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Do Investments in Green Buildings Pay Off?

A large proportion of energy used worldwide is expended in the building sector. From a sustainability point of view, it is clear: to bring about a green society, we have to invest in green buildings. But do investments in green buildings pay off? From a micro perspective, it may be clear: a house-owner installing a more efficient heating system is making a good investment, as the energy costs saved will pay for the investment and more. But is this also true from a macro perspective? What about investors planning to invest in green buildings directly or indirectly—does that pay off as well? In this edition of Inrate Sustainability Matters, we will give you an answer to this question based on recent studies as well as provide you with some interesting company examples. The publication also features an interview with Mr. Noel Morrin, Senior Vice President Sustainability at Skanska on the current sustainability challenges within the construction sector.

Why are green buildings crucial for sustainable development?

With regard to primary energy consumption, buildings account for 40% of global energy use (49% in Switzerland, 41% in the US and 17% in Australia) (International Energy Agency (IEA) 2012; (primary energy being crude energy not yet transformed), see figure 1, left. According to the European Commission, households account for 27% of final energy consumption (European Commission 2012; final energy being the sum of energy supplied to the final user for all energy uses). It is therefore of key importance to improve the energy efficiency of the building sector, if global greenhouse gas emission targets are to be met.

As far as household energy consumption is concerned, the largest proportion (of it) is consumed for heating. In Switzerland, 72% of total residential energy use is spent on heating space, see figure 1, right. Hot water accounts for nearly 12%, whereas cooking accounts for 3.5%. On a global level, space heating accounted for only 53% in 2005 (IEA 2008).

Many governments around the world have now implemented policy measures to reduce energy demand in the building sector, and policies are always being updated. The IEA differentiates between three policy types:

Regulatory instruments: The building energy code states the minimum performance requirements. Some building energy codes are mandatory (e.g. in the European Union), and some are voluntary. The most important types of energy requirements are prescriptive (energy requirements for different building components as well as for technical components), performance (energy requirements based on a building's overall primary energy consumption), model building (comparing the energy efficiency of a new building with a reference building) and energy frame (a framework establishing the energy requirements for a building including energy loss).

Information instruments: The best known information policy tool are labels for buildings and appliances. There are various different labels at present, some mandatory, some voluntary. The aim of labels is to provide information to customers to give them the opportunity to make informed choices.

Incentive schemes: They are complimentary to regulatory and information instruments. Through incentive schemes, governments aim to provide fiscal or financial incentives respectively disincentives to foster energy efficiency improvements. Thanks to incentive schemes consumers are made to think about energy efficiency measures (IEA Sustainable Buildings Centre 2012).

Table 2 at the end of this paper lists selected policy measures and private sector initiatives in Europe, Switzerland, the US and Australia.

Energy Use

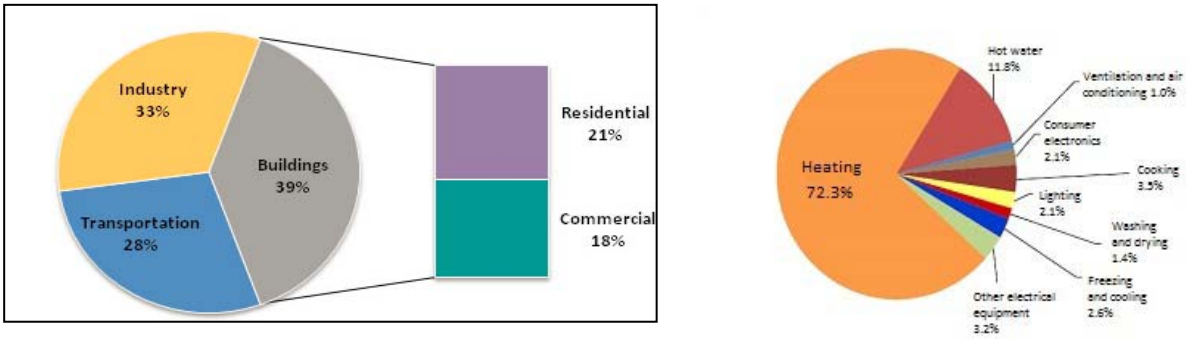


Figure 1
Left: Buildings Share of U.S. Primary Energy Consumption in the year 2009. Source: U.S. Department of Energy 2012. Right: Residential Energy Use 2010 Source: Swiss Federal Office of Energy SFOE 2011a

Company Example: British Land

British Land is one of Europe's largest Real Estate Investment Trusts. The company owns and manages a portfolio worth £15.8 billion. The portfolio mainly consists of retail locations and central London offices. British Land owns properties directly as well as through investment funds and joint ventures.

