

BUSINESS OPPORTUNITIES IN SUSTAINABLE HOUSING

A Marketing Guide Based on Experiences from 10 Countries



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This marketing guide is produced from material developed in the course of IEA SHC Task 28/EBCS Annex 38: Sustainable Solar Housing. The guide has been overseen by two implementing agreements: Solar Heating and Cooling (SHC) and Energy Conservation in Buildings and Community Systems of the International Energy Agency (IEA). Sustainable Solar Housing is a joint venture between these two IEA bodies. Operating Agent was Robert Hastings from Switzerland. This venture brought together some 50 experts from 14 countries. The objective of this cooperation was to help achieve a significant penetration of sustainable solar housing into the housing market of each of the participating countries by the year 2010 (more than 5 percent). This will be achieved by providing parties in the housing market with the necessary documentation and examples in the form of realised built projects, information about design and technical issues, and guidance on the 'how to' of marketing sustainable solar housing. For more information: www.iea-shc.org/task28

The work was divided into sub-tasks split between four groups, one of which was marketing. Peter Erdtsieck and Edward Prendergast from the Dutch company moBius consult were contracted by the Netherlands Agency for Energy and the Environment (SenterNovem) to chair this sub-task. Together with Albrecht Stoecklein from the Building Research Association of New Zealand (BRANZ Ltd), and Are Rødsjø from the Norwegian State Housing Bank, Peter and Edward have been direct contributors to this marketing guide.

Other publications from SHC Task 28/ECBCS Annex 38:

Sustainable Solar Housing are

- Design of high-performance housing, a reference book, (James & James 2006).
- Sustainable housing in warm climates, learning from innovative projects (James and James 2006).
- Brochures of exemplary projects: www.iea-shc.org/task28/index.html.
- Innovative components and systems: www.iea-shc.org/task28/index.html.
- Design insights from the analysis of 50 sustainable solar houses (Technical Report No. IEA28-STD-TR, Fraunhofer ISE, Freiburg i.B., 2006).

The Norwegian University of Science and Technology (NTNU) and Sintef (the largest independent research organisation in Scandinavia) will use this marketing guide to help implement the solutions developed through their common Smart Energy-efficient Buildings (SMARTBYGG) project in the marketplace. This book is a sub-project of SMARTBYGG and has been funded by the Norwegian State Housing Bank. The Housing Bank has also provided financial support for Norwegian participation in IEA SHC Task 28/ECBS Annex 38, together with The Norwegian Research Council and Enova SF. Enova SF is a public enterprise owned by the Royal Norwegian Ministry of Petroleum and Energy.

Segel is a consultancy that assists small- and medium-sized companies in entering new markets as part of their business development. Segel intends this book to demonstrate how to work practically and systematically with market development.

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1.1 Sustainable housing – the next growth business

Main driving forces

One of the biggest paradoxes for mankind is the fact that our know-how and technical development are becoming major threats to the survival of our planet. Because of this, there is increased public and political awareness of environmental issues.

Global events now have an increasing influence on the energy price, reinforcing price fluctuations. In parallel, the general growth in the world's economies has increased the overall demand on energy. Unless the production of energy rises to meet this demand, energy scarcity will become a major issue in the international market. Therefore, it is expected that the overall trend will be spiralling energy prices. This will force us to look at energy use in all aspects, not least in our lifestyles.



Local and national authorities in many countries have put environmental issues high on their agendas. The European Union will implement stricter regulations for the housing sector in the near future, as well as using financial incentives for environmentally friendly solutions. In other regions, similar developments will take effect. By anticipating regulation changes, a company can now become a market leader and use this to build a serious and innovative image.

Sustainable housing is currently finding its place in the housing market. Under the influence of global developments, public awareness, and policy decisions, the housing industry is realising that sustainability will be an important factor in future developments. Sustainable housing will be a growing part of the housing industry, making it a business opportunity waiting to be explored.

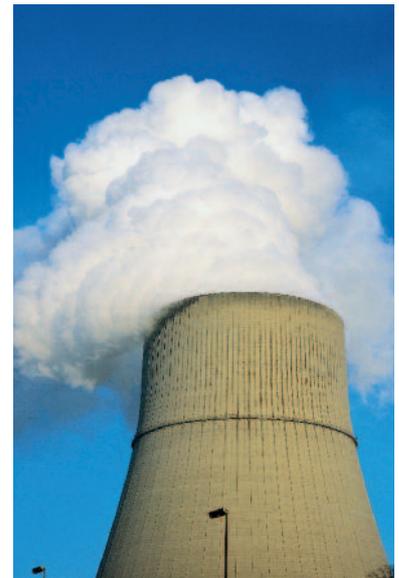
For the consumer, there are multiple advantages to choosing sustainable solutions:

- Direct cost savings from lower energy consumption. Experience shows potential reductions as high as 75 percent – with a payback within two years – compared with conventional houses¹. With increasing energy prices, these cost savings will only increase.
- Owners of sustainable houses value the non-energy benefits even more than the cost savings themselves^{2, 3}. The attributes of sustainable housing other than energy saving include:
 - better air quality, reducing the risk of asthma problems
 - higher comfort levels because of better insulation
 - a better house; it will be easier to sell
 - taking responsibility for the environment, especially related to improving local air quality but also to reducing global warming
 - taking responsibility for future generations
 - better quality living in a sustainable house

¹ Houses without heating system in Lindås, Göteborg, Sweden. hans.eck@goteborgenergi.se, www.goteborg2050.nu

² Skumatz, L.A., Dickerson, C.A. and Coates, B., (2000). 'Non-Energy Benefits in the Residential and Non-Residential Sectors – Innovative Measurements and Results for Participant Benefits', ACEEE Summer Study, Monterey, US, pp. 8.353–8.364.

³Skumatz, L. and Stocklein, A. 'Using Non-Energy Benefits (NEBs) to Market Zero and Low Energy Homes in New Zealand'. SB04 Sustainable Building Conference, Shanghai 2004.



Due to the above, the status of both the house and its inhabitants is improved. A study by the Building Research Association of New Zealand and Skumatz Economic Research Associates from the US shows that homeowners of low-energy houses in New Zealand value the non-energy benefits of their housing, on average, more than twice as much as the energy savings. Similar results are reported from studies in the US.

Market position

For companies striving to be recognised as market leaders (whether local, regional, national or international) the aim is to demonstrate their product differs from that of their competitors. For such companies, it is extremely important not to be identified as another ‘follower’. They have to clearly define the position they want to take in the marketplace – and do so by using a consistent marketing concept. It is essential that they are able to ‘deliver’ the expectations created through their marketing.

Sustainable housing until now has been in an initial phase in the market. As this business now enters into its growth phase, it is the right time for companies to define their positions. Waiting on this decision will make it more difficult to not be just another follower. The main competitive tool of followers is limited to price. Successful market leaders can focus strongly on non-energy benefits and other added values in their marketing of sustainable housing solutions. Brand building on sustainable values is a decisive opportunity for market leaders. Sustainable housing is not only applicable to new houses, but also to existing ones, as there is huge potential in improving existing housing stock. This means that there is a large latent market for a variety of businesses within the building industry for retrofit and rehabilitation.

1.2 Scope



The purpose of this document is to be a practical guide to marketing, based on real experiences of the introduction of different products on different markets. This guide demonstrates how the marketing of sustainable housing can be put into operational action. The guide is meant to be inspiring and helpful for businesses wanting to establish an early position in the sustainable housing market.

The guide presents experiences from a number of companies and projects on how sustainable housing was introduced into the market in different countries. In two examples, marketing campaigns that successfully introduced new products are discussed. Step by step, the reader is guided through the marketing process, demonstrating how a successful marketing campaign is structured.

The 18 stories of successful market introduction of solar sustainable housing were collected from experts participating in SHC Task 28/EBCS Annex 38: Sustainable Solar Housing. The success stories are about different types of products and market situations. By showing their common features and structure, this guide teaches valuable lessons (from the 11 most interesting stories) that are applicable to many different types of products in various housing markets.

The motivations for the project contributors were first to help with the implementation of sustainable solutions for meeting the environmental challenge for the world, and secondly to assist businesses maximise commercial opportunities from this trend.

This marketing guide is written for professionals and semi-professionals in the building sector. Because of the scope of the guide and the generalisation of the methodology, a wide variety of companies in the building sector can benefit from the opportunities described. Among the prime target groups are: architects, construction companies, building materials and technical equipment manufacturers,

engineering companies, prefabricated house manufacturers, etc. The guide is also a relevant source for authorities working with the building industry, as well as educational institutes.

1.3 Marketing stories

The content of the marketing guide is based on 18 sustainable house success stories from 10 different countries. 11 of these stories are included in the annex. The stories were produced as part of SHC Task 28/EBCS Annex 38 Sustainable Solar Housing and were documented and analysed using a common template. Each story has the following structure:

- introduction
- specification of the product or service sold
- target market
- the players
- the action taken
- results
- final analysis.

The authors were either directly involved in the cases or had in-depth knowledge about them. In most cases, the authors had a technical or architectural background; only a few were marketing professionals.

The stories were analysed by the authors of this guide, who are specialists from Segel, a consulting marketing company.

The main conclusions drawn from the analysis were:

- Those case studies where the sellers worked most systematically with the marketing succeeded best in achieving their goals. This marketing guide is about these cases.
- The projects were quite different regarding strategies: some were product centred, while others were more conscious of focusing on the specific needs of the persons in their selected target group.
- Most of the stories are about a product or service in the introduction or the early growth phase of its life-cycle. They show the challenges of selling this product in a new market.
- The case studies show that financial benefits should not be used as a prime marketing tool. Furthermore, the use of financial incentives may mislead the seller as well as the customer to be completely cost focused. Experience from the case studies demonstrates that other benefits have to be focused on.



1.4 What is sustainable housing?

Sustainability is defined in the Brundtland commission report: Our Common Future (1987) as: *"Maintaining the environmental, social and economical system in such a way as to meet the need of the present generation without compromising the need of future generations to meet their own needs"*.

Such a general definition is, of course, difficult to use in a practical marketing guide. It gives, however, the general idea of what is meant when talking about sustainable housing. The problem is that, in practice, there are many different opinions about the exact definition of 'sustainability' and therefore also about 'sustainable housing'.

If one holds strictly to the letter of the Brundtland definition, sustainability in housing sets extremely high restrictions on housing. At the moment, the marketing of such houses is restricted to a very small market segment of involved innovators. Furthermore, as there is much discussion about the practical implications of the Brundtland definition, it is not clear what practical features should be included in such a house.



Therefore, a sustainable house is defined in this guide as: *"A house with a substantially better performance in the field of energy use and the use of renewable materials than one built to the standard building requirements"*. As a rule of thumb, performance is at least 50 percent better. Elements of a house, instead of the house as a whole, can also be seen as marketable items. With this definition, many different products and groups of products can be defined as sustainable and thus fall into this guide's target market segment.

In this guide, the scope of sustainability in housing is shown by using two very different examples of a successful marketing campaign. Chapter Three describes the development of a site with so-called passive houses. A passive house is an ambitious house with very low use of energy for heating. It is therefore a very good example of a sustainable house, and it might be one of the first products that the reader would consider.

In Chapter Four, however, sustainability is sold to homeowners in the form of advice. This advice instructs the client how their house can be upgraded towards more sustainable performance. In this case, the advice is the 'sustainability product'. The advice is not just focused on energy – comfort issues and the indoor climate are also examined.

In both Chapters Three and Four, the presented examples show an integrated approach to achieving a sustainable house, viewing the house as a whole. This strategy has several aspects, which can also be seen separately as sustainability products. Insulation elements, such as triple glazing or retrofitted insulating inner walls, are examples. Others are the use of passive solar energy (solar orientation) or active solar elements producing either electricity or hot water. Even more basically, a rain collector in the garden saves a considerable amount of tap water (and thus energy).

Sustainability can also be seen in a wider context than that of a house or an item in a house. The scale, in fact, can be extended towards international collaborations such as the IEA itself. On a more practical level, items on a local or regional scale, such as an efficient heat distribution network, could also be included.

As the examples show, there are many different products that can be awarded the word "sustainable". This shows that there are many opportunities in a marketing sense. However, the wide scope of this interpretation does not mean that everything can be called sustainable. The market does not award false claims. In today's world, claims have to be backed up by proof and action. Sustainability in that sense is not just related to a product – to be credible, it should be related to the company as a whole.

For some companies, sustainable products or services may be their core business, while for others it may be a new range in addition to their existing product line – which is the case for several house manufacturers. For a third group (such as banks and utility companies), sustainability may be used in their marketing to strengthen their image.

Sustainable housing means sustainable living; sustainability is not just low energy. It also means that people are happy to live where they live and that they live in a healthy environment. As well as low energy use, other aspects of sustainability are crucial aspects in a marketing campaign and should be used to sell sustainability.



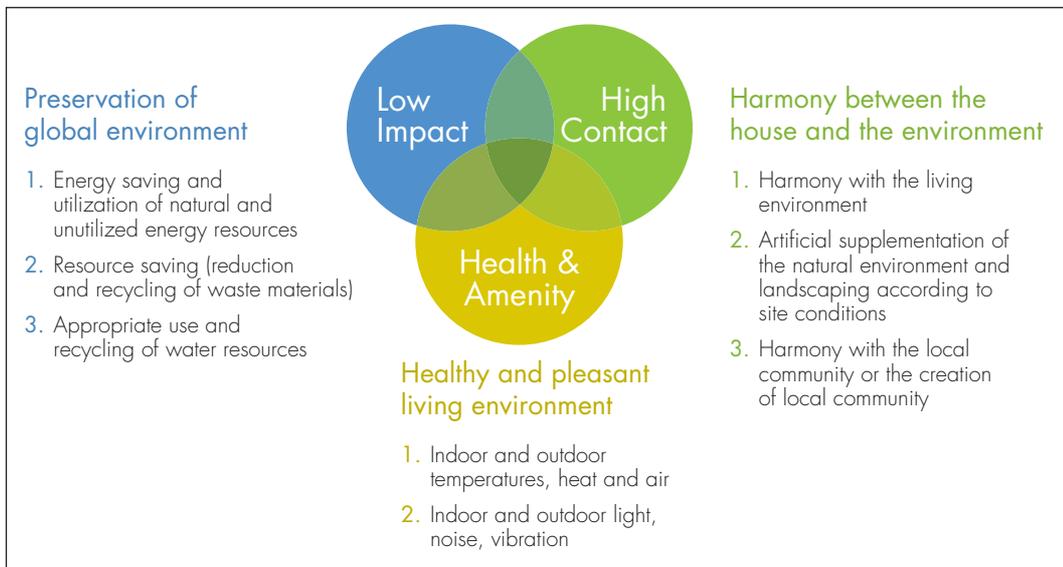


Fig. 1
Three main aspects of sustainable housing

³ Source: Daiwa House Industry Central Research Laboratory, Nara City Japan

1.5 Business potential

In this guide, the marketing process is explained in Chapters Three and Four using concrete examples. Before this, some general aspects of marketing are discussed in Chapter Two. The example in Chapter Three is a presentation of how sustainable houses were introduced into the market for new housing. In Chapter Four the example is about the marketing of sustainable solutions for the existing housing stock.

Throughout the marketing guide, the reader will also find short comments with specifics from the other stories (see also Appendix A). The comments related to the other stories are set out in colored boxes in the margin; the authors' comments to the two main stories are written in italic.

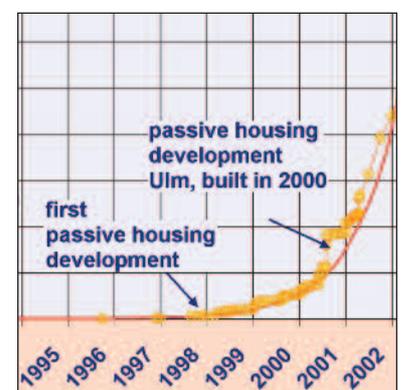
The main example for sustainable solutions in new housing is the construction of three sustainable department blocks in Switzerland which resulted in the planning and the construction of five more blocks, amounting to a total of 20 flats.

The REEP-programme (Residential Energy Efficiency Project) in Waterloo, Canada, is the main example of a sustainable solution to the existing housing stock. This project is a very good demonstration of how the systematic and smart marketing in Waterloo gives better results than were gained without such marketing for the same programme in other regions.

