efficient products
<b>ABB</b>	Electricity distribution and electric motors (industry)	Europe (50% of sales), Asia (25%), America (20%)	Electric drives with variable control for industrial applications; DC power transmission technology
<b>American Super-conductor</b>	Electricity generation and distribution; and electric motors	Global (30% of sales in the US)	Energy-efficient superconductors for electricity production (generators) and distribution (cable), and electric motors
<b>Baldor</b>	Electric motors	US (83% of sales)	Efficient electric motors and drives
<b>Eaga</b>	Buildings	Europe (UK)	Energy consulting and realisation of energy-saving measures for low-income house owners
<b>Ener1</b>	Fuel efficiency for cars	USA	Lithium battery technology for electric and hybrid engine; fuel cells
<b>Everlight Electronics</b>	Lighting	Asia (85% of sales)	LED lights
<b>Johnson Controls</b>	Buildings, HVAC and fuel efficiency for cars	US and Europe (40% of sales each)	Energy management service for buildings (with contractually agreed energy-saving targets); Automobiles: batteries for hybrid engines
<b>Kingspan</b>	Buildings	Europe (90% of sales, mainly UK and Ireland)	Insulation materials (plastic)
<b>Power Integrations</b>	Electronic equipment	Asia (75% of sales)	Digital controls for PSUs; reduction of losses in stand-by mode
<b>Rockwool</b>	Buildings	Europe (75% of sales)	Insulation materials (rockwool)
<b>Schulthess</b>	HVAC and household appliances	Europe (CH, Germany)	Heat pumps (approx. 40% lower energy consumption than oil-fired heating) and washing machines/dryers (various appliances with top energy label AAA)
<b>Vacon</b>	Electric motors	Europe (74% of sales), US (18%), Asia (8%)	Frequency converter for the variable control of electric motors
<b>Wärtsilä</b>	Electricity generation; marine engines	Europe (40% of sales), Asia (35%), America (20%)	Cogeneration systems (diesel/gas motors; fuel cells under development); efficiency improvements to marine engines (incl. hybrid drives)
<b>Zumtobel</b>	Lighting	Europe (80% of sales)	Energy-efficient lamps and lighting systems

# Appendix

## Energy efficiency standards and regulations

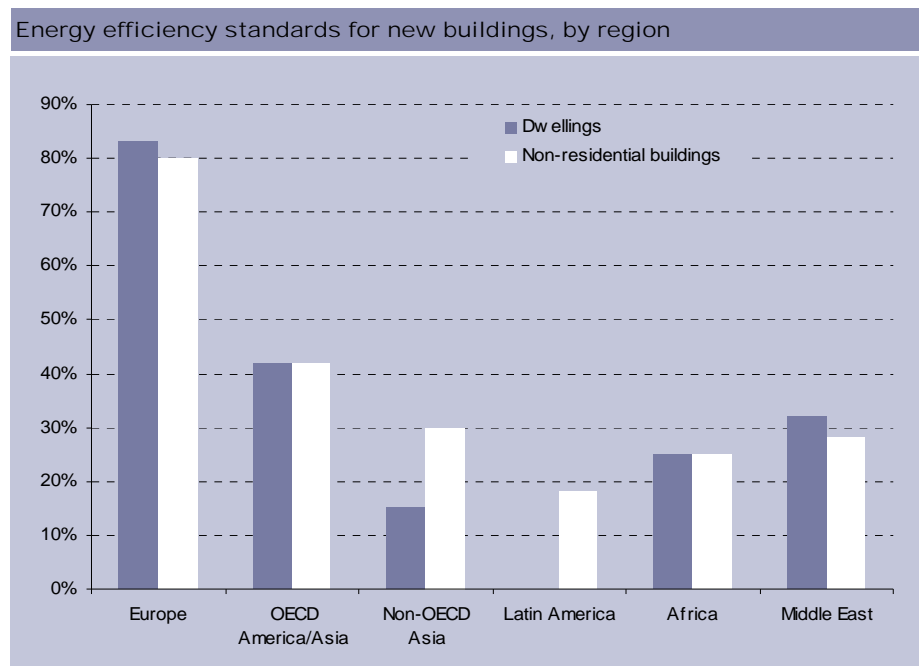
Still early days for state incentives and regulations

Overview of energy efficiency standards and regulations			
	Europe	USA	Japan
<b>Buildings</b>	Energy standards for buildings (EU Directive 2002); incl. energy rating system for buildings (planned); efficiency standards approved in DE, FR and UK among others  National energy savings programmes based on EU targets (EU Directive 2006)	Various directives on the energy-efficiency of buildings at municipal and federal level (especially California)  Financial support for renovations by low income home owners  Energy rating system for buildings (LEED)	Voluntary energy-efficiency standards for buildings and reporting requirement on energy-saving measures for bigger buildings  Energy rating system for buildings  Investment grants and attractive loans for energy-saving measures
<b>Heating, Ventilation &amp; Air Conditioning (HVAC)</b>	Efficiency standard for boilers and AC units being drawn up	Energy labels in some cases (Energy Star) <sup>a)</sup>	Compulsory "Top Runner" energy efficiency standards
<b>Lighting</b>	Efficiency standard for lamps (planned)	Efficiency standard for lamps in California (planned)	
<b>Electrical appliances</b>	Efficiency standard for various household appliances (planned by 2009 based on EuP Directive)  Energy label for electrical appliances	Energy Label (Energy Star) and environmental label (EPEAT) for household appliances <sup>a)</sup>	Compulsory "Top Runner" energy efficiency standards and energy label for various appliances (in force)
<b>Transport</b>	CO <sub>2</sub> emission limits for cars (planned)	Fuel efficiency standards for cars (not restrictive)	Fuel efficiency standards for cars
<b>Industry/energy sector</b>	Subsidies for cogeneration (EU Framework Directive 2004, to be implemented in national programmes)		

Source: Sarasin 2008 based on IEA

a) Energy efficiency standards exist for different appliances and products. But these impose minimal requirements and usually no real restrictions on products currently on sale on the market.

Buildings: Europe leads the way



Source: World Energy Council/ADEME

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