The company has a long-standing commitment towards sustainability and has been assessed by Inrate as one of the top players of the industry. The company works towards achieving high building standards for its retail and office developments and refurbishments and aims to manage buildings efficiently. The company sets ambitious targets regarding landlord-influenced energy-use.

There is still room for improvement as far as the energy performance certificate ratings are concerned: At present, the majority (55%) of the office properties in Scotland and England is in band D of the energy performance certificate. British Land's retail properties are on average in a higher band than its office buildings. 41% of retail properties in England are in Band C. The average building in the UK is in band D or E.

Energy over the life cycle

According to an estimation of the UNEP Sustainable Buildings & Climate Initiative (UNEP SBCI), energy consumption of new and existing buildings could be cut by 30 to 80% (UNEP SBCI 2009). To further reduce greenhouse gas emissions, a transition to renewable energy sources is desirable. Measures such as switching to renewable energy sources or adding insulation are potentially rewarding over the full life cycle of a building.

Over the life cycle of a conventional building, about 80% of energy is used during the operation phase, whereas the share of grey or embodied energy is 20% (Zeumer 2009). Figure 2 shows total CO_2eq emissions after a different number of building service years and the proportion of material– respective energy-related CO_2-emissions using data from a recent Swedish case study. Assuming a lifespan of 100 years, the original building would emit almost 1'600 tons of CO_2 equivalents, whereas the proportion of material-related CO_2 emissions would amount to almost 40%. In the case study, the CO_2-emissions of the building were optimized by switching to electricity from renewable resources, changing construction slabs from concrete to wood , using windows with better U-values, adding better insulation and the installation of low-energy lighting and appliances. This resulted in a much lower overall emission of CO_2 equivalents (less than half) and also in a different proportion of material-related CO_2 emissions. Building materials now account for almost 60% of life cycle CO_2 emissions (Wallhagen et al. 2011).

As regulations regarding the energy efficiency of buildings are getting stricter, the importance of grey energy is thus increasing and making the right choice of building materials and technical appliances is becoming more important. The German company STEICO produces especially sustainable building materials (see box below).

Proportion of material resp. energy-related CO_2-emissions before and after modification

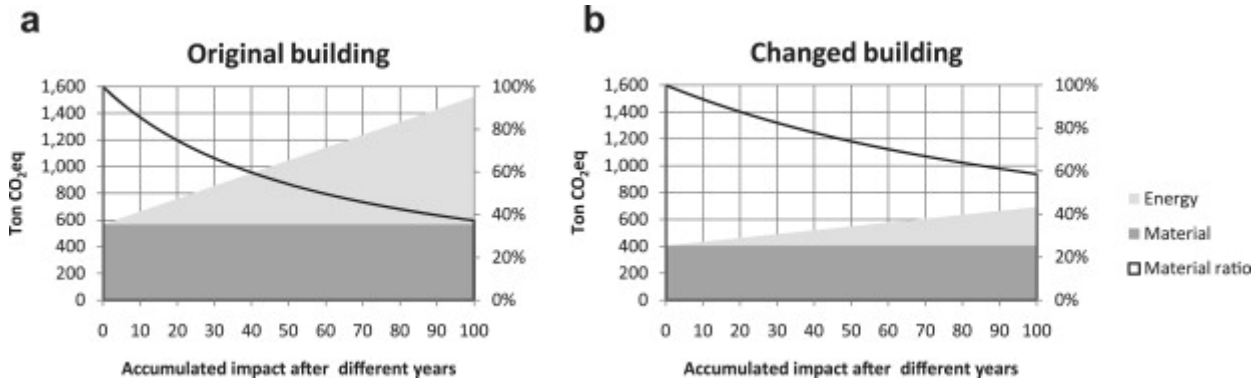


Figure 2
Total CO_2eq emissions after a different number of building service life years (case study). The curve shows the relative impact of materials in % (right scale). Source: Wallhagen et al. 2011