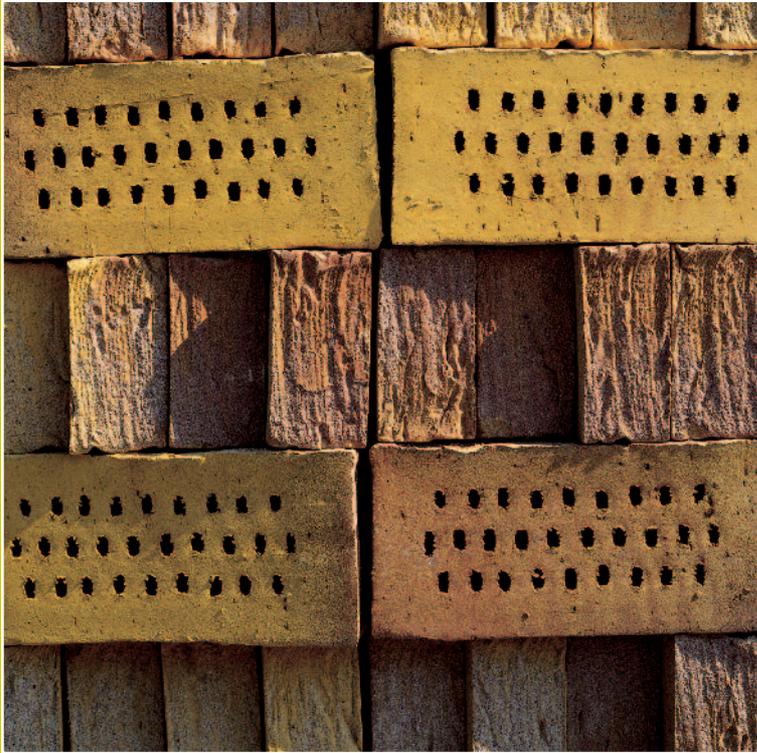
Besides the two main examples, interesting points from other stories are shown. One of these is the marketing of sustainable housing in the Netherlands under the WWF (World Wildlife Fund) logo. About 10,000 houses meeting the WWF standard were built, and this was achieved without financial initiatives. With the help of the values connected to the WWF logo, the advantages of sustainable housing have been well communicated to the selected target groups. This story demonstrates how effective a brand may be when used in marketing. It also shows that marketing is performed not only to consumers, but also towards other actors in the housing market.

The last chapter in the guide lists the main lessons that were learnt from the marketing success stories.

Fig. 2
Number of passive houses in Germany



(Ref.: Appendix A, page 70)



2 Marketing structure

2.1 Marketing trends

Modern marketing faces the changes we also see elsewhere in society. In order to have a better insight into marketing sustainable housing, this chapter focuses on the trends which can be seen now in marketing.

1 Moving from national to international business

Most products have first been introduced on the domestic market. When this is achieved, the marketing is adapted to penetrate international markets. The traditional thinking has been that each of the markets is different and has to be treated correspondingly differently for product, marketing and communication aspects. Because trends are crossing borders, businesses increasingly develop international communication strategies in order to build a strong international position.

2 Moving from 'product' to 'concept'

Traditional marketing has focused on product function. In order to show the 'added value' of the product to the customer, the modern marketer focuses on 'concepts'. One such concept could be a focus on what the customer wants to 'bring to the world' and why the product is 'making the world a better place to live in'. However, the message still has to be trustworthy and consistent with company philosophy.

3 Shorter product life-cycles

The smart innovator no longer has the privilege of being the only one offering a unique product. Other companies are rapidly attracted to profitable markets. As the number of competitors increases, the pressure on the price increases and profitability decreases. As a result, profitable periods are becoming shorter and newer products rapidly replace the market share of an existing product.

4 Immediate response to market changes

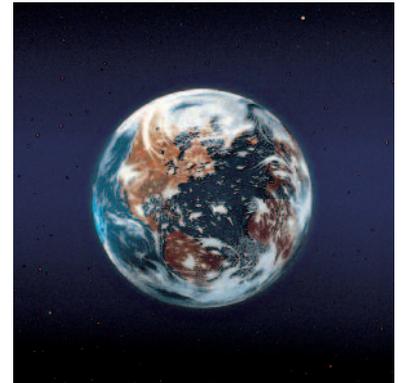
As experienced in the last few years, dramatic events such as international conflicts and natural catastrophes heavily influence national markets. Companies are also strongly affected (positively or negatively) by the changes in demand caused by consumer reactions to these events. Energy efficient technology, for example, has benefited from higher energy prices. In the same manner, companies may benefit from the changes in consumer reactions.

5 Branding

As big companies have launched more products and entered new markets, they have used different brands in order to differentiate themselves and be more direct in their communication. There is now an increased trend towards fewer brands, with each one associated with certain attitudes and values (conceptual marketing). The brand is used to take a defined position in the market. From that position, a broad range of products and services related to the brand can be marketed.

6 Changing consumer groups and shifting populations

The populations of industrialised countries are growing increasingly older, and new housing will need to be built for this group. Many older consumers have a relatively high income level. This group has distinct wishes for their housing, including high comfort and security levels. Research also shows that older consumers are willing to invest in sustainability. There is a growing market



niche whose consumers buy products associated with health and sustainability. This group, with the cultural creatives or LOHAS (Lifestyles of Health and Sustainability)⁴, form an advance guard to a larger group of consumers with similar tendencies. Groups such as LOHAS are potentially important business opportunities for sustainable housing.

2.2 Marketing strategies

Marketing is about how to communicate the company's products, services, key benefits as well as its philosophy (business idea) to potential users or consumers. Successful marketing is consistent marketing. To achieve this, it is important to structure your marketing campaign and to have well thought out what it is you want to sell, to whom, and how this will be done. Using different marketing tools can be an important help in a marketing campaign.



Four Ps⁵ are used to define the marketing mix:

1 Product (or service)

What do you want to sell?

2 Price

What are the competing products?

How do you want to position the product in this market?

3 Place

Where are you going to sell your product?

What distribution channels are you going to use?

4 Promotion

How will you communicate to your customers?

A typical mistake is to rush directly to the fourth P (Promotion). Such marketing is purely operational and not founded on strategic decisions. Marketing is not just about making a nice brochure. Good marketing links the 4 Ps to the fundamental strategic questions for any type of business⁶:

- 1 What to sell? (identical to the first P)
- 2 To whom? (identify the target group(s) you want to sell the product to)
- 3 How to sell? (the second, third, and fourth Ps).

The different aspects, the 4 Ps and the target group are interrelated, and all aspects influence each other. The properties of a target group are crucial. Market-oriented companies should start with the target groups and define the product accordingly.

⁴ 'Understanding the LOHAS Consumer Reports: A Focus on Green Building', The New Marketing Institute, June 2003.

⁵ William D. Perreault, Jr and E. Jerome McCarthy (2002), 'Basic Marketing', McGraw-Hill.

⁶ Robert W. Bradford and J. Peter Duncan (1999), 'Simplified Strategic Planning'. Chandler House; Michael E. Porter, 'Competitive Advantage' (1985), Simon & Schuster.

2.3 Six-step process

This marketing guide is meant to be a guideline for companies planning business development for any sector within sustainable housing. The main stories in the following chapters (new houses and existing stock) will be discussed through a six-step process:



Good decision-making is based on facts, not anticipations. The examples in this marketing guide demonstrate what kind of information is useful as input and how to collect it. It is a continuing challenge to differentiate between important and unimportant information.

Based on the collected information, different analyses are executed in order to understand the position of the company relative to its surroundings and competitive environment. In this marketing guide several different market analysis tools are discussed. The analyses help to identify the strategic marketing options.

The two first steps are strongly interrelated. The structuring mirrors the strategic thinking which is taking place in the next phases (this topic is expanded on the next page).

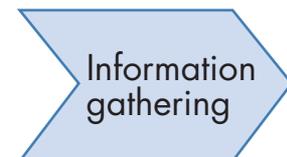
Defining the objectives for the business. These should include qualitative as well as quantitative targets. Quantitative targets must be measurable in order to be used to benchmark the results. Measured results directly and continuously influence new goals, as they are defined while the company is moving forward in putting their strategies into operation. Experience shows that only what is measured is systematically focused on. Setting goals gives the opportunity to measure whether your strategies are successful, thus helping you to continue with decisions or change course.

Good strategies therefore clearly describe which products or services are going to be sold to whom and how this is going to happen. This means finding out who is going to buy your product, establishing what price they will pay, and deciding what type of promotion is required. The main issue in strategy discussion is prioritisation. Having first decided to take on strategic partners for the distribution of the product, it is hard to change to a separate distribution system because then you will have to compete with existing customers. It is therefore important to make sure that all strategic issues are addressed. It is essential that there is consistency between the different strategic decisions.

For each of the chosen strategies, concrete action plans define what to do in order to achieve the defined goals. Good action plans include at least the following items:

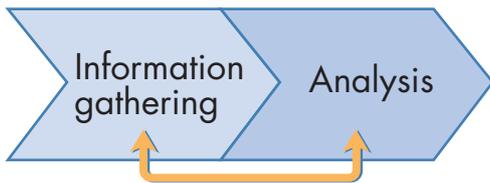
Who is responsible, what the budget is (for external costs and internal resources in hours), and what time schedule (a Gant diagram is suitable) is to be used to illustrate the planned progress of all actions.

As the company proceeds, new actions are added to the action plan. The important control question is then "which strategy is the proposed action meant to support"? Or "what specific goal will be reached by the proposed action"? If there is no clear answer to the question, it may indicate you are starting a new strategy without being conscious of it.



As the company is moving ahead and gaining experience, it is crucial to measure the progress and determine whether the strategy is successful. By measuring the right factors, it is possible to find which actions have achieved the goals. The results give new input for the strategies. Control measurements are used to make strategies in order to adapt to the measured realities. This is an ongoing process in a continuous loop.

Understanding the business environment – the key to making the right strategic decisions



Understanding the business environment is a prerequisite for making the right strategic decisions. The two first steps in this are strongly interrelated – there will be an ongoing interactive process with further information gathering as the analysis proceeds.

Good marketing research consists of selecting relevant information as the foundation for the further decision-making. This implies avoiding heavy loads of irrelevant information.

Today the internet may be used to gather a major part of the information foundation for the analysis.

Before starting gathering information, it is important to have a picture of what types of analyses are relevant to execute, and what information is needed in order to do that work. There are two main levels of analysis to perform:

- **Analysing the general environment:**
The general environment (Political, Economical, Social and Technological factors) influences the marketplace and thereby influences indirectly each individual company. This is elaborated through a PEST analysis.
- **Analysing the competitive arena:**
Suppliers, competitors, substitutes, customers, etc, have the strongest and most direct impact on the development of a company's business. Four main analyses will be demonstrated in this book: SWOT, the six-forces model, segmentation, and the product life-cycle.

The framework for this thinking is expressed in the figure below; the PEST factors affect the competitive arena and thus indirectly influence your business. Before defining goals and strategies, it is necessary to find out which of the PEST factors are relevant for the analysis of the business case. Information is gathered to analyse the competitive arena, including these indirect PEST factors.

In the figure, for each of the four categories examples of factors are given which can be important to your business. These examples are not complete; in a PEST analysis you should analyse which other factors have an influence on your competitive arena. The analysis turns the pieces of information into knowledge, which forms the foundation for the definition of goals and strategies in the next steps.

Business Intelligence (BI), Competitive Intelligence (CI) and Marketing Intelligence Systems (MIS) cover the topic of how to gather and systematise market information. Common to all is the need to avoid information overload, but at same time to ensure you have adequate information for decision-making and not leave it to assumptions only. Much of the most important information is gathered from customers. BI has a wider scope than the two others. CI focuses on the competitive arena, and is the most commonly used expression of this subject in the US. MIS is quite similar to CI and focuses on the continuous monitoring of the market.

There is a worldwide association for professionals in this subject area (<http://www.scip.org>).

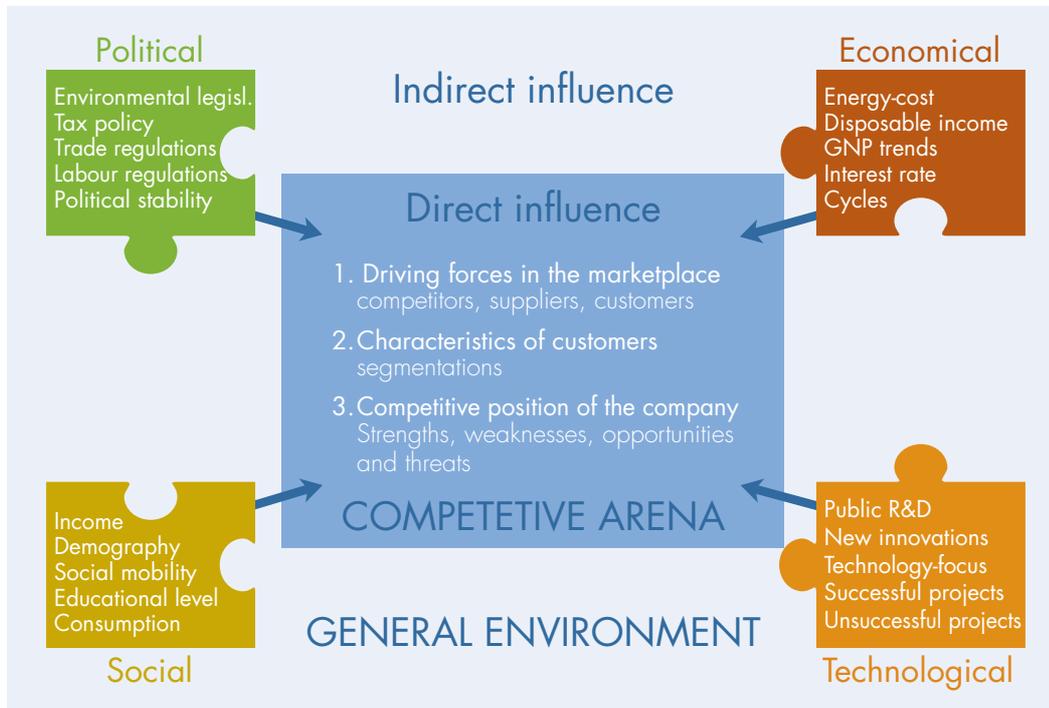


Fig. 3
PEST factors' influence on
the competitive arena

Within marketing theory there is a range of analysis tools to help understanding the competitive arena. Those presented in this book are among the most commonly used tools. In the SWOT-analysis all major factors are summarised.

SWOT analysis is used to understand a company's ability to take opportunities and overcome threats. The outcome of a SWOT analysis forms the basis of strategic marketing decisions. It helps to identify the qualifications of the company and the product, so that a product can be marketed successfully.

SWOT analysis is basically a matrix with two axes. One axis indicates positive and negative aspects, the other axis indicates internal and external factors. This leads to four cells:

- Strengths: Positive attributes of the product and company (internal).
- Weaknesses: Negative attributes of the product and company (internal).
- Opportunities: Positive developments or attributes of the market and other external actors or factors which might affect the business (external).
- Threats: Negative developments or attributes of the market and other external actors or factors which might affect the business (external).

SWOT analysis is performed using *general knowledge about the market (external factors)*, *experience within the company*, and the *product range specifications (internal factors)*. If necessary, a specific effort can be made to attain certain information (this feeds back to the first step in the six-step process). The collected information forms the information basis in the company.



3 New houses – marketing passive houses (Konstanz, Rothenburg, Switzerland)

3.1 Background

The passive house story of Konstanz in Rothenburg is about how a private company chose to develop and direct its effort to a product that was quite new and unfamiliar in the Swiss housing market. The way of thinking, and systematic use of different marketing tools, makes very interesting reading for the actors involved in this area.

At first, Anliker AG only planned to build standard housing on the building site in Konstanz. However, one of their architects, Arthur Sigg, convinced the company that it was *a good and sensible business opportunity* to develop sustainable housing.

This story shows how important it is to know and define the needs of the market and to combine this knowledge with strong sales points, whether your customer is private or public, an in-between customer or an end-user.

The *main driving forces* for the company to develop the passive houses were:

- to build sustainable housing in line with the company's philosophy (to build according to a high standard while ensuring low maintenance costs)
- to create acceptance and awareness of the gains of sustainable housing
- to learn how to build and sell a new type of housing
- to improve the image of the company. Last, but not least, the project should comply with the main driving force of all companies: to earn money.

To *reduce the risk* of building and selling a new product, a variety of flat types were offered on the same building area. In total, Anliker planned three different kinds of flat:

- three blocks consist of only passive flats called Vilette, a total of 12 units (two more blocks were constructed afterwards)
- four blocks consist of Minergie (semi-passive housing) flats called Loft, a total of 32 units
- six blocks consist of 72 flats called Veranda, and these flats are conventional.

The company put extra effort into considering the environmental framework in which the development was placed. The interaction between the buildings' infrastructure and green spaces, living space, and design was optimised to achieve a very user-friendly environment.

