Julius Baer SAM Climate Change Basket

Climate Certificate

SAM Group

Seefeldstrasse 215

CH-8008 Zürich

Tel. +41 44 397 10 10

Fax +41 44 397 10 80

info@sam-group.com

www.sam-group.com

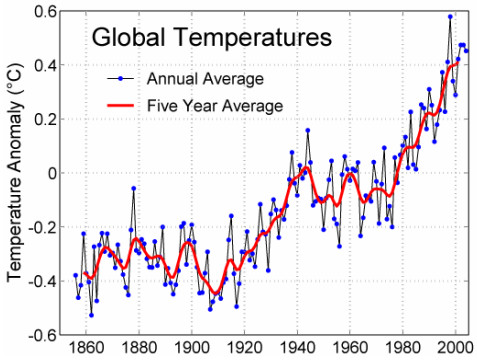
Julius Baer SAM Climate Change Basket

The facts are irrefutable: climate change is now a reality. Our planet is currently experiencing a steady rise in average global temperatures. We can unfortunately no longer stop this trend; however we can try to keep it under control. This scenario will encourage the development of new markets and will ultimately provide an attractive business environment for innovative companies.

- Climate change already affects our daily lives, and also influences developments on the stock markets.
- These effects are set to multiply in future.
- Global demand for energy and mobility will keep on expanding.
- Political and public pressure on emission control is set to mount which will inevitably influence the choice of investments.
- Technologies and solutions to limit climate change are already available.
- The economic effort to be made is substantial but manageable.
- Investors should now start taking climate change into account when gearing their equity portfolio
- By investing in a diversified basket of shares, investors can participate in the success of companies providing solutions in the areas of Clean Technology, Mobility, Natural Resources and Climate Impact Management.

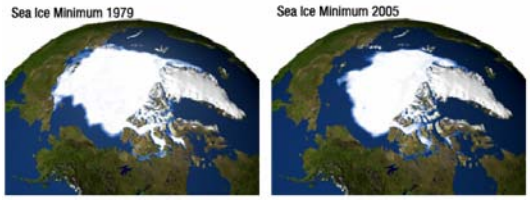
Climate Change

Scientific research into how greenhouse gases affect our climate has been going on for roughly 40 years. There is now firm evidence that the man-made emissions of greenhouse gases is a direct cause of global warming.



Source: Global Warming Art, http://www.globalwarmingart.com/wiki/Image:Instrumental_Temperature_Record_png

The indications of ongoing climate change are ranging from the warming of the oceans' surfaces and rising average global temperatures, to the melting of glaciers and parts of the polar ice cap, not to mention extreme or freak weather events.



Source: NASA

According to the Intergovernmental Panel of Climate Change (IPCC), the average global temperature has risen by 0.6° C over the last 100 years. Forecasts for global warming over the coming 50 years predict a further increase of between 0.5° C to 2.5° C. This may not seem particularly dramatic at first sight, but if we consider for a moment that during the last ice age, when Northern Europe lay buried under a sheet of ice, the average temperatures at that time were merely 4.0° C below their current level, it becomes clear that even minor variations in temperature can have a major impact on the environment.

Source: Global Warming Art, http://www.globalwarmingart.com/wiki/Image:McCarty_Glacier_jpg