Company Example: STEICO

STEICO began in 1986 with the founding of Steinmann & Co. GmbH in Germany. The small timber importer has developed into the STEICO Group and is now particularly known for its environmentally friendly wood fibre insulation materials, the business segment in which the company is world market leader and covers about 50% of the European market. In addition, the company offers a wide variety of other products for construction, insulation and is active in the timber trade. Production takes place at two sites in Poland and one site in France; furthermore the group has sales offices in France and Great Britain. At the end of 2011 STEICO employed 955 people and reported revenues of 144.8 Mio. Euro, which is an increase of 11.2% compared to the year before.

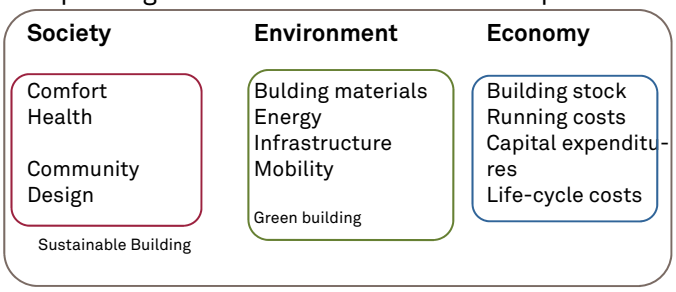
Due to its ecological products and its commitment towards sustainability, the company has been assessed by Inrate as one of the top sustainable players of the building materials industry. In general, insulation products improve the energy efficiency of buildings during winter months and protect from heat ingress during summer months as well as from noise, damp and weather damage. STEICO's products are specifically made from renewable materials: STEICO fibre insulating materials are manufactured entirely from timber or hemp. Timber is a unique material in that for each 1 m^3 used, up to 1 tonne of CO_2 from the atmosphere is bound within the product, during the growth of the timber tree. In the form of insulating materials this CO_2 remains bound in the wood fibres for the entire lifetime of the product. It has been calculated that the STEICO insulating material used to completely insulate an average single family house, binds as much CO_2 as a small car emits in the course of travelling 30'000 miles. The timber for STEICO's wood fiber insulating materials is sourced from forest thinnings or as sawmill by-products. To guarantee environmentally-friendly and ecological forestry management, the wood originates from forests which are managed in accordance with the strict rules of the FSC (Forest Stewardship Council) or the less strict PEFC (Programs for the Endorsement of Forest Certification Schemes).

STEICO's products are manufactured in modern, fully automated production processes to meet the requirements of European standards and building regulations. At the manufacturing locations STEICO recycles the water used during the production process and any additives used are naturally sourced and their use minimized. Therefore, at the end of a products life, STEICO products can be easily recycled or may even be composted to provide a valuable soil conditioner. Independent third party testing ensures strict compliance of the products with the relevant Building Approvals.

However, the company could further improve its sustainability performance by introducing an environmental management system according to ISO 14001 or by following strict reporting guidelines to improve the health and safety management of its employees.

Energy efficiency is not enough

As we have seen, energy efficiency is key and a shift towards more efficient buildings and renewable energy sources will reduce global greenhouse gas emissions and energy consumption. A building that uses less or no energy can therefore be called a "green" building. But a "sustainable" building should also tackle aspects beyond energy such as land-use, accessibility, health and wellbeing of inhabitants, working conditions on the building site and so on. The following graph compares the scope of "green" and "sustainable" concepts.



In the next two chapters, we use the terms "green" building and "sustainable" building interchangeably, although there is a different concept behind it.

Interview with Noel Morrin, Senior Vice President Sustainability at Skanska

⇒ ***What are Skanska's main challenges towards sustainable development?***

If we look at this from a Triple Bottom Line perspective then our largest challenges are:

Social – workforce safety – we employ circa 56,000 people but our workforce is 4-5x this size when sub-contractors are included. Our work involves high risk. Fatalities and serious injuries are common. Skanska has set itself the goal of Zero Accidents. Each year we move a little bit in the right direction but there is still much to do.