The team which developed this passive housing project in Konstanz consisted of:

- *Anliker AG*: a group of three companies, Anliker provided the real estate area as well as products and services within both project management and construction
- *Subcontractors*: Anliker performed most of the construction work themselves, but hired in subcontractors for concrete, brick, roofing, insulation work etc
- *Technical College in Lucerne*: were technical ambassadors for the project, and were invited to study the new technologies used and to promote and give the project scientific credibility
- *Bischof-Meier*: a private enterprise that was engaged to plan and launch the project marketing campaign, develop marketing brochures, and carry out advertising matters.



Passive house

The passive house is a standard set by the German Passive House Institute. Basically it is a house using at least four times less energy than regular housing.

A passive house has the following features:

- use of passive solar energy
- a very well insulated outer shell (>30 cm insulation)
- no heat bridges, i.e. no cold corners or surfaces indoors
- mechanical ventilation with >75% heat recovery
- airtight construction
- domestic hot water generated by solar collectors or a heat pump.

In a passive house the total demand for space heating is lower than 15 kWh/m²; for regular housing this is easily 80 kWh/m². This means that no traditional heating system is required. A comfortable indoor temperature can be maintained by incidentally heating the ventilation air.

(Ref.: Appendix A, page 70)

Information gathering

Analysis

Setting goals

Strategies

Action plans

Control

3.2 Information gathering

All ideas and initial project phases are based on information already known in the company. This information concerns the market, competitors, suppliers, customers etc. When further planning begins, the company has to actively gather the relevant information, and turn this into valuable knowledge. When Anliker started to plan the building of the passive house in Konstanz, they collected the essential information, processed it, and systematised and analysed this information. They were able to develop the right strategies and take the right actions and, through this, achieved a marketing success.

The passive house project team based their analyses on the following information gathering inputs:

1 Input to the PEST analysis

- Historically Switzerland is known as a country with tenants who mainly rent their housing. Only a small fraction of residents are homeowners.
- In the last five years it has become possible to withdraw money from pension funds in order to finance the purchase of a home.
- Amongst their range of loans, the Kantonal Bank of Lucerne offers two types which function as incentives to the market niche: a) family loan with a fixed interest rate for 5 years reduced by 0.50%; b) an 'environmental' loan that can be used as additional financing when buying ecologically sound housing.
- Environmental issues have an important role in today's agenda. Switzerland is a transit country for the delivery of various goods through Europe and is left with pollution related to this traffic.
- Ordinary energy needs in Switzerland are covered by hydropower (30%), atomic power (30%), and natural resources such as oil and gas (40%).
- Minergie is a Swiss quality label for new and refurbished buildings. This label is a registered trademark and enjoys complete protection. Specific energy need is used as the main indicator to quantify the required building quality. In this way, a reliable assessment can be assured. Only the final energy need is relevant. The Swiss Minergie Standard has a market share of about 30% of new construction works⁷.

Sources for this input were:

- the national authorities
- the Kantonal Bank of Lucerne
- the Technical College in Lucerne
- common knowledge
- Anliker

2 Information about Anliker's competitive arena

In addition to several factors set by external forces such as the Government, the law, the political situation, and environmental agendas, Anliker had to collect and analyse information directly related to the competitive arena. The information included the company's internal factors (strengths and weaknesses), as well as general market factors. This information was systematised in the SWOT analysis.

⁷Source: Anliker AG.

The passive house The energy efficient building concept



The number of passive houses accomplished during the last ten years. The annual growth today is about 100% per year.

Statistics and prognoses about response in the market towards the passive house is valuable information for further market analysis about the competition arena.

(Ref.: Appendix A, page 70)

The questions that had to be addressed were:

- Who would be interested in this product?
- What is their influence on the market?

These questions can be asked for the different actors in the market:

- customers
 - suppliers – subcontractors
 - competitors
 - complementary industries
 - substitutes
- Who are the potential customers?
 - What are the characteristics of this market niche?
 - What are the needs of this market group?
 - What is the right price for the product?
 - How can Anliker achieve credibility for the product?
 - Are alliances possible with complementary industries?
 - Are alliances possible with potential competitors?

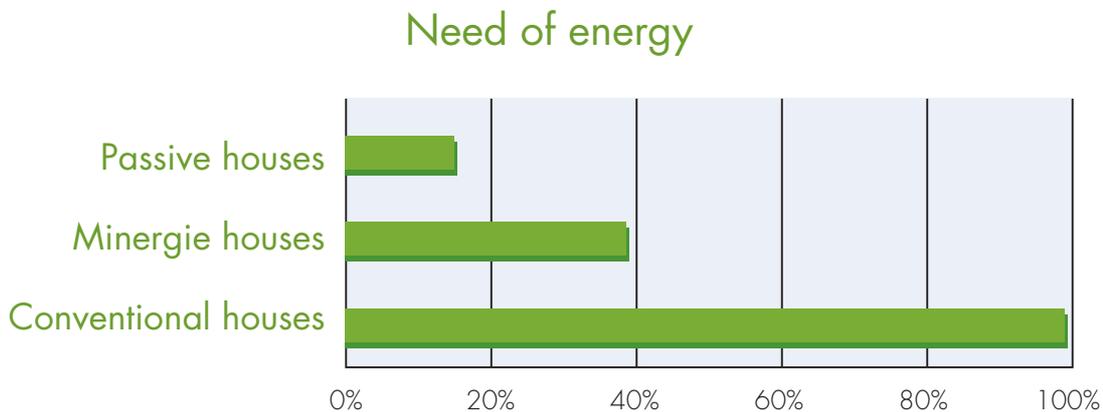


Fig. 4
The three types of housing show a huge difference between the energy use of a conventional house, a Minergie house, and a passive house
(Reference: Anliker AG)



3.3 Analyses

All the information gathered was systematised and analysed to transform it into the data that was used to form the basis for further decision-making.

PEST analysis

The main **PEST factors relevant to the passive house project in Konstanz** that influence the Swiss market today are Switzerland's energy needs and planning for future challenges. The positive introduction of the Minergie Standard also influenced both the customers and the suppliers of flats and houses. A single supplier cannot change the PEST factors, but when they have been identified, it is possible to use the information to the advantage of the company or the product.

As we go through the analysis phase, we identify important issues which we have to take into account when we later define out strategies. These strategic inputs will therefore be highlighted throughout the analysis phase with this sign:



*Strategic input (See textbox in the left margin):
There are increased environmental concerns among consumers.
This will influence their buying criteria for a range of products
(including residential homes).*



Product cycle analysis

The classic product life cycle has five stages (illustrated in the diagram below)⁸: introduction, growth, maturity, decline and withdrawal. For each phase a different marketing strategy is needed.

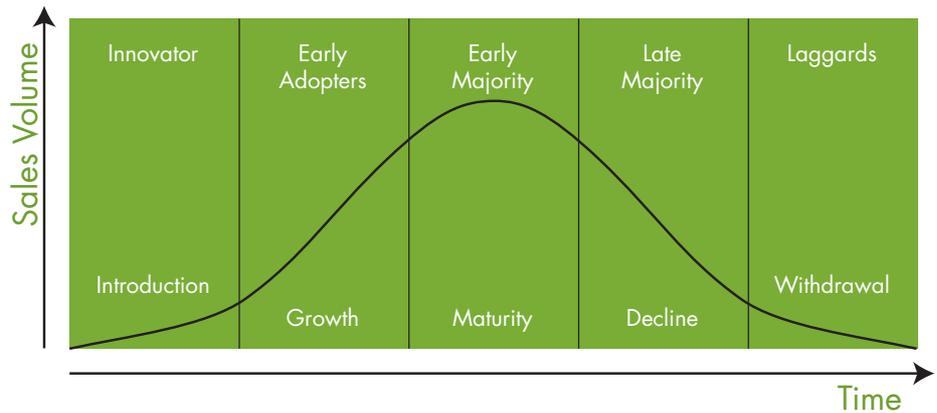


Fig. 5
Product life-cycle.
The text boxes at top of Graph 4 describe the type of customers at each stage

The *passive house* as a product is situated somewhere between the Introduction and Growth phase. In the introduction phase, the market needs a lot of information from credible sources to accept a new product.

Generally, in this phase a product makes little or no profit. However, when the product matures, it is possible to make high profits because there are few competitors. In the Introduction phase a company can make its name in the market. Then later in the product life-cycle the company has a significant advantage over its competitors.

The question is: who buys the product at the Introduction stage? In each phase there are different types of consumers who buy the product. It is possible to identify the market niches which ‘match’ each stage. In the Introduction stage, these consumers (home buyers) either have a special interest in the product or they are so-called ‘innovators’, wanting to try something new. When these people have ‘tested out’ the product and given it credibility and positive images, the ‘followers’ enter the market.

Target group analysis

In Switzerland, residential planning is very fragmented and strongly influenced by banks and private financing. As mentioned before, there are no financial incentives from the Government offered in the market for sustainable housing. This means that market forces rule and that knowledge about different market groups (niches) is of vital importance to the different actors in order to succeed.

Anliker singled out young families as a possible market niche for the passive houses. The next step in the analysis was to understand the target group: what drives this group of people? What kind of life situation are they in? What is important to them? And what kind of needs do they have?

⁸Rogers, E. (2003), ‘Diffusion of Innovations’, 5th edition, FreePress, New York.



By analysing these questions, Anliker found out what is important for young families in their market niche. Young families and new house owners value:

- practical, economical flats adjusted to the needs of a young family with children
- good architecture, design, and environment
- a healthy environment for children.

The target group analysis, combined with knowledge about the general market and the product life-cycle analysis, was of major influence in the development of the project. It specified PLC (product life-cycle), decided how Anliker developed the project, determined what kind of product was developed and how it was presented and, finally, showed how to communicate with potential customers.

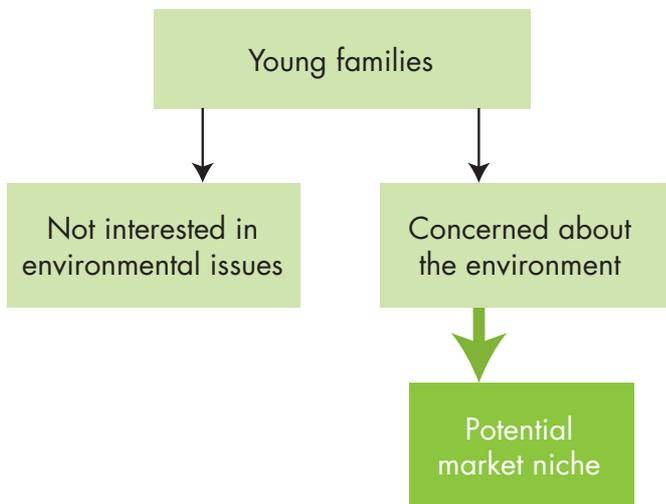


Fig. 6
Defining a potential market niche

Strategic input

Anliker identified the target group as being young families who are concerned about the environment and want to raise their children in an healthy environment.



SWOT analysis

The SWOT factors for Anliker regarding the marketing of passive houses are summarised in the table below (see Chapter 2.3, page 17).

INTERNAL	STRENGTHS Internal factors about the organisation and the product (the organisation should know its strengths and use them as competitive advantages) <ol style="list-style-type: none">1. Biggest company of its type within the Lucerne area2. Appropriate business philosophy: high standard in housing and low maintenance costs3. A willingness and drive to be innovative and take market opportunities4. Good architecture, quality and design5. Whole firm behind this project6. Good reputation in the market, well known for service7. Good public relations	WEAKNESSES Internal factors about the organisation and the product (the organisation should choose activities which reduce its weaknesses) <ol style="list-style-type: none">1. 7% higher construction costs2. Little experience with passive housing construction3. Lack of credibility in passive housing
EXTERNAL	OPPORTUNITIES External factors which affect the company's and product's possibilities in the market <ol style="list-style-type: none">1. An untapped market with significant growth potential for passive houses2. Increasing awareness of environmental issues in the targeted market niche3. Building The Passive Standard is an investment in the future4. Reduction of fossil fuels5. The Kantonal Bank of Lucerne stimulates the growing interest in environmental thinking with a lower interest rate6. The media has environmental concerns high on its agenda; free press coverage is possible	THREATS External factors which affect the company's and product's possibilities in the market (what activities can defeat the threats?) <ol style="list-style-type: none">1. Private funding and banks strongly influence the market and take little interest in being an active part in the development of the private housing market2. House buyers still concentrate on the initial costs and do not tend to concern themselves with running costs; maintenance costs are much less considered (these are much lower with passive housing)

Fig. 7
SWOT Analysis

INTERNAL FACTORS

- **The company's strengths**

According to the company, they have a drive to innovate and take (or create) new opportunities in the market. Furthermore, their philosophy is to build good architecture of high quality and with low maintenance costs. This means that the company philosophy mirrors the passive house product: innovation, new technology, and know-how. Also another simple factor motivated the whole firm to build passive – all employees thought building passive houses was a good cause.



Strategic input

Anliker had several strengths they could use in launching the product: the right business philosophy; competence for developing a new product; a good reputation in the market – the firm was solid and offered high quality products; and in the building sector they were also known for their good construction management, sensible pricing, and ability to keep to schedule.

- **The company's weaknesses**

Although Anliker is the largest construction company in the Lucerne area, it was not recognised as a supplier of passive houses.

Strategic input

It was important for Anliker to get strategic alliances in order to also get credibility for this new product of which they had little experience. Therefore, they asked the Technical College of Lucerne to certify their houses for the Passive House Standard. This achieved instant credibility and recognition.



EXTERNAL FACTORS

- **Opportunities**

When analysing and discussing the market opportunities, Anliker also realised there was another important reason for building the low energy housing: building to the Passive House Standard and the Minergie Standard is a better investment. This is based on the fact that building requirements are getting higher and higher every year. By building better than required today, there is a smaller gap to bridge between the current requirements and those to come in the near future. This insight led Anliker to decide that the Minergie Standard would be their minimum standard. Nowadays, the company no longer builds conventional houses at all.

Strategic input

Regarding market shares, it is also easier for Anliker to take a certain market position in a new market niche right at the beginning, than trying to penetrate an existing market. Then price is the only competitive factor. The main opportunity identified by Anliker AG was to develop a new market niche with interesting growth potential. By being amongst the first doing this, they were also able to generate free publicity.



- **Threats**

The company managed to turn a threat into an opportunity regarding the financial incentives in the market. Knowing that private funding and banks earlier strongly influenced the market, they saw the offer from the Kantonal Bank of Lucerne as the start of a new focus in the financial market. For this market, environmental awareness is also a developing market niche.

Strategic input

Lack of knowledge is always a problem when developing a new market. This concerns both the financial and the technical issues.



Dewees Island – Defeat a threat and make it an opportunity

By taking what could appear to consumers as negative attributes (lack of traditional amenities and strict regulations), and presenting them as positive benefits, the developer found interested buyers willing to pay a premium for it.

(Ref.: Appendix A, page 73)





3.4 Goal setting

To begin with (2000), Anliker planned to build eight passive house blocks on the Rothenburg site. The company felt very uncertain about the acceptance of the passive designs by the market and chose to start up with these three blocks, although the project ultimately ended up with five passive house blocks.

The main primary goals for the project were:

Build and sell three passive house blocks with a total of 12 apartments within 2003 with the following criteria:

- affordable, ecological, and with a minimum of energy requirement
- providing living space with good architecture
- gaining profit equal to building conventional housing
- achieving the Passive House Certificate.



3.5 Marketing strategies

By asking how to solve the ‘strategic inputs’ from the analyses, and how to reach our defined objectives, you have a good platform for the strategy discussion.

To reach the goals, Anliker had to decide on strategies to exploit their opportunities through their strengths and reduce the threat factors. In addition, they had to bear in mind what kind of critical factors were essential to their potential customers: what kind of Product to which Price, where and when to sell it (Place), and how to communicate to the potential customers (Promotion).

Being a private real estate developer, Anliker also had to make the project a commercial success: "Why build energy efficient houses when you can't sell them because they are too expensive or architecturally unattractive?" The answer was to design a conventional building where energy features are as unobtrusive as possible and focus on the elements that are important to the target group.

50 Solar Energy Housing Estates: an example of goal setting

In 1997, three North Rhine Westphalien ministries launched the campaign for the construction of 50 solar energy housing estates.

All actors in the development of this real estate arena were in the target group and, in order to reach the goal of 50 estates, a subsidy program was coordinated:

- competitions for the urban design of solar energy housing were subsidised
- assessments of the solar quality of urban designs were subsidised
- energy concepts for solar housing estates were subsidised
- the realisation of special technologies and building standards were subsidised

(Ref.: Appendix A, page 77)

1 Target group

The target group were young families who were innovators and concerned for the environment (see target group analysis in 3.3 fig. 5 and 6).