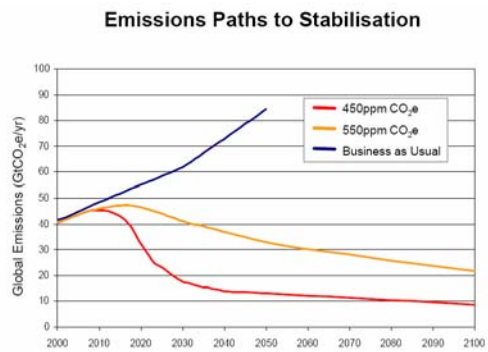
Growing Awareness

There is now growing awareness among the general public, as well as in political and economic circles, of the problem of global warming and its potential effects on the life of our planet. Recently, for example, the scientific adviser to the British government identified global warming as the greatest threat currently facing civilisation. In the eyes of the Worldbank's former chief economist, climate change "…is the greatest and widest-ranging market failure ever seen". The wider acceptance of the Kyoto Protocol, which has now been ratified by almost 190 countries, is further confirmation of the growing awareness of this problem worldwide. Even though two important emitters of greenhouse gases – the US and Australia – have not yet signed up to the Protocol, political forces are already building at the level of federal states and cities for action to address these problems. The announcement that the federal state of California would like to make the six biggest carmakers legally responsible for the harmful emissions of their products, underscores the sea change in public perception of this problem.

The already observable symptoms of global warming have numerous knock-on effects. As recent incidents in the Swiss Alps show, the thawing permafrost is causing mudslides, and is threatening rural settlements, transport routes and the general infrastructure. Heat waves and soaring temperatures in southern Europe have already led to droughts and water shortages in recent years. In Spain, for example, farmers have lost billions of euros as a result of hot weather. Since this poses a threat to tourism as well, the Spanish government has decided to build a number of desalination plants in an attempt to combat increasing water shortages.

All these examples show that climate change has already become a reality. The effects of the past emissions will last for many decades to come. Even if hypothetically would put a stop to all greenhouse gas emissions immediately, it would not halt the general direction of the trend, but simply limit its scale. We therefore have to live with the consequences. In order to prevent major disruption on the global economic activities, the atmospheric concentrations of greenhouse gases need to be kept under twice the amount of pre-industrial levels. An increase of 2° C to 3° C would have to be expected as a result. To achieve this goal, emissions would need to be cut by 25% by 2050. In the context of a world economy that by then may have grown 3 to 4 times larger, emissions per unit of GDP would need to be reduced to one quarter of the current levels.

While this is a major economic challenge, there is no need to panic. Our society will most likely find ways and means to mitigate climate change, come to terms with the changes and at the same time satisfy growing demand worldwide for mobility, energy and water. The necessary investments and spending will result in robust and increasing demand for specific products and services.



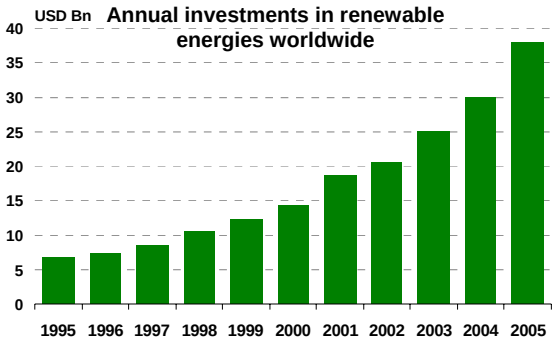
Source: Stern Review on the Economics of Climate Change

Investment Strategy

The **JB SAM Climate Change Basket** seeks to anticipate these developments by investing in companies which offer products, technologies and services designed to limit the effects of climate change, prepare for the resulting changes and master the consequences. The basket is divided into four attractive fields of investment: **Clean Technology**, **Natural Resources**, **Mobility** and **Climate Impact Management**. We now describe the main drivers, and the selection of companies that profit from these drivers.

Clean Technology

The field of **Clean Technology** includes companies whose products make a significant contribution to lowering greenhouse gas emissions. This is an attractive growth market – particularly in the case of electricity production and use, which accounts for roughly 30% of CO_2 emissions worldwide. In 2005, the global market size of energy related clean technology was approximately 44 billion USD. In a recent publication, the economist Sir Stern demonstrates that a scenario of economic reasonable climate protection would trigger a market ten times larger.



Source: Ren21

The main drivers at work are politically motivated incentive systems such as special tariffs for renewable energy fed into the electricity grid and tax allowances and trading, together currently at a level of 34 billion USD on a global basis. Stern argues for a doubling to tripling of this amount. Further, the high price of oil and gas also plays a role. Other important factors include geopolitical tensions in the regions with ample reserves of fossil fuels, and the strategic security of the power supply. Last but not least, the market is driven by the urgent need to replace ageing power stations. In Germany, for example, roughly a third of the country's electricity generation capacity will need to be renewed over the next 15 years.