Social – Business Ethics – construction has many corruption issues. Society doesn't develop when there is corruption - a few prosper while many fail to progress. We therefore have a zero tolerance towards bad business practices like bribery.

Environment – Climate Change – although the construction sector is not directly responsible for a lot of carbon emissions, the product of our work (the built environment) accounts for 30-40% of man-made (anthropogenic) CO_2. Skanska's Deep Green strategy has the goal of "Near Zero Carbon" in construction.

Economic – Supply Chain – over 80% of our revenue goes to sub-contractors so all our Sustainability goals and ambitions are in their hands to a large extent. We have over 95,000 suppliers so we have a constant battle to get them to live our values.

⇒ ***What are Skanska's main priorities in the field of Green and/or Sustainable Buildings?***

Our priorities are set out in the Skanska Color Palette™ and our Journey to Deep Green™ ambition. We have six clearly defined KPIs and goals set for each in Business Plan 2015.

⇒ ***What are the main reasons behind Skanska's engagement in this matter?***

We see big business opportunities in developing and executing projects (buildings and infrastructure) that are Deep Green because by doing this we "Future Proof" the asset in terms of value.

⇒ ***What are the latest trends and Skanska's reaction towards it?***

We see two important trends in Green Business: The first is a move from eco-certification of buildings based on design to certification of performance. By eco-certification we mean voluntary schemes like LEED, BREEAM and CEEQUAL. The second is Energy Performance Guarantees. In the right circumstances Skanska can offer 3-year EPGs that are purely based on commercial considerations.

⇒ ***How present is land use as a sustainability topic?***

This is market and Business Stream specific. We try to work with brown field land where it makes economic sense – urban development for example.

⇒ ***Are there any projects that Skanska declines to build due to sustainability considerations?***

Yes – all projects are reviewed by the Skanska Tender Approval Process in order to screen out unacceptable risks.

Sustainable buildings as an investment

There are different ways of investing in sustainable buildings. Either through direct investment– owning the building oneself— or through indirect investment. Because direct property investment is cost-intensive, an investor usually owns only a single or a few properties. Therefore, the risk of direct property investment is usually higher than the risk of indirect property investment (Sebastian 2012).

There are different forms of indirect property investment. One of these is to buy funds that invest in green buildings. But there are not many examples of this on the Swiss market. Credit Suisse created the "Credit Suisse Real Estate Fund Green Property". The funds invests in buildings that fulfil the criteria of Credit Suisse's own sustainability rating system called "greenproperty". The British investment management and advisory group Climate Change Capital Limited created the "Sustainable Property Fund", which invests in mainstream commercial property with the emphasis on retrofitting existing buildings through energy efficiency interventions.

Another example of indirect investment in sustainable buildings is through buying shares of companies that invest in sustainable buildings. One of these companies is Swiss Prime Site, owner of the Prime Tower in Zurich West. The Prime Tower is certified according to the MINERGIE standard and above that holds a LEED Gold rating. The Prime Tower is in good company with other high-rise buildings such as New York's Empire State Building, which also holds a LEED Gold rating. The LEED rating goes further than the MINERGIE standard, because in addition to energy aspects it also includes further sustainability aspects such as water efficiency, materials and resources and indoor environmental quality. To achieve the Gold rating, a building must achieve 60 to 79 of 100 possible basis points (U.S. Green Building Council 2012). According to Swiss Prime Site's CIO Peter Lehmann, the reason behind the LEED certification was that more and more banks and insurance companies require LEED certification for their office buildings (Hefti/Hess/Martignoni 2012). Swiss Prime Site is also involved in other landmark projects. The company is currently constructing the future headquarters of the Swiss Post. The construction site is in Bern-Wankdorf, an area of dynamic real estate development. The building is pre-certified according to the DGNB standard (Deutsche Gesellschaft für Nachhaltiges Bauen). The DGNB standard is a very comprehensive sustainability standard and includes aspects such as environmental quality, economic quality, technical quality and sociocultural and functional quality of the building.