2 Product

Because Anliker decided there was too much risk in building all houses according to the Passive House Standard, they decided to build three types of blocks:

- Veranda apartment blocks – conventional houses
- Loft apartment blocks – to the Minergie Standard
- Villette apartment blocks – passive houses.

Besides lowering the risk for Anliker, this product spread allowed for a greater freedom of choice for consumers. The Villette blocks are constructed in brick and concrete and equipped with thick insulation, solar collectors, and ventilation with heat recovery to achieve the Passive House Standard.

Villette apartment units

The apartments have these features:

- attractive architecture
- use of natural materials
- ample influx of daylight
- flexible room partitioning
- lots of space and greenery around the department blocks
- Passive House Certification, meaning (amongst other things):
 - very low energy use
 - >60% solar coverage of domestic hot water
 - mechanical ventilation with heat recovery
- electrical radiation protection with shielded wires and a night switch.



The blocks have attractive architecture, and the flats consist of generous bright rooms. The flats have corner windows, over the full height, to assure bright living spaces. A very flexible floor plan can be easily adapted to fulfil individual buyer needs. The ventilation system is adapted to be very flexible, by using an appropriate floor

plan and placing the air outlets at the centre of the window. To further address a concern of the target audience, all electrical wiring is shielded to protect occupants from electro-smog in the bedrooms. Furthermore, the current can be switched off overnight. The figure below shows one of the passive house apartment blocks.

3 Price

The market in Switzerland is much more concerned about the initial costs than running costs. Therefore it was important to Anliker to get costs down. They set the price to be 7% higher than conventional houses to cover the expected 7% higher construction costs.

4 Place

When introducing the project, Anliker invited interested home buyers to several information evenings at their head office. The architect, Arthur Sigg, presented the project.

Anliker had to bring out a lot of information in order to create market credibility for the project. To open communication channels and disseminate information to all potential project partners was of great importance. Potential buyers were registered with their names and contact addresses, so that they could receive additional information and finally be convinced to buy an apartment.

Win-win alliances



The WWF housing project is a good example of how win-win alliances were used in a marketing campaign. In this project three parties worked together to achieve a profitable situation for all parties:

WWF: initiator of the project, wanted to change attitudes towards building sustainable housing. They wanted more of these houses built.

Five Project Developers: were invited by the WWF to take part in the project. By doing so they achieved three objectives: positive image building by association with the WWF; gaining experience in using new techniques; and getting new local government contacts.

Local governments: were able to get high profile and ambitious houses built in their regions. Thus they could contribute to the goals set in relation to the Kyoto Protocol, without making investments.

(Ref.: Appendix A, page 82)



Branding sustainability

The WWF housing project is a good example of how branding can be used to aid a marketing campaign.

By using a well-known, reliable and popular brand, immediate credibility was attained for each project. This meant that the houses were seen as sustainable and 'good' by all parties without having to know any of the technical details. This fact was especially important for attaining free press coverage – a crucial factor in convincing project developers to build these houses.

(Ref.: Appendix A, page 82)

5 Promotion

Building credibility

The new product needed a market 'breakthrough' towards all involved actors: contractors, subcontractors, specialists and potential home buyers. To do this, Anliker invited the Technical College of Lucerne to test the housing to the Passive House Standard.

The college is the licensed body that issues the certificates for the Minergie and passive houses. The requirements for these certificates are set by the college. By attaining Passive House Certification, Anliker achieved instant recognition and credibility.

The certification also achieved much newspaper publicity, giving both the company and the product extra market attention.

Communication

The big challenge for Anliker was to promote ecological housing in the marketplace and eliminate common prejudices. In order to send out the right message to the target group, they put substantial effort into communicating with their potential customers.

Bischof-Meier, a communications and advertising agency, was hired to create the marketing strategy and carry out the marketing communication campaign. This agency played an important role in the campaign. They designed the promotion material such as:

- the logo
- a sales folder
- a 120 x 80 cm poster to put up on the building place
- a homepage

They also arranged the media coverage, so that free publicity was generated at the start of the project and the driving of the first stake.

Furthermore, it was decided that the communication strategy was not about low energy, but about a way of living. The energy-saving and payback-time issues were therefore moved to the background and the core values of the target audience were addressed: comfortable and healthy living for the whole family.

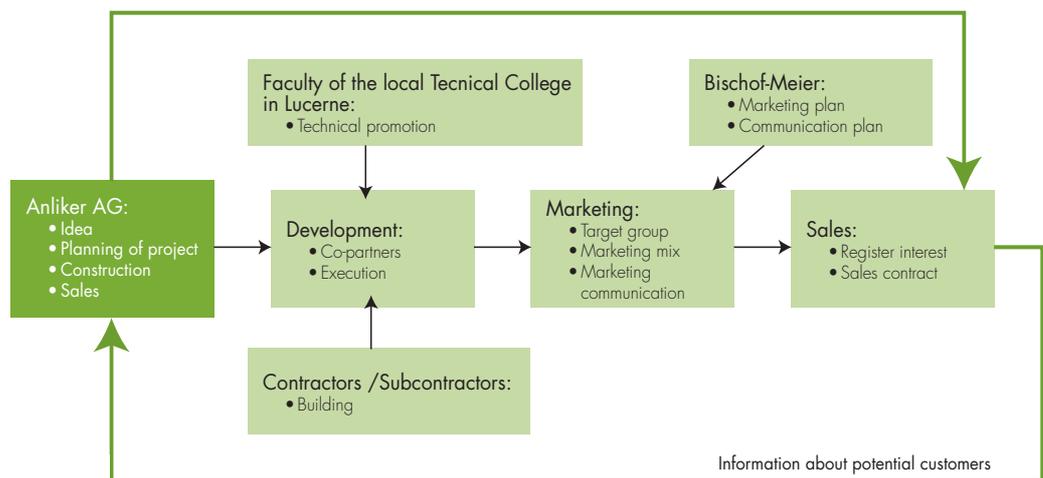


Fig. 8
Value chain of Anliker AG's passive house development and marketing



3.6 Action plans

In order to act according to their strategies, Anliker chose to focus on the marketing activities. They had already decided that:

- Anliker should be in charge of the project, from start to finish.
- seven of the blocks should be to Minergie and Passive House Standards
- the Konstanz development would consist of a total of 13 blocks, six being conventional (in order to keep a certain product range and freedom to choose for the customers, as well as for variation in the environment).

Taking the analysis into consideration, the essential focus was to get a market breakthrough, and to create positive images around the project.

1 Build credibility

In order to build credibility in the market, Anliker had to invite other strategic partners to ‘take part’ in the project. In this way they made it ‘public’ and forced the focus to stay on the project instead of on the developer. This underlined the authenticity of the project.

To get the Passive House Certificate, the Technical College of Lucerne was invited to watch over the works and carry out measurements regarding humidity, temperature, etc. The certificate was awarded, and Anliker managed to build the necessary credibility both for the project and for the company.

2 Communication

To achieve success it was essential to find out what was important to their target group: what they preferred and what they were thinking. The general characteristics of the target group were:

- young people starting up a family (small children)
- concerned about the future (included ecological questions)
- following trends (innovative)
- cost-focused.

The paradox, however, is that when developing the marketing and communication plan, they chose to focus on other factors they thought were even more important to this group and ‘wrapped’ the project in these positive images:

- a certain way of living
- core family values
- happy and healthy children
- a trendy design
- many green spaces
- good architecture
- a focus on
 - clean air
 - good indoor climate
- responsibility for the next generation, the future, and the earth
 - low energy
 - sustainability



Houses without heating system in Lindås, Göteborg, Sweden

The passive row houses outside Gothenburg turned out to be a true success, due to a very good concept, but mainly because the project coordinator realised the importance of meeting the primary practical needs of the home buyers e.g:

- short distance to shopping centre, nursery and school
- close proximity to Gothenburg
- the beautiful surroundings and good house design
- good indoor climate; daylight inside, and fresh air
- healthy surroundings for children to grow up in.

In future marketing, these values must be mentioned and focused on, telling that these new sustainable houses – in spite of using high technology – are for ordinary families and people. In addition they get low housing costs/valuable energy savings.

(Ref.: Appendix A, page 80)



A good example of a positive image is the picture of a happy child playing on a swing in a summer meadow. This image was also used as the project's logo. (Many would be tempted to put the energy performance in the headlines!)

One of the techniques used by Bischof-Meier to market the Konstanz estate was to create pleasant associations through images. It is very worth noting how Bischof-Meier and Anliker targeted their market niche, using the critical success factors in this target group to form the communication strategy.

The communication concept for the target group was through four different main media channels starting up with:

- 1 the development of a flyer with information about the upcoming project – placed in post offices and various banks
- 2 newspaper advertisements
- 3 development of an internet homepage
- 4 when construction started, the posters were put up at the site, informing potential customers that Anliker was building a passive house.

Because of the rather small (but fast growing) interest in environmental building, Anliker put information in the headlines that they – at this stage without any similar project to refer to – thought would stimulate sales and reach the target market. They thought technical data referring to the Passive House Standard would be less interesting information to start with, and that the main trigger points for the home buyers were:

- 1 nice location
- 2 high quality
- 3 price
- 4 Passive House Certification.

The concept of marketing through associations have proved very effective and shows how important it is to promote positive images. It addresses people on an intuitive level. Anliker increased their relative production share of passive houses from 0% up to 20%.

Comment

Anliker turned the value of the product and the side benefits/value-added upside down. The main value of the product became a side benefit and the side benefit became the main value.



3.7 Control and measurement

Using trend issues, both in developing the apartments and later when communicating with the customers, Anliker achieved an extra promotion/marketing effect in the market for their product. Several forces stimulated the market niche and resulted in good sales for the company.

In order to know how the results have been achieved, it is important to control and measure the results in the project. Knowing what caused both good and bad results, it is possible to have a better success rate on future decisions.

Anliker had to check upon their goals, which were to build and sell houses with the following criteria:

- affordable, ecological, and with a minimum energy requirement
- providing living space with good architecture
- gaining profit equal to building conventional housing
- achieving Passive House Certification.

Anliker reached their goals on time. The success of the Konstanz Passive Housing estate is demonstrated by the fast sales of 44 apartments in seven blocks. Initially Anliker planned to build 32 flats to Minergie Standard and 12 flats to Passive House Standard. Due to the success all 44 flats were built in accordance with the Passive House Standard.

After evaluating a range of information, Anliker are certain that up to 95% of the potential buyers got the necessary information from the advertisements. But they also think that information sharing among potential home buyers (family and friends telling each other about the passive houses) also had a huge effect on the positive sales.

The project costs confirm the trend that passive housing is becoming an increasingly attractive way of building, one that meets the needs of forward-thinking home buyers.

As far as project accounting shows, the company managed to get a profit from the sales equal to that for sales of conventional houses. Yet comparable conventional flats (same size, design, etc) are not built, and therefore the result is not entirely robust. Anliker should put effort into controlling the whole project in order to measure their goals, and this is a useful learning tool for the company.

WWF Dutch branch

- 10,000 WWF homes have been built so far.
- The additional investment cost pays off within 10 years (without any subsidies).

(Ref.: Appendix A, page 82)

Dewees Island

150 home sites for single family detached permanent and vacation residences. Of these, 40% say they want to make Dewees Island their primary residence.

(Ref.: Appendix A, page 73)



4 Existing houses – marketing sustainable solutions (Waterloo, Ontario, Canada)

4.1 Background

The Residential Energy Efficiency Project (REEP) story tells how a service for sustainable housing was introduced to the market in 1999. The product (which is a service) consists of an evaluation of the energy efficiency of houses. The evaluation is completed on site with a seven-page report with recommendations for actions to improve the energy efficiency of the house studied. The report is printed and given to the customer.

The systematic marketing approach serves as a good example of how to introduce a new product or service.

The REEP story authors identified which factors were important for achieving positive results (as for most types of business development):

REEP's volunteer management team designed a project, secured adequate funding, made strategic marketing partnerships and hired enthusiastic staff. The innovative nature of this project, and the research discovered through it, resulted in significant media attention and proved useful for the local marketing of the national EGH (EnerGuide for Houses) product. This project evolved from a two-year CCAF (Climate Change Action Fund) funded initiative by the federal government, into an ongoing, community-supported environmental initiative.



The main actors in REEP are:

- *University of Waterloo, Faculty of Environmental Studies.* REEP may be seen as a spin-off from the university. They used their knowledge and resources to establish a new business. Key persons at the university saw the challenge in contributing to solve a global issue through local acting. As they knew that only 1,200 EGH evaluations had been conducted across Canada, they wanted to test marketing techniques locally in Waterloo that could be repeated in communities across the country.
- *ELORA Centre for Environmental Excellence (ECEE).* The centre is a member of the Green Communities Association, which was the first delivery agency for EGH in the province of Ontario. ECEE was the co-partner for launching REEP in Waterloo. After the successful introduction in Waterloo, ECEE has, in cooperation with local actors, established the REEP service in other southern Ontario regions. One could say that ECEE is a franchisee of the REEP concept.
- *EnerGuide for Houses (national authorities).* As the EGH brand and their software were used, Natural Resources Canada (NRCan) may be defined as the supplier or licensor to REEP (see right margin).

EnerGuide for Houses: A success in itself



To meet environmental concerns, the Canadian Government wanted to create mechanisms/tools to accurately count and track carbon reduction.

EGH is the only targeted programme that helps Canadian homeowners understand how to improve the energy performance of their homes.

(Ref.: Appendix A, page 86)

Information gathering

Analysis

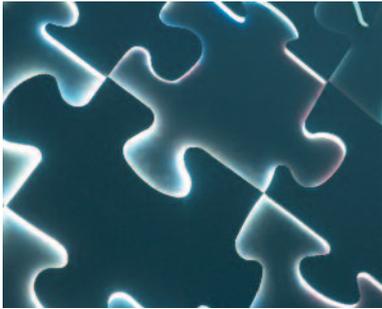
Setting goals

Strategies

Action plans

Control

4.2 Information gathering



Information gathering is the information foundation for the analyses that are elaborated on in the next chapter. As described in Chapter Two, there is an ongoing loop between the gathering and analyses (as well as to the other steps).

The information foundation for REEP included:

1 PEST analysis

- The signing of the Kyoto Protocol put environmental concerns on the top of the agenda in the media. It also meant that Canadian authorities had taken on obligations to reduce CO₂ emissions.
- The Canadian energy market was being restructured, as in many other countries. The development of fluctuating prices and further market development were expected to follow ‘market rules’ more closely than in any other business.
- The Waterloo region is recognised as being a leader in environmental actions.
- Due to the cold climate in winter and hot, humid summers this part of the world has a high energy consumption for heating and cooling houses. This fact, together with other events, led to volatile energy prices in this region.
- The region is suffering the worst ground-level ozone levels in all of Canada.
- Following the eastern Ontario ice storm in 1998, which led to power losses, the media has focused on links between extreme weather conditions and global climate change.
- Information is now available about sustainable technologies and services – these are readily available, but so far not strongly marketed.

Sources for this input were:

- media
- national and local authorities (including the Federal Department of Natural Resources, which was responsible for the EnerGuide)
- University of Waterloo
- Statistics Canada
- local environmental organisations.

2 Information about REEP’s competitive arena

(see Chapter 4.3 for elaboration)

- Previous experiences from similar services to REEP – in other parts of Canada there had been some unsuccessful launchings of similar services.
- Information about companies expected to have direct or indirect interest or conflict of interests to REEP’s service, such as utility companies.
- Information relevant for getting an idea of the market (size and identifying potential customers):
 - regional population characteristics
 - regional housing stock information.
- Internal information about skills and resources available to launch REEP in the market.
- The customers’ sources for ordering a REEP evaluation. This information was collected continuously as every customer was asked this question when they ordered the evaluation.

Sources for this input were:

- local authorities
- actual companies
- University of Waterloo
- Statistics Canada
- customers.



4.3 Analyses

Through different types of analysis, the information collected is transmitted into knowledge which is then used as the basis for making decisions for the marketing strategy.

PEST analysis

Strategic input

The public in Waterloo had recognised that environmental issues have to be dealt with, both on a local and global level.

The technology and knowledge to do this is readily available.



As we go through the analysis phase, we identify important issues which we have to take into account when we later define our strategies. These strategic inputs will therefore be highlighted throughout the analysis phase with this sign:



The fundamental question in the PEST analysis – how do our surroundings affect us – was in this case answered by the environmental issue which was the basis for launching REEP.

Six-forces model analysis

In order to understand how the market forces interact and influence on the development of our business, the six-forces model is used⁹. The model is further developed by the authors of this guide, to help identify the so-called ‘added values’ of the core product or service. This is crucial for the marketing of sustainable housing in order to avoid a purely cost focused marketing strategy.