Even the modest target for cutting greenhouse gases set by the Kyoto Protocol will not be reached with emission regulations as they stand. The measures can be described as feeble. To give an example: despite the emissions trading system, 70% of Germany's replacement investments either in the planning or commissioning stage are currently based on traditional hard coal or brown coal. All that has happened is that the emissions rights distributed to power station operators have resulted in risk-free profits for these companies.

As the effects of climate change become more conspicuous, it seems now likely that future regulations on CO_2 emissions will become far stricter and thus play a greater role in investment decisions. A simple cost-benefit analysis suggests that increasingly, addressing the issues related to climate change will make sense economically. According to Stern’s review, costs for climate change protection will pay back five times in prevented climate impact costs.

As a consequence, the marginal production costs for electricity will be pushed up and this in turn is leading to higher electricity prices. Wind power, which is already a competitive option, will become even more attractive as a result. Companies such as ***Gamesa,*** a Spanish manufacturer of wind turbines, should benefit from this trend. Solar energy, which currently relies totally on subsidies, will become competitive sooner than the equity market currently is pricing. Shares of the German company ***Q-Cells*** with its large-scale and modern production facilities for solar cells, look like being a winner. Electricity producers with a large portfolio of hydroelectric assets, such as Austria's ***Verbund,*** are also likely to increase in value.

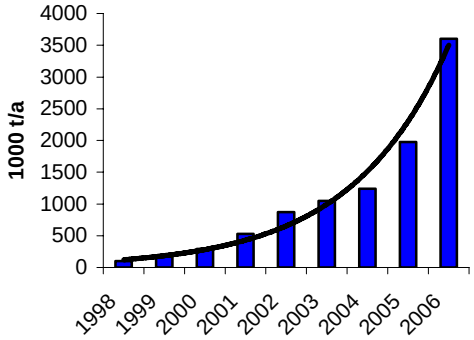
Higher electricity prices and recently introduced US efficiency standards are also the reason for the sharp rise in orders for the compressors built by the US company ***Emerson Electric***, which are used in energy-efficient air conditioning units. Demand is set to be robust, not least due to the new energy efficiency regulations about to come into effect in the Chinese market. What is true for the single building equipment holds true for the interplay of different building technologies. The potential for efficiency improvement is substantial. The building efficiency division of ***Johnson Controls*** offers a combination of technical, operational and financial solutions that make buildings and infrastructures better. The innovative strategies of the American company improve energy efficiency, occupant comfort, facility security and overall operations bundled into a single offering. The potential for lowering energy cost and the complexity of modern buildings should play in advantage for such outsourcing offerings.

Natural Resources

The second field of investment is **Natural Resources**. We need to exploit the potential of biomass to produce materials and energy in a close to climate-neutral way. More emphasis has to be placed on renewable resources if we are to address the problems of climate change.

Initiatives are already under way here, as shown by the level of investment in bioethanol and biodiesel production plants. These plants convert crops, such as wheat or rapeseed, into fuel for vehicles. In Europe, these investments are being encouraged as part of the drive to meet the EU target of increasing the use of biofuels to 5.75% of total fuel consumption by 2010.

Development of production capacity of biodiesel in Germany



Source: Federal Ministry of Food, Agriculture and Consumer Protection

The number of production facilities currently in the planning and building stage indicates that growth will be in the region of 20%-30% in the coming years. About a dozen companies producing biofuel are currently traded on the stock market.