The third way of indirect investment in green buildings is through the selection of funds that hold shares in real estate companies. In 2009, Bank Sarasin issued the "Sarasin Sustainable Equity—Real Estate Global" fund that specialises in shares of sustainable property companies. The funds "Raiffeisen Futura Swiss Stock" and "Raiffeisen Futura Global Stock" for which Inrate provides the rating methodology as well as the ratings of the companies, contain exclusively sustainable companies. The companies are allocated to different service sectors. One of these service sectors is "Housing". Companies in this service sector fulfil the elementary need for housing and cover the entire building value chain. The companies range from building material producers to construction companies to real estate investment companies.

Do investments in green buildings pay off?

Over the past few years, several studies tried to make the link between building costs and the financial performance of green buildings. The construction costs of a green building compared to a standard building are typically higher. Extra costs are incurred, for example, through energy efficiency measures and building certifications . The better the building standards, the higher the initial extra costs.

The U.S. Green Building Council estimates that costs for buildings seeking LEED certification are 2% higher. But as running costs are lower, lifecycle savings of 20% of the total construction costs can be achieved—more than 10 times the initial investment (USGBC 2012). Another study came to the conclusion that additional costs for LEED silver certification add up to approx. 2%, whereas LEED platinum certification (the highest level of LEED certification) creates additional costs of approx. 6.5%. According to the same study, on the other hand, lifecycle savings can be achieved due to a reduction of energy use of around 30% as well as savings in emissions, maintenance costs and water usage . (Kats et al. 2003).

The extra costs are incurred by the owner while it is the tenant who benefits in the form of lower running costs (which is also referred to as agency dilemma). So the key question is whether sustainable buildings produce higher rental income or not. The study "Green Noise or Green Value" by Franz Fuerst and Patrick McAllister found a statistically significant rent premium of 4 to 5% in eco-certified office buildings compared to non-certified buildings in the same submarket area within the U.S. The authors also built three separate models to research the effect of green building certificates on sales prices. The models suggested sales premia between 25 and 30%. Fuerst and McAllister conclude that possible reasons for the much higher relative sales price premium compared to rental price premia may be the combined effects on capital value of higher rental income, lower operating costs, increased occupancy rates, image benefits (to investors) and a lower risk premium (Fuerst and McAllister 2011).

A Swiss study from the Zürcher Kantonalbank estimated the sales premium for single-family homes certified to the Minergie standard to 7%. The estimated sales premium for apartments is lower (3.5%). The additional building costs for a Minergie -certified building are between 5 and 10%. The investments in achieving the Minergie standard are thus honoured by the market, as buyers are willing to pay a higher price (ZKB 2008).

A recent study by Nils Kok and Matthew E. Kahn also found statistical evidence that a green label on a single-family-home in California provides an average market premium of 9% compared to a comparable home without a label. As the average sales price of a non-labelled home in California is USD 400,000, the price premium for a certified green home translates into approx. USD 34,800 more than the value of a comparable house nearby. The research indicated that the price premium is influenced by local climate and is highest in the areas with hotter climates. It can be assumed that

residents in hotter areas value green labels more due to the increased cooling costs. The price premium is also positively correlated to environmental ideology, which was measured by the rate of registered hybrid vehicles. According to the authors, this correlation suggests that some homeowners seem to attribute non-financial utility to a green label and its underlying features. The additional costs for homeowners to reach an energy efficiency level of some 35% above California's 2008 energy code are estimated to range between USD 4,000 to 10,000, depending on the climate zone. These rough estimates suggest that the capitalization of energy efficiency features in the transaction price (about USD 35,000) far exceeds the input cost for the developer (about USD 10,000 at most) (Kok and Kahn 2012).

As the above mentioned studies show, evidence points to the fact that tenants and owners prefer green buildings. But green buildings have further advantages that go beyond lower operating costs and higher rents resp. higher sales values. The U.S. Green Building Council states that with newly constructed green buildings, occupancy increases for 6.4% (USGBC 2012). Table 1 here below gives an overview on the cost benefits of green buildings, from the perspective of building owners.

The USGBC claims that green buildings are easier to rent and sell and therefore also have a lower risk for investors (USGBC 2012). As more and more companies (e.g. Swiss Re), cities (such as Zurich) and governmental institutions (e.g. the Swiss Government and the U.S. Federal Government) set requirements towards the sustainability of rented and owned buildings, the importance of green building standards will further increase. Right now, the market share of new-built LEED-certified office floor area in the United States is around 20% (Watson 2011). In Switzerland, the percentage of new-built office buildings that are constructed according to Minergie standards is also at 20% (Minergie 2012a). The percentage of new-built LEED-certified single-family units is with 0.7% still marginal (Watson 2011). In Switzerland, every fourth new-built apartment is certified according to Minergie standards (Minergie 2012a).