In the six-forces model, the position of the product towards the six primary market forces is analysed:

- 1 customer
- 2 suppliers
- 3 existing competitors
- 4 potential competitors
- 5 substitutes
- 6 complementary industries.



⁹Grove, A.S. 1996, Only the Paranoid Survive: How to Exploit the Crisis Points That Challenge Every Company and Career, Doubleday, New York.

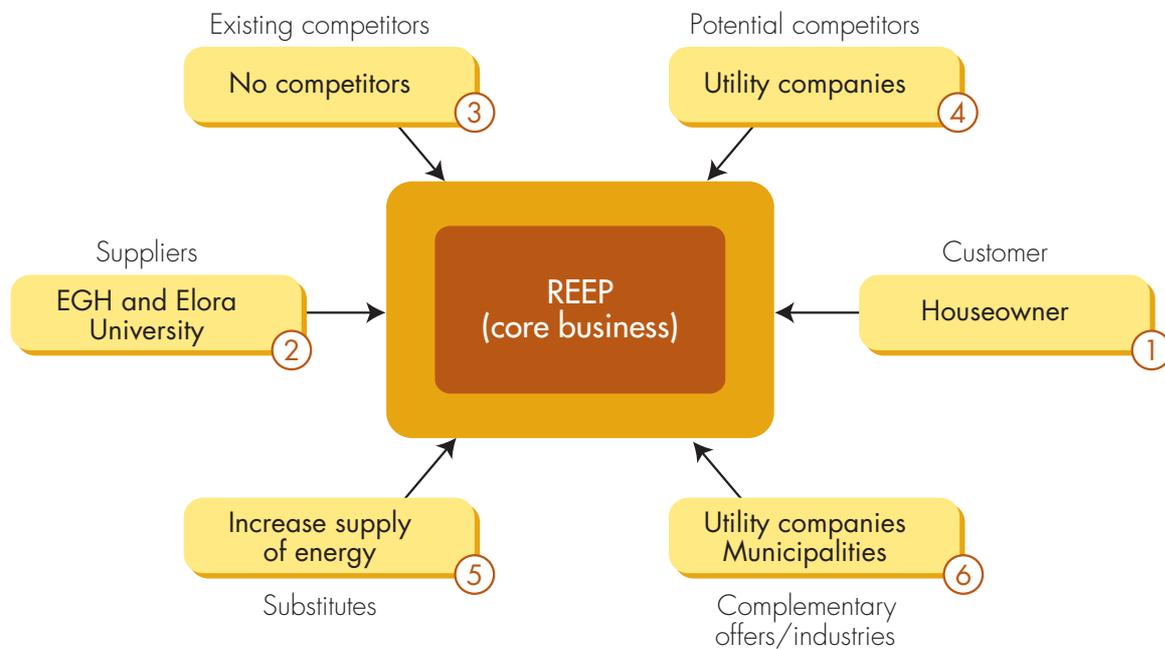


Fig. 9
Extended six-forces model

REEP’s core business is to offer an energy efficiency evaluation of houses.

Customer (1)

The customer is the house owner. Their basic need is to be informed about how to reduce the energy bill – the primary rational reason. In addition, the house owner might have other needs relevant to REEP:

- healthier air quality in the house (secondary rational and emotional reason)
- more comfortable temperatures in the house (secondary rational and emotional reason)
- less draught problems in the house (secondary rational and emotional reason)
- feeling better by contributing to improved local air quality as well as to the global climate change issue (emotional and moral reason).



In many cases, the customer is initially not conscious of these factors. The extent to which each of the factors is applicable to different customers also varies.

By trying to understand the ‘real’ needs of the customer related to the actual business, we create a platform for understanding which other actors have or might have interest in this business. The other actors will, whether we want it or not, influence our business.

For sustainable housing it is extremely important to join forces with these other actors by making win-win alliances. For REEP, these actors became crucial partners instead of potential obstacles.

In the diagram above, the market (forces) for REEP are schematised through the six-forces model. In the diagram, REEP’s core business (the energy efficiency evaluation of a house) is illustrated (in red). The secondary attributes of REEP in fulfilling the customers’ needs are illustrated (in yellow).

Suppliers (2)

The Federal Department of Natural Resources (NRCan) is the supplier of the EnerGuide for Houses (EGH). The EGH is the tool and concept used by REEP. The Faculty of Environmental Studies at the University of Waterloo (UW) is the supplier of competence and office space (during the first two years). The Elora Centre for Environmental Excellence (ECEE) is the supplier of the evaluation competence and the EGH contract through the Green Communities Association.

Existing competitors (3)

This service was new, so no existing competitors could be identified.

Potential competitors (4)

For REEP, suppliers of electricity or gas can be defined as potential competitors. However, instead of becoming competitors they became allied with REEP.

The primary reason for the utility companies to cooperate with REEP was a willingness to support a successful local environmental project that related to their line of business. The secondary reason became more important when energy rates increased and customers asked the utility company how they could lower their energy bill. Their response at that point was: "Call REEP".

For a service such as REEP, it may seem unusual to define 'potential competitors'. However, competitors are not only negative and can be an important force to develop a new market faster than a single company can do alone.

Substitutes (5)

REEP's service lowers the energy bill. The most obvious substitute for REEP is a price reduction on energy. A low energy price will make REEP's proposed actions less profitable.

Complementary industries (6)

This is an addition to Porter's five-forces model¹⁰. Complementary industries provide a product related to the product being analysed by a company that is not a direct competitor.

- Local authorities 'sell' welfare to their citizens, and are therefore concerned about the reduction of greenhouse gas emissions.
- Citizens groups also want to enhance the welfare of citizens, so they are complementary to REEP and represent a potential force that it could benefit from.
- Utility companies provide energy to customers, thus directly relating to REEP's business.
- A variety of companies within the building industry supply products and services related to energy efficiency of housing (insulation, efficient heating systems, etc). These are also complementary to REEP.

Playing with the six-force model

In order to improve your understanding of the market place, it is possible to play around with the six-force model. In this way your insight into the market forces can be improved and it is possible to identify potential win-win alliances.

For REEP, different actors can be seen as customers. By defining certain actors as customers, the other actors change. By playing around with different types of customers, sponsors or new types of customer can be identified. Utility companies sponsored REEP with financial resources as well as marketing support. Local authorities also supported with financial incentives.

¹⁰ Michael E. Porter; "Competitive Strategy: Techniques for Analyzing Industries and Competitors" 1980.

PV Packaged as Plug-and-Play in the Netherlands

Several suppliers offer sustainable energy in a truly plug-and-play manner, e.g. solar panels, a rooftop construction kit, inverters, and the (standard) plug to feed the panels into the grid. They even send you the paperwork to apply for the subsidies.

(Ref.: Appendix A, page 90)



Potential 'customers' for REEP and the 'product' they buy

- The product for homeowners:
 - advice on a lower energy bill
 - better indoor climate (air, temperature and draughts)
 - a better local and global environment (a better conscience).
- The product for local authorities:
 - achieving the target from the Kyoto Protocol (as demanded by the Government)
 - improving the poor air quality in the region (as demanded by the population)
 - improving the welfare of the population.
- The product for utility companies (such as electricity companies):
 - providing themselves with a positive image to the consumer
 - providing an additional service for their customers (to lower the energy bill for the customer).



Strategic input

Several actors have a common interest in the marketing of the REEP service. Some could be willing to contribute with financial as well as marketing assistance.

Segmentation analysis

Market segmentation of the potential customer market was perhaps the single most important factor in the success of REEP.

As REEP's aim was to market a service to improve the energy efficiency of existing houses, it was important to identify the customers who were most likely to want to buy this service. It was therefore decided to execute a Geographic Information System (GIS) analysis based on the physical and socio-demographical characteristics suitable for home energy improvements.

The following characteristics made it more likely that the REEP service could be sold:

- 1 A house with poor energy efficiency is more likely to need a REEP evaluation, and older houses are more likely to be energy inefficient than newer.
- 2 If major renovations on a house are necessary, energy efficiency measures are more likely to be included.
- 3 An owner who lives in the house is more likely to want to lower his energy bill and improve the indoor comfort than a tenant (or landlord).
- 4 A customer must have a certain income level to be able to afford the initial costs of the service and the improvements.
- 5 Customers with a higher education are more likely to want the service because they are more likely to:
 - be environmentally conscious
 - see the benefits of the service.

In other words the target group had to consist of homeowners with a true need for energy efficiency improvements, who understood the importance of the issue, and who could afford the necessary investments.



The GIS analysis was based on statistical material from the community, combined with their local knowledge. With the analysis, the area was classified into groups:

- highly suitable
- very suitable
- suitable
- somewhat suitable
- not suitable.

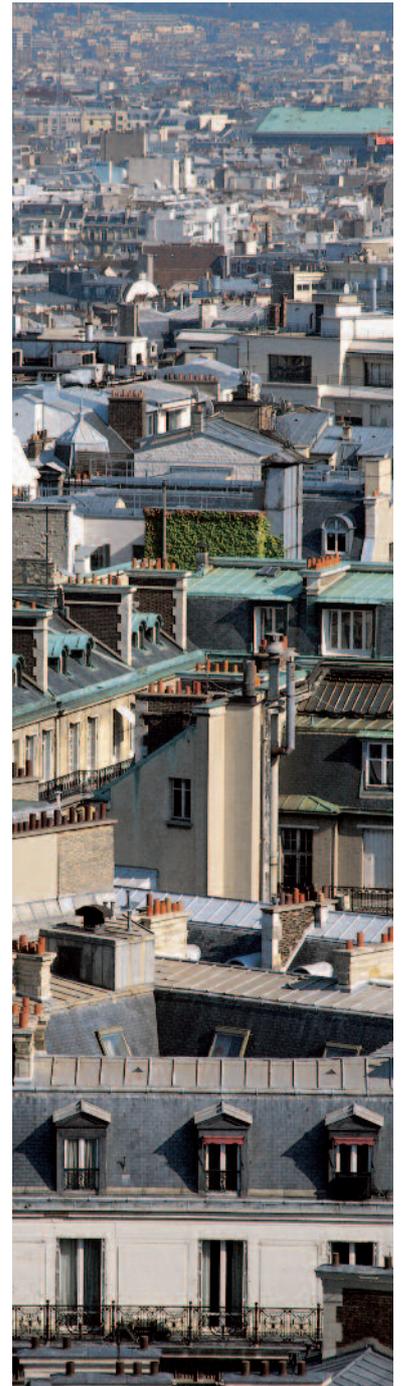
The highly suitable area had the following characteristics:

- minimum 80% of houses built prior to 1970
- minimum 10% of houses requiring major repairs
- minimum 85% of houses owner-occupied
- minimum 50% of households had moved in the last five years
- average household income exceeds Can\$60,000
- minimum 40% of households had a member with a university degree.

With the help from the GIS analysis several hypothesis were tested, including whether households classified as ‘highly suitable’ are more likely to buy an evaluation than ‘not suitable’. This is discussed further in Chapter 3.7.

Strategic input

Target groups were identified which were expected to have the need for and to buy REEP's service.



SWOT analysis

The SWOT factors for REEP are summarised in the table below (see Chapter 2.3 page 17).

INTERNAL	STRENGTHS Internal factors about the organisation and the product (the organisation should know its strengths and use them as competitive advantages) <ul style="list-style-type: none">• Trustworthy, because independent from suppliers of materials and equipment.• A serious and well-established image, because of university association.• Ample local knowledge about houses and actors.• The service offered direct and indirect benefits to the customer, (i.e., lower energy bills and higher indoor comfort).• Benefited from the national EGH brand.• Low (production) costs for running the programme.• Financial incentives from national and local authorities made it possible to offer the service at an extremely low price.	WEAKNESSES Internal factors about the organisation and the product (the organisation should choose activities which reduce its weaknesses) <ul style="list-style-type: none">• REEP was a new and unknown service.
EXTERNAL	OPPORTUNITIES External factors which affect the company's and product's possibilities in the market <ul style="list-style-type: none">• Increased general awareness of environmental issues.• Due to a strong increase of sales of air conditioners, the energy use for cooling increased more than 57%. Improved residential energy efficiency would reduce both heating and cooling costs.• Local communities need to have something done in order to improve air quality.• Building industry would indirectly benefit from the REEP project as it stimulated their market.• Utility companies can adopt the project as part of their business development.	THREATS External factors which affect the company's and product's possibilities in the market (what activities can defeat the threats?) <ul style="list-style-type: none">• Utility companies could react negatively to the REEP initiative.• A perceived threat was that previous experiences from energy and environmental initiatives had not been successful due to:<ul style="list-style-type: none">- cost (too expensive)- time (before the customer received recommendations)- advice not found useful- lack of credibility/trust (was not independent).

Fig. 10
SWOT analysis

INTERNAL FACTORS

- **The company's strengths**

REEP is a credible and trustworthy organisation with ample knowledge about the actors and potential customers. The product has low costs and direct benefits to the buyer.



Strategic input

REEP possesses strengths that could be used to exploit the identified opportunities. Bad experiences from similar services may be used to avoid known pitfalls.

- **The company's weaknesses**

The service and the benefits which can be gained from the business are not known and therefore are difficult to sell.

Strategic input

Potential customers have to be actively informed about the services and convinced that it is beneficial for them.



EXTERNAL FACTORS

- **Opportunities**

Both the general public and other actors in the market are increasingly aware that something has to be done about energy efficiency. The motivation for the different actors is different, but it comes down to the same thing: REEP.

Strategic input

The increased environmental awareness in combination with the consumers' cost issue implies opportunities which REEP as well as other actors can exploit.



- **Threats**

Utility companies could be a very serious threat to the product. Furthermore, other REEP-like programmes were a failure and from these several pitfalls became clear:

- 1 The service should not be too expensive.
- 2 The customer should not have to wait for the outcome of the investigation.
- 3 The advice should be to the point, useful and understandable.
- 4 Customers should be convinced that the advice is trustworthy

Strategic input

REEP learned from the mistakes made by other programmes and formed alliances which strengthen REEP's image as a credible supplier and alliances which increased the market impact.



Comment

The REEP programme continuously registered the sources the customers reported for ordering evaluations. In REEP this input was used for their ongoing intelligence work, which later led to change of strategies. Market research is not to be done only when entering a new market. It is crucial to monitor the market continuously to make it possible to respond to changes.

EnerGuide for Houses



Strengths came from its positioning as a tool to merge the interests of three powerful groups:

- homeowners
- industry professionals
- the Canadian Government.

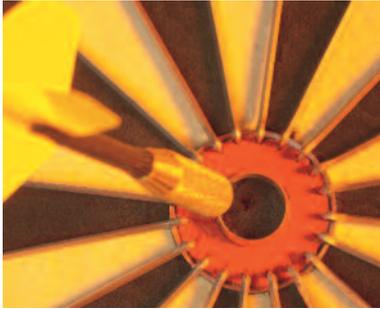
This focus helped build alliances between the driving forces in the market.

(Ref.: Appendix A, page 86)





4.4 Goal setting



REEP set ambitious goals to achieve national greenhouse gas reduction targets through widespread participation at the local level. Although the EnerGuide for Houses programme offered valuable information to homeowners, national participation rates were low and a local delivery model was proposed. Specific objectives for the project included:

- Encourage 4,000 households across the Waterloo region to have home energy evaluations over a two-year period, to identify ways to reduce community greenhouse gas emissions and to help improve air quality. This initial objective – 2% of the region’s housing stock annually, growing to 20% of the total stock over a 10-year period – was modified to 1,000 evaluations (1% of the region’s housing stock) per year when the project was only partially funded.
- Create a new social norm for environmentally sound behaviour, similar to the success of the earlier blue-box recycling program, by achieving a high number of homes evaluated.

Comment

As goals serve as the basis for strategic directions, they have to be clear for all involved. When ambitions are high, it is more important to define measurable goals, as they normally require more ambitious strategies, including investments. For REEP, the vision was more about finding out how much could be achieved with limited means.

To decide if you need to implement corrective actions, measurable goals must be defined.



4.5 Marketing strategies

Comment

In the analysis, different ‘strategic inputs’ have been identified. These inputs are a good platform from which to start the strategy discussion. The strategy must lead to achieving the defined goals.

REEP’s key strategic questions: what to offer, to whom, and how, are answered below in accordance with the 4 Ps. REEP initially followed these strategies in order to reach their goals.

1 Target groups

Target groups among homeowners were identified with the segmentation analysis discussed before in segmentation analysis (Chapter 4.3). The focus was directed towards areas with houses with poor energy efficiency and to homeowners who were most likely to buy the service (sufficient income, higher education, and environmentally concerned).

Although the homeowners were defined as the main customers, local authorities and utility companies found the service so interesting that they contributed financially as well as being ‘distributors’ with supportive marketing. Thus they also can be defined as customers as they also pay for the service.