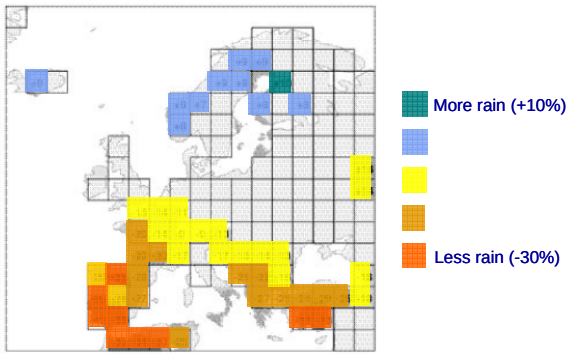
With the technology used at present, however, the energy efficiency of biofuel production is not favourable. The fermentation process is incomplete, while the distillation process is very energy-intensive. Taking the entire value chain into account, the reduction in CO_2 emissions achieved in the production of ethanol is only 5-10% compared to diesel. Once the bioethanol is added to conventional fuel, the total CO_2 saving is less than 1%. While the result is slightly better for biodiesel, the policy for bioethanol and biodiesel production in the EU and the US is dictated mainly by agricultural point of view. From an environmental viewpoint, many biofuels (with the exception of biogas) are only of limited use given the current technology.

In view of the marginal effect on CO_2 emissions and the risk that plant operators could experience margin pressure with raw material prices rising, investors would be best advised to concentrate more on the suppliers of the technology and equipment rather than on the actual producers of biofuels. Technology and Equipment suppliers hold the key to producing bioethanol efficiently from whole plants, while at the same time significantly cutting the energy consumed during the manufacturing process, thereby unlocking the inherent potential of biofuels. Two of the leaders in innovation for more efficient processes in this area are the Danish producer of enzymes ***Novozymes***, and the Spanish plant engineering company ***Abengoa***.

In addition to wheat, maize and rapeseed, wood is also likely to enjoy a renaissance as an energy source. This would inevitably push up the price. One defensive way of dealing with this scenario is to hold the shares of the Brazilian cellulose manufacturer ***Aracruz Celulose SA***. All the raw materials that Aracruz uses come to 95% from its own plantations, which means it is as good as not exposed to the risk of rising wood prices. Given the correlation between marginal production costs and the price of pulp, Aracruz's operating margins would improve.

Water is a natural resource which should draw the attention of every investor when it comes to climate change, as this phenomenon provides additional momentum to the water industry. Global warming will result in a geographic shift in the availability of water. Changing rain patterns will mean, for example, that southern Europe will see a significant fall in available water resources over the next 20 years. The melting of glaciers and snow caps will affect 40% of the global population that depends entirely or partly on meltwater for drinking water during certain months of the year. These changes will trigger additional investment in the water infrastructure worldwide. Since it is impossible at the moment to predict the location and focus of these investments, it makes sense to invest in a multinational company that offers a broad selection of water technology. The American ***ITT Corporation*** is the most obvious choice.

Expected Change of Average Summer Rainfalls



Source: IPCC

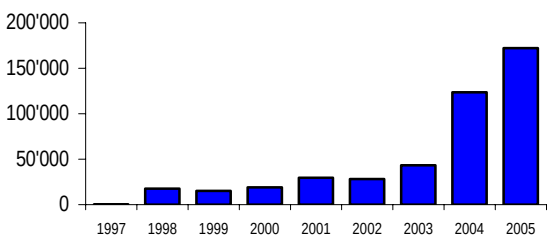
Mobility

The investment field **Mobility** includes companies whose products and services encourage more efficient flows of people and goods. What makes this important as far as climate change is concerned? About a fifth of all greenhouse gas emissions originate in the transport sector, and about three-quarters of these come from road transportation. Since developing countries such as China and India are only just beginning to switch from two wheels to four, it seems likely that the climate impact of the transportation sector will become even more pressing over time.

What steps can be taken to effectively control greenhouse gas emissions? Since demand for transport services are set to rise, initiatives to cut emissions should be concentrated on the consumer side. Potential measures range from influencing the type of transport (trains and ships are more energy efficient than cars, trucks and aeroplanes), to reducing specific fuel consumption and optimising transport flows.