As institutional investors play an important role in the real estate sector, is it crucial from a sustainability perspective that they consider "green" as a relevant business case. A recent study by Eichholtz et al. found that the average percentage of LEED-certified properties in REIT property portfolios is still very low at 2%. Regarding REITs' stock performance the authors found that the market appears to incorporate the impact of green building certificates into the stock price, since there was no significant relationship between predicted greenness and abnormal returns. But the study also documented that a one percent increase in the weight of green properties within the overall REIT portfolio decreases market beta by 0.14 for LEED-certified properties. The authors explain the findings by the fact that green properties are less exposed to energy price fluctuations and to occupancy risks (Eichholtz et al. 2012).

As depicted above, a number of studies found empirical evidence that investments in green buildings pay off. Nevertheless, the percentage of certified buildings is still too low when compared to the importance of the building sector as far as global GHG emissions are concerned. Institutional investors that aim to evaluate the sustainability of their real estate portfolios have the opportunity to do it with the help of the Global Real Estate Sustainability Benchmark (GRESB). GRESB also allows them to identify and implement sustainability best practices. The GRESB Survey captures more than 50 data points to reflect the sustainability performance of an institutional investor's real estate portfolio. Responses to the survey illustrate that sustainability issues are becoming increasingly important. 60% of respondents collect and report energy consumption data, as compared to 34% a year before. Nevertheless, 40% of the property companies and funds that participated in the survey are still only considered as "Green Starters" with limited disclosure of sustainability performance (GRESB 2012).

Cost benefits of green buildings	Operating costs	Building value	ROI	Occupancy	Rent
New construction	drop 13.6%	rises 10.9%	improves 9.9%	rises 6.4%	rises 6.1%
Existing building projects	drop 8.5%	rises 6.8%	improves 2.5%	rises 1%	rises 19.2%

Table 1 Cost benefits of green buildings, shown for new construction and existing building projects. Source: USGBC (2012) according to McGraw Hill Construction (2010)