Target groups among homeowners were identified in accordance with the segmentation analysis (Chapter 4.3). The focus was directed towards areas with houses with poor energy efficiency and towards owners who were likely to be environmentally concerned.

2 Product

The service consists of an evaluation, which takes place in the customer’s house. The inspector brings the necessary equipment to do the measurements and calculations, and both are greatly computerised.

The evaluation is made according to the national EGH standard. As it is completed, a seven-page report with recommendations for actions to improve the energy efficiency of the house is automatically drawn up. The advice is clear and to the point. The report is printed immediately and handed to the customer.

3 Price

The price was very low (1999–2001: Can\$25). In other regions the price was Can\$50–175. The low price was due to sponsorships from local authorities and companies. In subsequent years, the price rose to Can\$35 (2002), Can\$75 (2003), and Can\$125 (2004).

Note: this price rise corresponded to a reduction in federal grants to the project and the introduction of a federal incentive to homeowners in 2003. The real cost of the service is approximately Can\$350.

4 Place

The arrangements with the customers were made from the REEP office, located at the main university campus for the first two years and then moved to a university building downtown. Moving to the centre of town, REEP became more visible to the public. The association with the university helped REEP’s credibility. The customer could also order evaluations on the internet.

Later on in the programme, homeowners received an application form with their energy bill. With this the sale place moved to the home of the customer, through a recognised channel (the utility company).

5 Promotion

The promotion consisted of a number of action points:

Build credibility by:

- using the reputation of the University of Waterloo
- using the EGH brand (already established in Canada)
- brand building for REEP.

EnerGuide for Houses



Strategies included:

- brand building through national promotion campaign
- low price
- distribution through local delivery agents (such as REEP)
- development of competence in energy saving and marketing throughout the network.

(Ref.: Appendix A, page 86)

- 2 Building strategic partnerships with:
 - local authorities
 - utility companies.

- 3 Increased public recognition in general and in particular to the selected target group. This was achieved through active use of:
 - the media (but no advertising)
 - community-based events
 - direct mail (DM)
 - passive means such as websites
 - (later on in the programme) homeowners receiving information about REEP with their energy bill
 - harvesting from EGH's national marketing campaign
 - networking.

- 4 Intelligent marketing:

During the programme, consumer responses were measured continuously. Through this, it was possible to evaluate the effectiveness of the different promotional activities and, if necessary, to act accordingly.

As a result of the continuous intelligence work related to their marketing and promotional activities, some of the strategies were later modified/changed:

- In the second year a partnership with utility companies was made. From then on the energy bill included an insert inviting the recipient to apply for a REEP service.
- In the third year the office was moved to a downtown location. More about the reasons why this was done are given in Chapter 4.7.

In Waterloo REEP was **organised** like this:

Networking through employees at the university and its cooperation partners

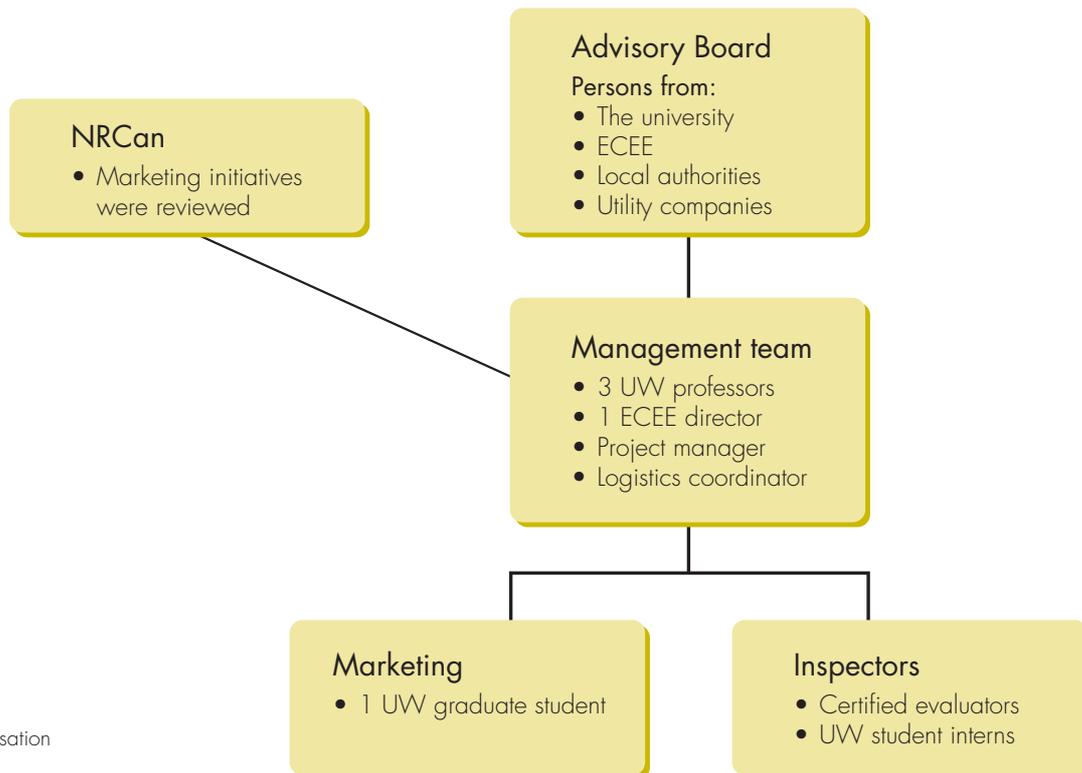


Fig. 11
REEP's organisation

was also an important part of REEP's 'informal' organisation.

Comment

REEP's strategies are a direct consequence of the analyses presented in the previous chapter:

- They had studied why similar initiatives did not succeed (defined as weaknesses) and they therefore formed strategies to eliminate the weaknesses.*
- REEP is a good example of a focus on using strengths to exploit defined opportunities. An example of this was the use of the university's credibility to gain trust from homeowners and companies.*
- REEP eliminated a potential threat by inviting the utility companies to form a strategic alliance. It might have been expected that these companies would only be focused on selling as much electricity as possible; instead they realised that REEP fitted in well with their own strategies.*



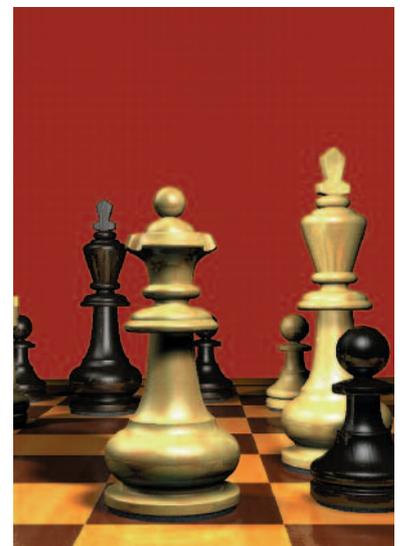
4.6 Action plans

As part of normal strategy processes, specific action plans for each strategy are defined. The main question is how to put the defined strategy into action. As this guide is directed at marketing, and because actions taken in the REEP case were mainly market activities, we concentrate here on the actions taken to realise the promotion strategies focused on.

The marketing coordinator was responsible for the development of the action plans. Other staff (mainly interns) assisted, in particular, by marketing tasks or events when required. Marketing costs consisted primarily of the marketing coordinator's time. Some money was also spent on pamphlets, information sheets, posters and other visual material.

1 Building credibility

This was done by using the logos of EnerGuide for Houses and of the University of Waterloo on all printed materials. By combining these brands with REEP's own brand, and arranging events together with local authorities, credibility was gradually built.





2 Building strategic partnerships

Initially the activities as part of this strategy were directed at local authorities and citizen groups. The groups cooperated in local presentation events where REEP was promoted. In the second year of the programme, the partnership with the utility companies started, and this included marketing activities.

There were also actions to increase public recognition in general, and to selected target groups in particular. REEP's activities for increasing public recognition were mainly direct and 'down to earth':

- With the help of the GIS analysis, certain neighbourhoods were selected. In these areas, community-based events were organised to inform households about the service offered.
- The media (television, radio and newspapers) were actively supplied with information about REEP.
- Direct mail campaigns were directed to the selected target groups. In some cases, these campaigns were also directed to non-target groups (for testing marketing efficiency).
- Starting with employees at university, local communities, and the cooperating companies, information about REEP was spread.
- Through the national marketing campaign of EnerGuide by NRCan, REEP reached some additional customers.
- In order to support the promotional activities listed above, it was important to establish a website where the potential customers could acquire additional information about REEP and EnerGuide. Evaluations could also be ordered on the website.

3 Intelligent marketing

As an important factor for REEP initiators was to document their experiences, they developed simple but systematic routines:

- In order to continuously measure the effectiveness of the different marketing activities, the evaluators always asked through which channel a customer had decided to apply for a REEP evaluation. The answer was documented and stored in a database.
- As part of the GIS analysis, neighbourhoods in the region were classified into five main groups depending on how suitable they were for evaluations. REEP started promoting the different categories and measured the response for each.

Comment

REEP combined different promotional activities, which were directed at specific target groups. Their goal was to sell as many evaluations as possible, so they mainly directed their marketing to the group they identified as being most likely to be interested. However, they made sure that they tested their hypothesis about which group was most suitable by also targeting other groups and comparing the results.

An important explanation about why REEP turned out to be a success is that they actually entered the 'battlefield' and spoke to potential customers. REEP became a story of a success in itself – and they marketed it! This demonstrates that good marketing is not about doing some advertising and waiting for the customers to call.



4.7 Control and measurement

Many companies do a good job about collecting information before entering a new market. However, after being established in the market, too many companies only do ‘periodic’ reviews of the business surroundings. The REEP programme illustrates the fact that any market is a dynamic place. Some changes take place as a result of other actors’ activities and some as reactions to your own actions in the market. For successful marketing, it is crucial that a company keeps itself informed continuously about these changes.

A well-informed actor makes a good partner in potential alliances, especially if they increase their knowledge through their activities. For REEP, this knowledge, combined with their success, increased their value as a partner, particularly for the utility companies. As a way to develop new alliances, especially with utility companies, it was important for REEP to document its success which made it attractive to form a partnership with them. The information coming from REEP in Canada is now used as an important source for discussing questions on energy efficiency issues.

1 Number of evaluations

During the first three years, 3,330 evaluations in total were done (approximately 10% of Canada’s EGH evaluations). The Waterloo region accounts for 1.4% of Canada’s population. The number of evaluations per year are shown in the figure below.

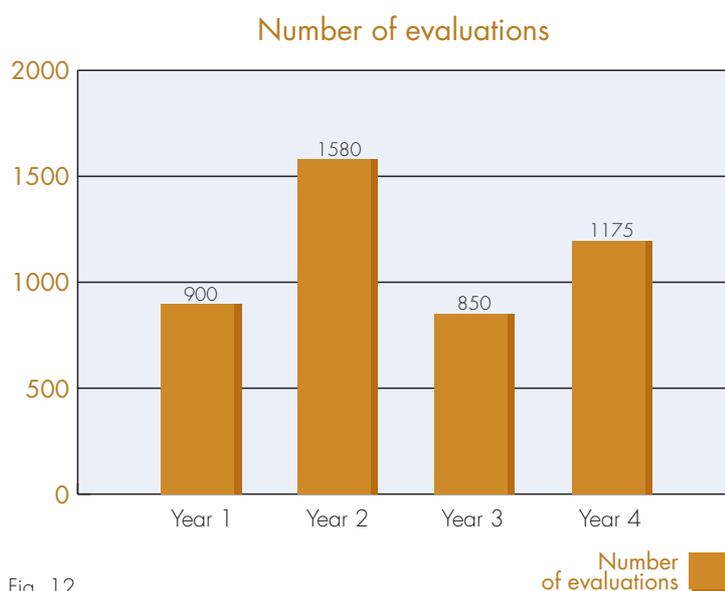
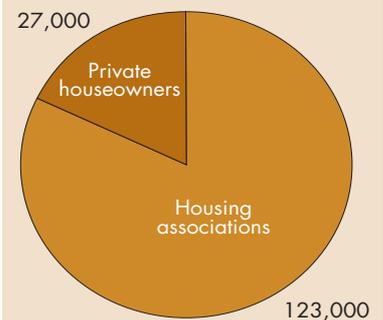


Fig. 12
Number of evaluations

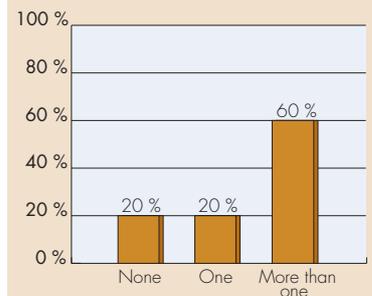
EPA – Energy Evaluations in the Netherlands

The evaluations, which were similar to REEP, were subsidised 100%.

Results for 2002:
150,000 evaluations:



Graphic below shows to what extent homeowners implemented the proposed measures:



The 60% taking on several measures got subsidies to finance parts of these investments.

25% of the housing associations said that the EPA was a deciding factor in implementing energy efficiency measures.

50% invested in already planned measures. They used the EPA for extra subsidisation.

(Ref.: Appendix A, page 93)

Several reasons can be identified for the drop in the third year:

- 1 There were no longer any staff directly assigned to the task of marketing the project.
- 2 There had been a strong focus on the low price of REEP; in the third year this price almost doubled due to a decrease in financial support.
- 3 The winter in the third year was mild, so the energy bills were lower and there were less indoor comfort problems.

In the fourth year there was a substantial rise in the number of evaluations (1,175 in 2003). Again several reasons can be identified:

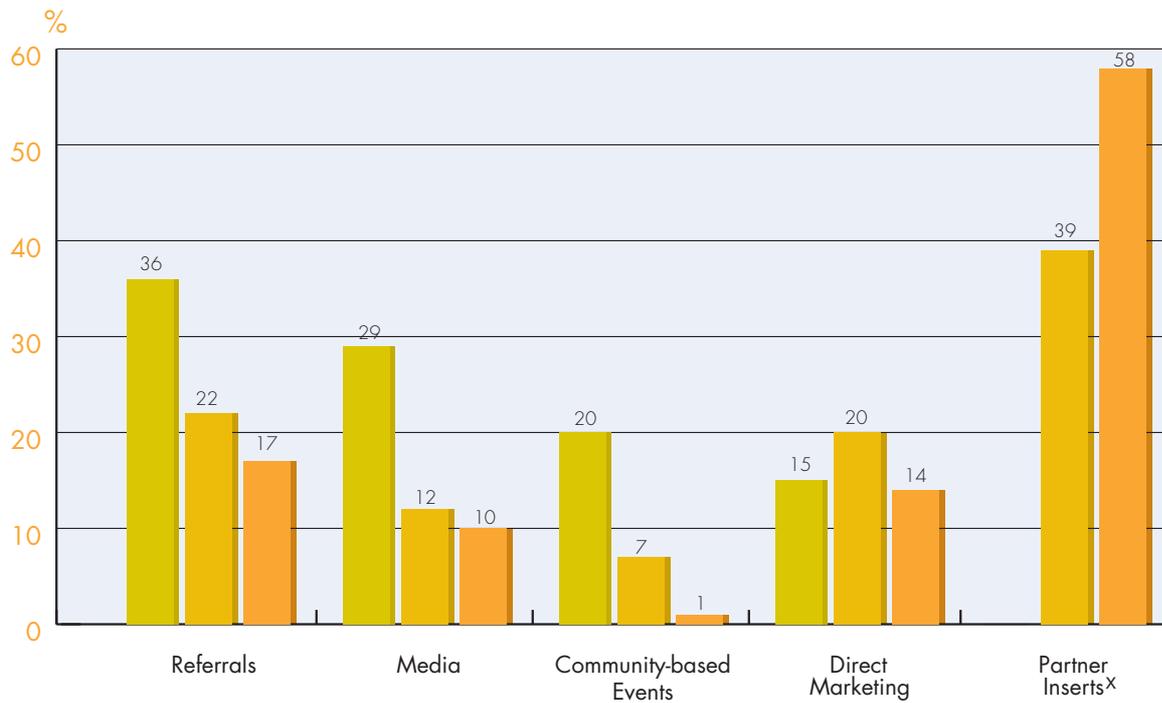
- 1 Management added another staff member who covered marketing as part of her duties.
- 2 The winter of 2002/2003 was extremely cold and long.
- 3 There was a lot of publicity about the signing of the Ottawa Agreement (follow-up of Kyoto Protocol).
- 4 In the fall of that year, the federal government launched their retrofit incentive.

In the fifth year, the total number of evaluations became more than 5,000.

2 Sources of home energy evaluations

All customers were asked through which promotional activity they decided to take part in the programme. In the diagram below, this information is presented for the first three years.

