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Low carbon economy: implications for sectors, companies and investors

Becoming a low carbon economy is not solely dependent on a binding global climate policy treaty. Peak Oil, rising energy prices as well as the dependency of few oil-exporting countries are driving forces that lead many countries to reconsider their energy demand and supply patterns. Furthermore, the pressure on regulators and the law system will most likely lead to further restrictions and costs for high carbon sectors and companies.

Until now, greenhouse gas emissions and energy consumption have always been growing in line with the economic development of a country. Therefore, decoupling economic wellbeing from energy consumption has been the overarching idea of environmental policy since its earliest days.

The vision of a low carbon economy – one ton CO₂ per capita and 2'000 Watt society

In order to limit global warming to a maximum of 2°C, global emissions need to peak around 2015 and 2020 and then decline rapidly. On a global level, this would correspond to annual emissions of one ton of CO₂ per capita. This target is in line with the vision of a 2'000-watt society, originated by the Swiss Federal Institute of Technology in Zürich, where each person in the developed world would cut its over-all rate of energy use to an average of no more than 2'000 watts by the year 2100 without lowering the standard of living (www.novatlantis.ch).

What are the entry points to achieve this vision?

Decarbonising electricity generation

In OECD countries, power generation accounts for the main share (40%) of energy-related CO₂ emissions. The solution would be a combination of a substantial increase in renewables, improved carbon efficiency and fuel switching. Recent studies have shown that a 100% renewable electricity supply in Europe is possible by 2050.

Energy efficiency in the use of electricity

Electricity demand varies by season, day of the week, and time of day. Furthermore, renewable electricity

supply from wind, tide, wave or solar varies in line with natural conditions. Therefore, the management of demand and supply of electricity is of great importance. A range of technologies makes it possible to shift the timing of electricity demand and enhance the sustainability of the electricity system: Smart Grids and Smart Meters will lead to an integrated electricity supply, decentralised power production (especially from renewable energy sources), storage optimization (e.g. plug-in vehicles) as well as a minimization of losses and optimization of consumption.

Transport: more efficient vehicles, new fuels and demand containment

Enhancing the efficiency of vehicles e.g. through improved aerodynamics, light-weight materials, engine system improvements or hybrid systems is one of the main entry points in transportation. Additionally, new transport fuels such as second generation biofuels and electricity can play a further role in reducing emissions from the transport sector. Especially electric and plug-in hybrid vehicles provide promising opportunities for the development of a more sustainable transport sector. Electrification of transport requires a change of the whole system and an optimal combination of efficient cars, appropriate infrastructure and provision of renewable electricity.

What is needed, too, is a change in consumer behaviour either through substitution of mobility (e.g. videoconferencing instead of face to face meetings) or by sufficiency (e.g. short distance destinations instead of long distance destinations).

Heating: energy efficiency and new energy sources

Globally, the production of heat accounts for around 55% of final energy use. There is a huge mitigation potential in space and water heating in residential and commercial buildings mainly due to improvements of insulation, automated air conditioning, boiler efficiency or new sources of energy.

A low carbon economy is economically feasible

A transition towards a low carbon economy is economically feasible and does not trigger welfare loss, but rather increases welfare. This is the result of several recent studies. Many sectors such as renewable energies and energy efficiency technologies will experience significant increase in global investments within the next decades, whereof early movers can benefit by exploiting competitive advantages.

To achieve a successful transformation towards a low carbon economy, an optimal mix of policy instruments is needed. Putting a price on carbon is an important element of any climate change mitigation strategy, emphasising the cost factor for any economic activity. Cap and trade system such as the European Union Emission Trading Scheme (EU ETS) are a pioneering instrument here. Efficiency standards can provide incentives to develop more efficient technologies (for instance in the building sector), whereas financial incentives such as subsidies and tax credits are used to stimulate the diffusion of new, less greenhouse gas-emitting technologies.

Implications for companies

The transition to a low-carbon economy will both pose challenges but at the same time bring opportunities for companies. Low greenhouse gas (GHG) intensive companies and companies providing less carbon-intensive products and services are in a better position than their competitors to handle this transition.

envIMPACT®: Inrate's contribution to track low carbon companies

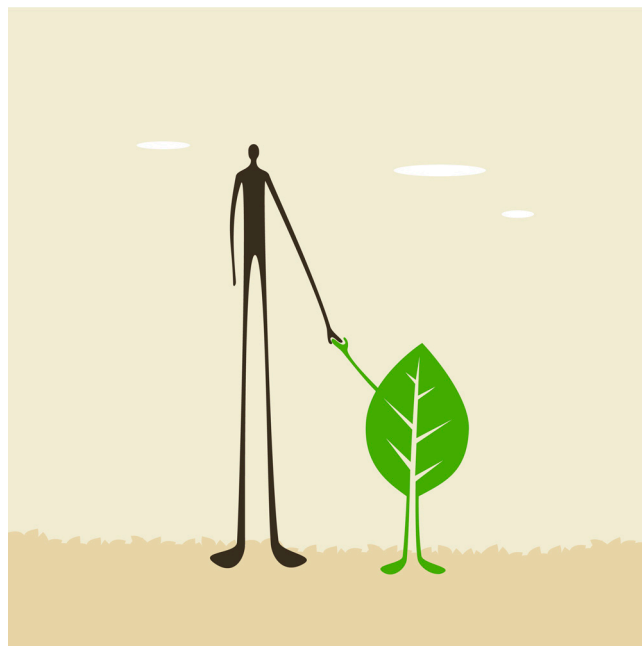
However, it is difficult to assess GHG intensities of companies. envIMPACT® is a quantitative methodology developed by Inrate for assessing the greenhouse gas intensity of companies for the entire value chain. Especially by including the GHG emissions for the use phase of products, the methodology overcomes the problem of the availability of GHG emissions data published by companies. Whereas companies tend to consider direct emissions caused during production and eventually those induced by their supply chain as part of their management responsibility, indirect emissions caused by the use phase of the products are often excluded from firms' strategic considerations.

The role of the financial markets – a shift towards “low carbon” stocks

Two trends can be identified. First, the long period of cheap energy could find an end in foreseeable future. Between 1970 and today, the oil price increased from USD 2 to USD 62 which means an increase of 8.6 percent per year. In general, high energy prices are strong incentives for increasing energy efficiency and this will be in favour of “low carbon” stocks (clean tech). Especially, as there is no evidence that oil will become as cheap as it was ten years ago.

Second, regulation and enforcing liabilities will shift costs towards energy users. Climate policy, whether globally coordinated or at national level, will add to the costs. Here, oil or “high carbon” energy sources are in a rather unfavourable position. The huge oil spill in the Gulf of Mexico will probably increase the pressure on regulators and the law system to enforce financial compensation. Integrating the now “external” costs of climate change and pollution into “high carbon products” will add to the pressure on profitability in this segment of the global economy and at the same time drive new energy sources and energy efficiency.

The sooner investors are moving more capital towards this direction, the earlier clean tech will become relevant also in quantitative aspects and the carbon intensity of the economy will be decreasing.



This newsletter is a summary of Inrate's Sustainability Insight "Low carbon economy: From a macro to a company perspective". Full text including sources on: www.inrate.com.

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