Country/ Region	Government	Private Sector
Europe	• In 2010, the update of the **Energy Performance of Buildings Directive (EPBD)** was adopted by the European Parliament and the Council of the European Union. The EPBD aims to strengthen the energy performance requirements of new buildings but also of existing ones. It has set ambitious targets to ensure that from 2020 all new buildings consume very little energy and it has created the term "nearly Zero-Energy Building" or nZEB. For existing buildings, member states are required to draw up national strategies to increase the number of nearly zero energy buildings, as no specific targets have been set (ECEE 2011). • The **UK** Government is committed to an 80% reduction in carbon emissions by 2050. Given the importance of the construction sector, the Government has set out an ambitious plan for all new homes to be **zero carbon homes** from 2016 (Zero Carbon Hub 2012).	• The **Building Research Establishment Assessment Method (BREEAM)** is a voluntary environmental assessment method and rating system for buildings. It was established in the UK in 1990 and has become one of the widely recognized measures of a building`s environmental performance. In 2009, the „BREEAM Europe Commercial" was launched. This assessment method enables developers to evaluate, improve and demonstrate the environmental credentials of their building in a consistent way in different countries across Europe (BREEAM 2012). • The **German Sustainable Building Council (DGNB)** was founded in 2007 by 16 initiators from different subject areas within the construction and real-estate sector. DGNB developed standards for the design and usage of buildings that are aimed at increasing the positive effects for society and nature as a whole and to minimize the negative ones. The certification system is constantly being further developed for different usage profiles, but currently most of the certified buildings are public and service buildings. Due to the pressing need for an internationally harmonized certification system DGNB International was founded. The objective of DGNB International is to spread the expertise of the DGNB around the world, and to make the DGNB certification system and its guidelines available for integration in other countries (DGNB 2012).
Switzerland	• The **Energy Strategy 2050** of the Federal Council highlights the importance of energy efficiency measures within the building sector. Commissioned by the Swiss Federal Office of Energy (SFOE), a new **Standard for Sustainable Building** will be developed. The objective is to reach a comprehensive sustainability label, which includes not only environmental aspects but also economic and social criteria. For this reason, a comprehensive sustainability standard shall be developed for Switzerland, building on existing instruments and labels (such as Minergie). A launch is scheduled later this year (CSD 2012). Another key aspect of the Energy Strategy 2050 is the promotion of energy projects. The implementation of the building program is the responsibility of the cantons. The main objective of the building program is to reduce the CO_2 emissions of the Swiss building stock (EnDK 2012). • In line with the 4th Sustainable Development Strategy 2012-2015 of the Federal Council, the **Sustainable Building Network Switzerland** was founded in July 2012. Carried by the economy and the public sector, the association aims to coordinate and support sustainable building in Switzerland (Federal Office for Buildings and Logistics (FOBL) 2012). • An important pillar of energy policy in Switzerland is the **energy research** which should serve as a planning tool for the decision-making authorities (e.g. SFOE). Switzerland is cooperating in the course of the research program of energy in buildings in ERACOBUILD, an European initiative with the aim of cooperation of national and regional R&D programs on sustainable building (SFOE 2012).	• In 1997, the cantons developed the **Minergie** standard. Today the standard is carried by the economy, the cantons and the federal government and has been widely accepted. In March 2011, the Minergie-A standard was implemented by the Swiss Association MINERGIE. It is the first available label standardizing a zero-balanced type of building. Minergie-A is a label for new and refurbished low-energy-consumption buildings according to the Directive on the Energy Performance of Buildings (EU 2010, see above). Compared to Minergie and Minergie-P it also takes into account grey energy (MINERGIE 2012). • **GEAK/CECB (Gebäudeenergieausweis der Kantone / Certificat énergétique cantonal des bâtiments)** is an energy certificate for buildings which classifies buildings` energy quality. It was introduced in 2009. In September 2012 , the GEAK Plus was launched. It additionally lists concrete measures to increase energy efficiency of buildings (GEAK 2012). • The **Swiss Sustainable Building Council (SGNI)** was founded in June 2010. It rates buildings regarding sustainability, considering their entire life-cycle. Buildings that withstand such an evaluation are called „Blue Buildings". Compared to „Green Buildings", Blue Buildings consider other sustainability aspects as well. Furthermore the rating system for sustainable buildings from DGNB (see above) was adapted to Swiss conditions and is currently in a pilot phase (SGNI 2012). • The Swiss Society of Engineers and Architects (SIA) provides widely-applied standards and recommendations for planning and construction in Switzerland. The recommendation **SIA 112/1** considers environmental, social and economical aspects. • **Greenproperty** is the seal of quality of the Credit Suisse for sustainable buildings. It incorporates the requirements of Minergie, Minergie -ECO and SIA 112/1
US	• The **Energy Policy Act** of 2005 and the **Energy Independence and Security Act** of 2007 included energy efficiency and sustainable design requirements for Federal and other buildings. Many states (e.g. California) and local governments also have green building laws, mainly applying to public buildings (EPA 2012).	• The **LEED** green building rating system—developed and administered by the U.S. Green Building Council, a Washington D.C.-based, nonprofit coalition of building industry leaders—consists of a suite of rating systems for the design, construction and operation of green buildings and homes. The LEED rating system offers four certification levels (Certified, Silver, Gold and Platinum). LEED has been adopted in 135 countries around the world (USGBC 2012).
Australia	• As a first step to improve the **energy efficiency of residential and commercial buildings** across Australia, the Council of Australian Governments (COAG) agreed to the introduction of key measures in April 2009. Amongst these are a significant increase in the energy efficiency requirements for all new commercial buildings and a 6 star energy rating (house energy rating through the Nationwide **House Energy Rating Scheme (NatHERS)**) , or equivalent, for new residential buildings.	• **Green Star** is Australia's, voluntary environmental rating system that evaluates the environmental design and construction of buildings and communities. At present, more than 4 million square meters of Green Star-certified space exist around Australia (GBCA 2012).

Table 2: This table gives a short update on current green building legislation and selected private sector initiatives in selected markets.

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