Fig. 13
Sources of home energy evaluations – first three years (%)



X: Partner inserts were sent out together with the energy bill.

See top page 49 - 4th bullet-point.



The graphs demonstrate these points:

- The relatively high importance of media in the first year. Then, as REEP as a ‘news story’ fades out, this factor becomes less important.
- As a result of the partnership with the utility companies in the second year, the partner inserts (a leaflet and application form sent with the energy bill) became the major source for evaluations.
- ‘Referrals’ remained one of the most important sources throughout the period.
- As a consequence of the reduced number of community-based events, these almost entirely fell away as a source in the third year.
- Direct mailing remained an important stable source throughout the period.

3 Efficiency of different promotional activities

Different promotional activities were analysed in the REEP programme.

The following conclusions were drawn from these analyses:

- Local REEP campaigns were more efficient than national EGH campaigns.
- Pamphlets were more efficient than flyers.
- Direct mailing supported by a newsletter was more effective than direct mailing without a newsletter (+33%).
- Marketing activities directed to neighbourhoods classified ‘highly suitable’ resulted in five times more requests for evaluations than activities directed towards neighbourhoods classified ‘not suitable’. This demonstrates the benefit of using GIS analysis.

4 Consequences of results

The continuous monitoring of the market through the REEP service itself proved of major importance to the success of the programme. During the programme, several changes were as a result of this information:

- more formal partnerships with different utility companies (year 2) for:
 - marketing (bill inserts), which became the most important source for evaluations in the third year
 - financial support
- a high level of community outreach (year 2 but reduced to a few in year 3)
- reduction of media events.

Besides this, it also confirmed that good decisions had been made, and that for certain aspects (the GIS analysis) no changes should be made.

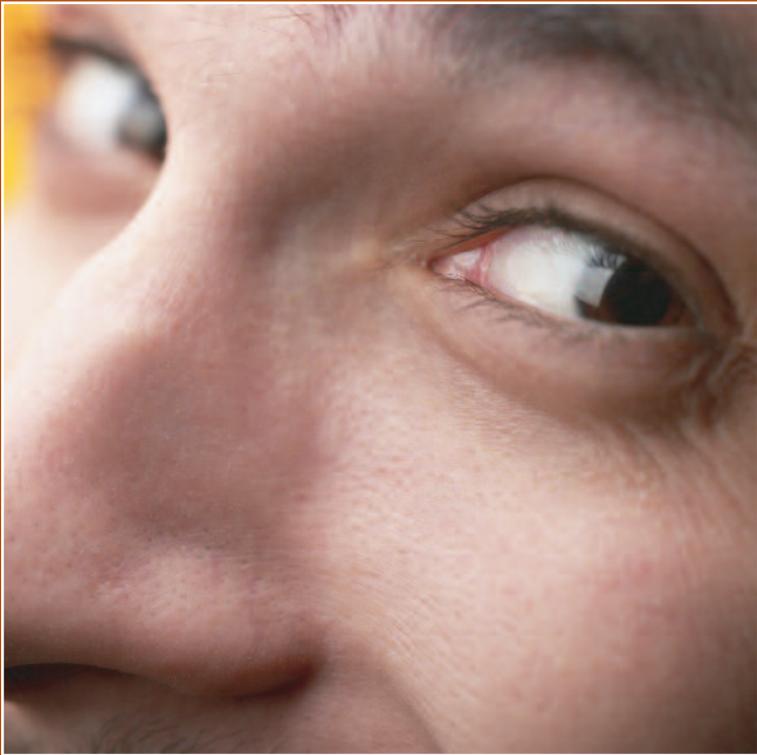
Comment

REEP’s greatest success was its ability to engage multiple stakeholders (played together with forces at the market place). It made a win-win situation for multiple actors.

As REEP effectively addressed the identified barriers, they became a success story, delivering over 5,000 evaluations in less than five years and serving as a source of information on energy efficiency issues.

REEP’s ongoing research includes follow-up surveys to assess changes in decisions, behaviour and consumption. Information from the REEP programme now serves as an important source of information on energy efficiency issues in Canada.





This marketing guide is based upon a number of stories of marketing successes from Europe, North America and New Zealand. The stories were selected and written by experts participating in IEA-SHC Task 28. Most authors have a technical or architectural background and only a few had extended knowledge of marketing. However, the technical stories were analysed by a marketing specialist company, Segel.

5.1 Do's and don'ts

Some basic do's and don'ts to be addressed in the marketing of sustainable housing based on experiences from the IEA success stories:

- **Do:**
 - ride on the wave of increasing public awareness of environmental issues
 - join other players in the marketplace – commercial / interest groups / local, regional, national, and international authorities – and develop win-win alliances
 - think strategically (long term)
 - define your target group, accept the fact that you cannot sell to them all
 - know your target group preferences
 - clearly define how you differentiate yourself from others
 - focus on added value.
- **Don't:**
 - have a one-sided focus on 'additional investment cost resulting in annual energy savings'
 - start immediately with communication without having done a strategic analysis.



5.2 Findings for common interest

1 Do not skip any steps in the marketing process

- Information gathering
- Analysis
 - internal: strengths and weaknesses of product, organisation
 - external: opportunities, threats, driving forces, life-cycle, segmenting
- Define goals – quantify!
 - people normally focus on what is measured – more success can be achieved by defining concrete and measurable objectives.
- Define strategies
 - who you are going to sell to – define target group
 - clear definition of all Ps – Product, Price, Place and Promotion
- Make a plan of action
 - all actions that need to be taken
 - include the communication actions
 - all costs (internal hours and direct external costs)
 - a time schedule
- Control and measurement – modify!
 - to help you learn from what you have done and be able to adapt your strategies.

2 Take advantage of others' experiences

- Why reinvent the wheel? There is a lot to learn from similar businesses in other countries and other types in your existing market.
- However, do not enter the trap of just copying concepts or ideas. Remember there are differences between countries and companies. Therefore a specific analysis must be executed in order to find out how to adapt an idea to your business environment.

3 Financial incentives are a potential blind spot

- Starting a promotion with the message that 'if you buy this product you will receive xxx funding ...': the customer can perceive this as saying that there is a disadvantage to the product.
- Having initially strongly focused on financial incentives related to the product, it can later be difficult to sell it later at a normal price.
- Very often those representing the 'early buyers' (in the introduction phase) are not very price sensitive.

4 Be market-oriented instead of product-oriented

- Starting with the question about who you are going to sell to, follow up with finding out what their real needs are. Then you have to think 'wider' than just your own product range.
- Define the product that fulfils these needs. If you do not have the technology or skills to offer this on your own, you may do this through strategic partnerships with complementary businesses, suppliers or competitors.

5 Added value is the foundation for branding

- Concept thinking through the use of images is more successful than a pure focus on technical aspects.
- Added values are elements beyond the pure physical (technical) aspects of the core product. Examples of value to the customer are: 'non-energy benefits' such as better air quality, greater comfort, a sense of security, status, moral responsibility, aesthetics, etc).
- Well-known brands (Ref.: Appendix A, page 81) may be used for a 'Piggyback ride' when entering the market.



6 Differentiation as a competitive instrument

- Don't underbid your competitors' prices. Focus your company and its products instead on specialities that draw attention away from those who are more concerned about other issues such as short-term cost savings.
- Initial obstacles (Ref.: Appendix A, page 72) may be turned into opportunities, which may form the basis for differentiation.

7 Importance of key persons

Entering the market with a new (sustainable) product requires highly motivated, skilled and respected persons within the company to play a key role. They need competence about the subject – it is also crucial they have the ability to motivate other people in the organisation.

8 If you can't beat them – join them!

- The experiences from the stories show clearly that strategic alliances with other actors have enabled the successful launchings of new sustainable products and services.
- Alliances only work if all participants profit from the cooperation: make win-win alliances.

9 Conscious use of media

- If a product or service is new in the region, the media will be quite keen to cover your story. Make use of this free publicity!
- Famous persons attract attention and press coverage. Use them if you can!

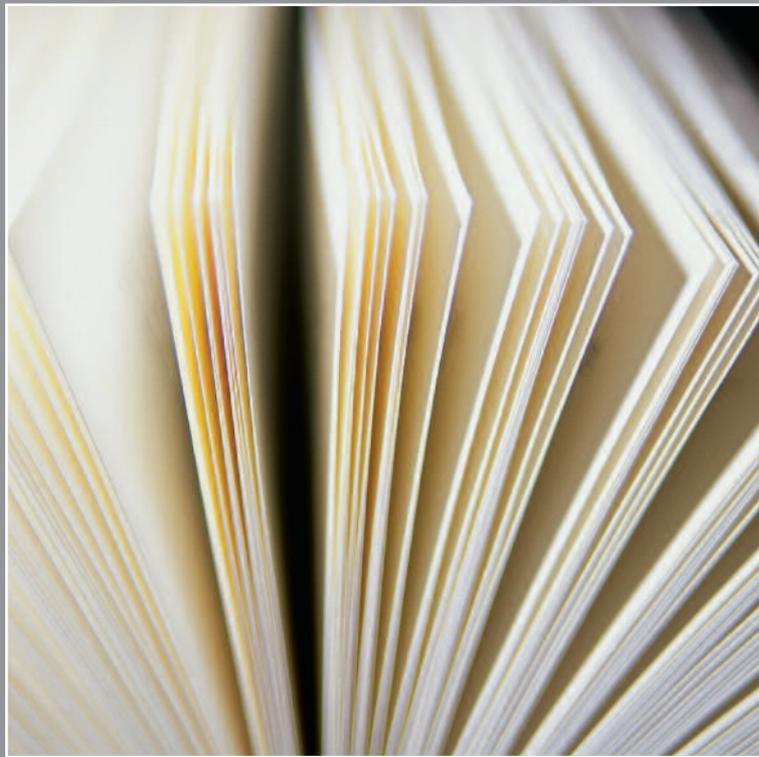
10 Build credibility

- A new product needs time to earn its trust in the market. It is necessary to establish a (good) name for your product.
- Build up credibility by working with established institutes.
- Don't just act credible, be credible! Never 'sell' more than you can handle.

5.3 Designer checklist



- Information gathering
 - Employ a market research company
 - Conduct a phone survey of recent home buyers
 - Get buying and selling statistics from real estate institutes
 - Collect information about the involved industries (competitors and allies)
 - Get familiar with relevant anticipated legislation changes
 - Understand financing options offered by banks and other institutions
- Analyses
 - Use one or several of the analysis tools to
 - Define your target group (demographic characteristics of home buyers, local government, etc)
 - Define your competitors and allies
 - Develop your long-term marketing strategy
- Setting goals
 - Set marketing goal (brand recognition, website hits, etc)
 - Set specific short and long-term outcome goals (inquiries received, houses sold, etc)
- Marketing strategies
 - Identify the four Ps: Product, Price, Place and Promotion
 - Define your target groups
 - Is there a need for restructuring the organisation?
- Action plans
 - Establish an implementation path for potential buyers
 - Use media effectively
 - Focus on consumer core values rather than building performance
- Control and measurement
 - Measure against the predefined goals
 - Identify reasons for success and failure
 - Modify marketing strategies accordingly



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APPENDIX A: Marketing stories

Contact information for the authors of the success stories:

	Story	Author	Address
1	Passive house estate "Konstanz" in Rothenburg (Lucerne), Switzerland	Michael Bruttel	AEU GmbH Kirchstrasse 1 CH 8304 Wallisellen Tel.: 411 833 17 16 Email: mkbruttel@bluewin.ch
2	REEP Residential Energy Efficiency Project, Waterloo, Ontario, Canada	Ryan D. Kennedy Health Promotion Officer Dr. Paul Parker Director	MAES, Public Health Region of Waterloo 99 Regina Street South, 3 rd floor Waterloo, Ontario Canada N2J 4V3 Email: kryan@region.waterloo.on.ca Local Economic Development Program Faculty of Environmental Studies University of Waterloo Waterloo, Ontario N2L 3G1 Canada Email: pparker@fes.uwaterloo.ca
3	The Passive House The Energy-Efficient-Building-Conception, Germany	Berthold Kaufmann Wolfgang Feist	Passive House Institute Rheinstrasse 44/46 D-64823 Darmstadt, Germany Tel.: +49(0)6151-82699-0 Email: passivehaus@t-online.de www.passiv.de
4	Deweese Island, South Carolina, USA	Guy H. Holt	Deweese Island, 46 41 st Avenue Isle of Palms, SC 29451-2662 Tel.: 800-444-7352 www.deweeseisland.com Email: holt_guy@yahoo.com
5	50 Solar Energy Housing Estates in North Rhine-Westfalia, Germany	Carsten Petersdorff	Ecofys GmbH, Eupener Str. 59 D-50933 Cologne, Germany Tel.: +49-221-510 907 20 E-mail: c.petersdorff@ecofys.de
6	The WWF sells sustainability in housing in the Netherlands	Edward Prendergast	MoBius consult bv., Diederichslaan 2, NL-3971 PC Driebergen – Rijsenburg Email: Edward@moBiusconsult.nl
7	Houses without heating system in Lindås, Gothenburg, Sweden	Hans Eek	Göteborg Energi, Box 53 S-401 20 Göteborg Tel.: +46 31 62 69 50 Email: hans.eek@ivl.se www.goteborg2050.nu
8	Energuide for Houses, Canada	Kristina Edwards	Natural Resources Canada, Office of Energy Efficiency, Housing Buildings and Regulation I, Observatory Crescent, Ottawa, ON K1A 0E4
9	Plug & Play Solutions Solar Panels in the Netherlands	Edward Prendergast	MoBius consult bv., Diederichslaan 2, NL-3971 PC Driebergen – Rijsenburg Email: Edward@moBiusconsult.nl
10	EPA (Energy Performance Advice) A retrofit upgrading program in the Netherlands	Edward Prendergast	MoBius consult bv., Diederichslaan 2, NL-3971 PC Driebergen – Rijsenburg Email: Edward@moBiusconsult.nl
11	Strategies and measures for accelerating the market deployment of <i>Sustainable Housing</i> in Austria	Gerhard Faninger	University of Klagenfurt Iff-Sterneckstrasse 15 A-9020 Klagenfurt Email: gerhard.faninger@uni-clu.ac.at

Marketing Story 1:

PASSIVE HOUSE ESTATE “KONSTANZ” IN ROTHENBURG (LUCERNE), SWITZERLAND



Introduction

In the year 2000, Anliker AG began planning this project on the site in Rothenburg. Originally, due to the uncertainties, only half of the site was planned to be built. However, the now completed development covers the whole site.

Initially conventional residential buildings were planned, but thanks to the initiative of Anliker AG, "Passive Haus Standard" housing was constructed. Three passive house blocks were built between 2002–2003 and five additional blocks are presently under construction. This will bring the total to 32 apartments.

The aim of the project is to provide affordable, ecological housing with a

minimum of energy requirement. To achieve this, a conventional structural system was modified to include all the features of a passive house. A very flexible floor plan can be easily adapted to fulfil the individual needs of the buyers.

The main goal was to provide living space with good architecture. Generous bright rooms are created which are very attractive to the market. As a private enterprise, Anliker AG is committed to making this project a success. "Why build energy-efficient housing when you can't sell them because they are too expensive or architecturally unattractive"? The response was to design a conventional building where energy features are unobtrusive.

Types of units

The Konstanz Housing Estate consists of 14 multiple family housing units comprised of three types:

- *The Veranda* – conventionally constructed and the least expensive apartments.
- *The Loft – an attic space*
- *The Villette* – constructed in brick and concrete but is equipped with thicker insulation, solar collectors and ventilation with heat recovery to achieve the Passive House Standard.

The housing estate is promoted in a brochure using the slogan “*Rothenburg Konstanz c’est la vie*” (*Rothenburg Konstanz – that’s life!*). There is a large photo of a happy young girl, playing on a swing in a summer meadow.

Project specialities

- the project integrates building infrastructure and green spaces as a whole
- generous spacing between the buildings provides good day lighting and natural ventilation
- the construction allows flexible room partitioning
- full storey height corner windows assure bright living spaces
- the ventilation system was adapted to the very flexible floor plan, and air outlets are always situated at the centre of the window axis
- electrical wiring is shielded to protect occupants from electro-smog in the bedrooms (the current can be switched off overnight).

The units have been awarded the Passivhaus Certificate.

Properties of the project:

- max 15 kWh/m² per annum space heating demand
- 63% solar coverage of domestic water demand
- a mechanical ventilation system with heat recovery
- electrical radiation protection.

The project is being promoted by sales staff dedicated to the ideals of the development. Promotional material emphasises that the buildings are very ecological, providing a healthy place to live.

Target market

In Switzerland residential planning is very fragmented, and strongly influenced by banks and private financing companies. To achieve a market breakthrough, private companies need more incentives to invest in alternative construction.