Apart from the style of driving, the CO_2 emissions produced by a vehicle depend on its weight, engine size, aerodynamics, roll resistance and drive technology, which is in turn closely connected to the type of fuel used. In car manufacturing, weight reduction is likely to remain an important factor, which means the products of ***Georg Fischer*** should be in strong demand. This Swiss company has consistently pioneered lightweight construction through new processes and build design. A steering console made of magnesium, for example, whose construction has to be extremely solid, offers weight savings of up to 30% compared with aluminium. The carbon fibres such as those manufactured by the Japanese company ***Teijin*** are in a similar vein. Because carbon graphite has better properties than aluminium, both in terms of durability and weight, it is being increasingly used in aircraft construction. One of the winners we are backing in drive technology is ***Toyota Motor Corporation.*** The company leads the way in the production of hybrid cars, which can run on either electricity or traditional fuel.

Sales Figures Toyota Hybrids



Source: Toyota

Efforts to cut greenhouse gas emissions in transport are being frustrated by the growing number of vehicles on the roads. Since it is not always economical to expand the infrastructure, companies offering transport management solutions should experience robust demand. TransCore, a subsidiary of the American company ***Roper***, offers intelligent traffic systems based on RFID technology, and is therefore well positioned to benefit from for example road pricing.

Climate Impact Management

Experts on climate change predict that global warming will result in more extreme weather conditions such as heavy rainfall and storms.

Higher temperatures result in more water evaporation, pushing up the moisture content in the atmosphere. If the temperature rises just 1° C, the atmospheric water content in the atmosphere increases by 7%. Heavy downpours are therefore likely to occur more frequently. If temperatures rise by 2° C, heavy rainfall in excess of 30 mm per day is 20-30% more likely. Global warming also results in more thunder storms. The melting level continues to rise, which reduces the amount of solid precipitation, i.e. snowfall, and increases the volume of water run-off. Extreme weather scenarios are becoming more frequent, more intense and more variable.

Increased flooding is therefore likely. The resulting damage runs into billions. In Switzerland alone, losses amounted to CHF 1.3 billion in 2005.

The oceans are also warming up. As storms move across warm seawater, they gather more force. Hurricane Katrina was a prime example: as it swept through Florida in the autumn of 2005, it was rated as a category 1 storm, the lowest on the five-point intensity scale. Then, as it moved across the warm waters of the Gulf of Mexico, its strength quickly intensified to category 5. Over 1,800 people lost their lives and the damages came to more than USD 80 billion.

Hurrikan Kathrina, August 28th, 2005

Quelle: NOAA

We must learn to deal with the consequences of severe weather events. The damage can be contained as long as adequate preparations are made. This requires planning and investment, which will mean increased demand for the products and services of certain companies. While the estimates of the annual market size for making new infrastructure “climate change proof” diverge strongly, for the OECD-countries between 15 and 150 billion USD or 0.05% to 0.5% of GDP, it is fair to say that the potential is substantial.

For coastal areas, for example, an adaption option would be to stock mobile infrastructure, as provided by the American company ***Mobile Mini Inc.*** This offers temporary respite after the storms have passed, until the infrastructure and houses have been repaired and cleaned. In the aftermath of such events, facility management companies tend to receive additional contracts with above average margins. This is particularly true of companies such as ***Ecolab Inc.***, a specialist in mould treatment. Treating water damage is also where the Swedish company ***Munters AB*** shines. The company provides dehumidification equipment and services to rectify the effects of water damage.

Conclusions

After roughly 40 years of scientific research into the relationship between climate system and greenhouse gas emissions we may conclude that man-made climate change is real and significant. While the trend of rising temperatures and its consequences can not be brought to a sudden halt, we do have he the technical means to limit the extent of its adverse effects. The effort required is substantial but economically viable. Approximately 1% of world GDP would be required if mankind acts now and strongly so. Any 'wait and see' approach will increase that cost substantially. The economics of climate change thus encourages the rapid development of specific markets of a respectable size, and will ultimately provide an attractive business environment for innovative companies in these fields. Investors should therefore start taking climate change into account now when gearing their equity portfolio.

By investing in a basket of shares such as the JB SAM Climate Change Basket, investors can participate in the success of companies providing solutions in the areas of Clean Technology, Mobility, Natural Resources and Climate Impact Management.