Marketing, as this success story clearly shows, is important from the beginning of design right through to the end sales. A market breakthrough requires that contractors, subcontractors, specialists and (equally important) homebuyers are informed about the concept. The whole company stood behind the project, which is one of the keys to its success.

Key player

Anliker AG was responsible for marketing the project. The initial impulse was given by the project architect who was able to convince the directors of the company to invest in passive housing.

Marketing strategy

Headlines have to be generated to stimulate sales and to reach the target

market. One of the techniques used to market the Konstanz estate was to create pleasant associations through images. A child playing on a swing in a summer meadow is the logo of the whole campaign addressing young families. This has proven to be very effective.

Furthermore, there are positive aspects of energy-efficient buildings in addition to low energy consumption and economy. The marketing highlights other positive qualities such as light, fresh air the comfortable room climate, both in summer and winter, bio-ecological benefits and the use of natural materials.

Actions taken

The logo gave the project a very positive image. Information events were held to attract potential customers. A 120 x 80 cm poster further communicates the message. The three apartment types of the project are presented in a folder under the same slogan and logo.

Information evenings were also held at Anliker AG's headquarters where the addresses of interested, potential buyers were collected. To promote the project, and to underline the credibility of the new technology, local experts (like the faculty of the local Technical College in Lucerne) were invited to study the project. The company Bischof/Meier was contracted to plan the marketing campaign.

Results and success

The success of the Konstanz Passive Housing Estate is demonstrated by the fast sales of 32 apartments in eight blocks.

The project costs confirm the trend that passive housing is becoming an increasingly attractive way of building which meets the needs of forward thinking homebuyers. In marketing it was essential to promote ecological housing in the marketplace and eliminate common prejudices.

This concept of marketing through association has proven very effective and shows how important it is to promote positive images. It addresses people on an intuitive level. The final sale depends greatly on gaining public credibility.

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Meierhöflistrasse 18 CH-6021
Emmenbrücke
www.konstanzrothenburg.ch

Marketing Story 2:

REEP – RESIDENTIAL EFFICIENCY PROJECT, WATERLOO, ONTARIO CANADAEffective Community
Implementation of a National
Program

The Residential Energy Efficiency Project (REEP) is the delivery agent in Waterloo Region (Ontario, Canada) for the national program *EnerGuide for Houses* (EGH).ⁱ EGH was designed and developed by the federal government and is administered by the Office of Energy Efficiency (OEE) in the federal department of Natural Resources Canada (NRCan). REEP began conducting EGH home energy evaluations in May 1999.

REEP is a partnership between the Faculty of Environmental Studies at the University of Waterloo (UW), and the Elora Centre for Environmental Excellence (ECEE), a member of the Green Communities Association (GCA).ⁱⁱ The GCA members were the first delivery agency for EGH in the province of Ontario. Nationally certified home energy evaluators, employed by the ECEE, conduct EGH home energy evaluations with the assistance of UW student “energy interns”. Evaluations typically last two hours. Households are given a printed seven-page report at the end of an evaluation, which outlines where their home is currently “losing energy”, and what energy gains could be achieved with specific actions (e.g. increased wall insulation).

The REEP office was based at UWⁱⁱⁱ and serviced a jurisdiction with 442,200 people^{iv} and 117,000 eligible homes.^v

REEP’s marketing goal was to encourage households across Waterloo Region to have a home energy evaluation, to identify ways to reduce community greenhouse gas emissions and to help improve air quality.

REEP’s marketing strategy focussed on accessing local media and community groups, direct marketing to the most appropriate neighbourhoods, as determined through a geographic information system (GIS) analysis, and approaching captive groups such as employees of project partners. Very little money was spent on marketing, apart from wages for one student (working full-time as a marketing co-ordinator), and printing and delivery of promotional pieces like pamphlets, newsletters and a poster. No media advertising was purchased by the project.

In the first year of the project, 56 community presentations reached thousands of residents. Broad support from the network of community actors quickly established REEP as a recognised and respected feature of Waterloo Region and resulted in over 900 home energy evaluations taking place in the first year of the project. By December 2002, nearly 4,000 evaluations had been conducted.

Residential energy efficiency

REEP provides advice on how a household could make changes to the house to reduce energy consumption. In many cases these reductions could help make the house more comfortable as well as reduce energy use.

Reduced energy use results in fewer emissions from the burning of fossil fuels to heat or power the home. Lowered emissions reduce the home's impact on global climate change and regional air quality. REEP thus provides a means for citizens to be more environmentally responsible.

REEP reviewed previous energy and environmental initiatives and determined that the primary barriers to having a home energy evaluation included: the **cost** of the evaluation, the **time** associated with having the evaluation, the sentiment that such an evaluation would **not be useful** or helpful, and the agency or individuals conducting the home energy evaluation lacked credibility or **trust**.^{vi}

REEP attempted to address each of these barriers through project design. REEP partnered with local authorities including the Region of Waterloo, and each of the cities of Cambridge, Kitchener and Waterloo. Each authority provided funding to the project to help subsidise the cost of the evaluation.^{vii} This made it possible to provide the service for \$25 CND^{viii} (other GCA delivery agents in Ontario charge \$50-\$175 for the same service).

Hiring UW co-op students as energy interns helped reduce the time required to conduct the evaluation (two hours in an average home). Using laptop computers and portable printers enabled the evaluation report to be printed and delivered during the evaluation, instead of being mailed to the household later or arranging a second visit (which was traditionally done by other GCA offices).

Using the national home energy evaluation tool, EGH addressed the concern that the evaluation was not useful or helpful. EnerGuide is a government "name-brand" familiar to Canadians as it is used to rate the energy efficiency of appliances and vehicles. EGH ensures that home energy evaluators are nationally certified and that there are mechanisms in place to ensure quality control.^{ix} EGH is also a comprehensive modeling tool that quantifies clearly where a home is losing its energy, and is able to model what the energy savings would be if specific changes were made to the home.

Basing REEP at the University of Waterloo added significantly to the immediate trust and credibility of the project. Credibility is a function of expertise, trustworthiness and something best described as likeability.^x University professors typically rank high in the expertise area. Also, since REEP was only providing recommendations, and not selling particular installation services or products, it was hoped that REEP would be perceived as unbiased and more credible than an entity that would benefit directly from the recommended changes to a home.



Market situation

In 1999, when REEP began, several political, economic and environmental factors created favourable conditions for a community-based project like REEP.

Citizens in Waterloo Region were anticipating energy market restructuring and volatile energy prices. The region was experiencing poor air quality and gained the dubious distinction of having some of the worst air quality in Canada.^{xi}

Canada became a signatory to the Kyoto Protocol in November 1997, and there was significant national discourse about global climate change, the Kyoto Protocol and action needed.^{xii}

Eastern Canada had also recently suffered the Ice Storm of 1998, where an estimated three million Canadians suffered power losses due to a highly unusual extreme weather event. The local and national media made links between the ice storm and global climate change.

Waterloo Region has a history of being a leader in environmental action and had the first curbside recycling program in the world. There are also very active citizen groups around air issues, such as the Citizens' Advisory Committee on Air Quality for Waterloo Region (CACAQ) which formed during the summer of 1998.

Waterloo Region – like much of Canada – experiences extreme annual weather variations i.e. very cold winters and very hot, humid summers. This means that households use substantial amounts of energy in the winter for heating and increasing quantities for cooling in the summer.^{xiii} In a study by NRCan comparing residential energy end-use shares between 1990 and 1998, space cooling experienced the largest increase in

total energy use – more than 57%. This coincided with increased sales of air conditioners.^{xiv} Improved residential energy efficiency would reduce both heating and cooling costs.

The players

REEP's structure was elemental to its marketing success. REEP was portrayed largely as a community initiative in Waterloo Region that was broadly supported by government (local and national), the research community (UW), local businesses including local utilities, and citizens' groups.

REEP was supervised by a volunteer Management Team consisting of two UW professors in the Faculty of Environmental Studies, a research scientist with Environment Canada's Adaptations and Impacts Research Group (AIRG) of the Meteorological Service of Canada, and the Director of the ECEE.^{xv} The Management Team made all financial and hiring decisions and prioritised research initiatives.

Part of the research involved households completing a comprehensive survey about home energy issues, actions taken in the past, anticipated actions in the future, attitudes towards green power, climate change and related issues. This survey was approved by UW's Office of Research after an ethics approval process. Surveys were handed out during the evaluation and typically were later mailed to the REEP office.^{xvi}

The initial funding to establish REEP came from the Public Education and Outreach component of the Climate Change Action Fund (CCAF) created by the federal government of Canada.^{xvii} This grant for \$220K provided the bulk of the funding necessary to hire the UW students who helped conduct the home energy

evaluations, run the office and perform marketing initiatives for the first two years of the project.^{xviii}

Marketing efforts during the first two years of the project were conducted primarily by a single graduate student marketing intern based at UW.

Management Team members, students and community volunteers assisted with some of the marketing efforts.

The volunteer nature of the Management Team and the direct involvement of UW were beneficial in building partnerships within the community. The Management Team was able to approach local authorities for additional funding and partnership. This involved presentations to local councils and requests for budget contributions and staff support. Each local authority provided funding, and the council further directed staff to assist the project where possible.

The Management Team also approached local utility companies and requested support for the project. All five local utilities (three electricity and two gas) supported the project. In return for their support, each partner was invited to have a representative on REEP's Advisory Board to provide input and direction for the project.

All marketing initiatives undertaken by REEP were reviewed by NRCan staff who provided ongoing marketing advice and support.

The action taken

After building initial networks and accessing funding, REEP began to actively market the project to households in Waterloo Region. REEP's initial marketing plan included increasing public recognition of the project by speaking directly to as many people as possible, by participating in different community-based events, and to reach the broader community by

accessing local media coverage. A direct marketing campaign was also researched and implemented. While this was happening, it was REEP's intention to strengthen strategic partnerships with local authorities, utilities and other businesses for longer term marketing assistance – understanding that one way to attract partners was to build a successful project. Success would be measured largely by the number of homes evaluated through the project.

REEP has tracked the success of each marketing initiative throughout the history of the project. When each evaluation was booked, the household was asked where they had heard about the project. Some households listed several sources, but only the primary source was used for the analysis below. For the purposes of this report the sources of evaluations will include **community-based events** (REEP staff speaking to service groups, neighbourhood associations or participating in community events such as Earth Day celebrations), **direct marketing** (distribution of promotional pieces to people or their home), **media coverage** (local news stories on television, radio or in print), **referrals** (friends, relatives, co-workers or neighbours) and **partner inserts** (inserts in regular utility bills).

A passive marketing campaign was also staged for REEP which included posters, lawn signs used during home energy evaluations and, later in the project, a REEP website. Less than 1% of evaluations were sourced as a passive marketing initiative. It is believed that these initiatives helped raise public awareness of the project even if they were not cited as the main source when someone called to book an evaluation.^{xix} NRCan was also conducting a national marketing program for EGH – including television commercials, stock articles, and

newspaper and consumer magazine advertisements in communities where an EGH delivery agent was active (including Waterloo Region). Less than 1% of evaluations were attributed to these national marketing initiatives, although they too are believed to have helped raise public awareness of the EGH program.

Figure 1 illustrates the primary sources for 881 evaluations in the first year. Most evaluations originated from referrals (36%), followed by media pieces (29%), community-based efforts (20%) and direct marketing (15%).

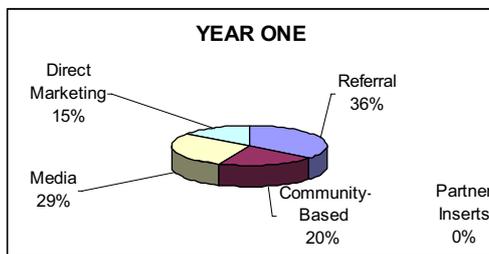


Figure 1: Sources of Home Energy Evaluations for REEP, Year One (May 1999 – April 2000), n = 881

Note – more than 900 evaluations took place in the first year. Some of the evaluations not included in Figure 1 include those from REEP's passive marketing campaign, NRCan's promotional campaign or others not recorded.

REEP relied heavily on referrals, particularly during the first four months of the project. Most of the households referred to REEP were from the UW community or from early partners, including staff at the Regional Municipality of Waterloo. Although other sources have increased in importance as the project developed, referrals have remained an important source of evaluations.

Media stories were also a key source in the first year of the project resulting in 29% of the evaluations. In that first year, 24 print articles were written,

three television appearances were made and three radio pieces were about REEP. Of the 24 print media articles, 15 were written specifically by or for REEP to encourage participation in the project, while the other nine mentioned REEP peripherally to the main story. Of 15 REEP specific pieces, 11 generated bookings, although 79% of the print media evaluations were from only five articles. REEP was also on local television three times in the first year, resulting in 110 evaluations, and on the radio three times, resulting in eight evaluations. Television news appearances were by far the most cost/time-effective means to encourage people to sign up for the project.

In the first year of the project, REEP visited or participated in 56 different community-based events (making direct contact with thousands of people). This wide variety of community-based efforts generated 20% of the evaluations. The single greatest source of evaluations from community-based initiatives was from presentations to boards of different housing co-operatives in Waterloo Region. Presentations to these boards resulted in some co-ops having each unit evaluated. The costs associated with community-based events included salaries for staff and transportation costs (approximately \$500 for the year). There were no fees or memberships required for these events.

Direct marketing of the project included a comprehensive GIS analysis of Waterloo Region to identify neighbourhoods with physical and socio-demographic characteristics determined to be most suitable for home energy improvements, and with a clientele most likely to participate in the project.

Neighbourhoods were identified with:

- a minimum of 80% of houses built before 1970 (pre-energy crisis)
- a minimum of 10% of the houses required major repairs
- at least 85% of the houses are owner-occupied
- at least 50% of the households have moved in the last five years
- the average household income exceeds \$60K
- at least 40% of the households have a member with a university degree.

Based on this analysis, neighbourhoods were classified as being highly suitable, very suitable, suitable, somewhat suitable or not suitable for the project.

Neighbourhoods with similar classifications had promotional pamphlets and flyers delivered to them on different occasions in the first year as part of a series of experiments. REEP pamphlets, with information about the project, energy efficiency and contact information (and logos from UW, local governments and utilities), were delivered to hundreds of homes in the City of Cambridge. On the same days, NRCan pamphlets, with similar content, were delivered to similar neighbourhoods. NRCan also provided delivery agents like REEP with printed inserts with local delivery agent contact information. REEP printed inserts modeled after the NRCan promotional piece. These were both distributed by a flyer distribution company to neighbourhoods in Kitchener. REEP also produced a newsletter style promotional piece that included research results, updates on the project's partnerships and information about energy efficiency. This newsletter was distributed to neighbourhoods in Waterloo, while REEP pamphlets were delivered to

similar neighbourhoods the same day. Another experiment was also conducted to determine if the GIS analysis was a useful tool to predict neighbourhoods most likely to participate in the project.

The pamphlet experiment in Cambridge involved approximately 2,000 homes. The REEP pamphlets resulted in six evaluations per thousand, and the NRCan pamphlets resulted in 0 evaluations. The flyer inserts involved 20,000 households – 10,000 receiving NRCan inserts, and 10,000 receiving REEP inserts. The NRCan inserts resulted in 0.7 evaluations per thousand, and the REEP inserts resulted in 3.3 evaluations per thousand. The experiment comparing the REEP pamphlet to the newsletter resulted in 33% more households signing up for an evaluation after receiving a newsletter vs. the pamphlet (26.1 per thousand vs. 19.5 per thousand). During the same period of time, REEP newsletters were distributed to a neighbourhood classified as “not suitable”, resulting in one-fifth the number of evaluations as a neighbourhood classified as “highly suitable” (4.8 per thousand).

By Year Two of the project, more formal partnerships had been established with different utility companies. Kitchener Utilities agreed to include bill inserts about the project with the regular bill to its customers. This form of partner-based marketing was very effective at generating evaluations and helped expand the project to more teams and more homes being evaluated in a year (approximately 1,580 home evaluations in Year Two). Partner inserts became the greatest source of evaluations in Year Two at 39%. Direct marketing efforts continued, although mostly through the distribution of “Dear Neighbour letters” to the homes near a home that had had a home energy

evaluation. Direct marketing accounted for 20% of the evaluations in Year Two.

A high level of community outreach was maintained in Year Two – participation in 41 events – resulting in 7% of the evaluations. Media occurrences and resultant evaluations were slightly reduced in the second year, as the novelty of the project was reduced somewhat and media attention shifted to being more about results from the project's research. However, media was still an important source of evaluations (12%). Referrals were the second most important source of evaluations in Year Two, with 22% of the total (see Figure 2).

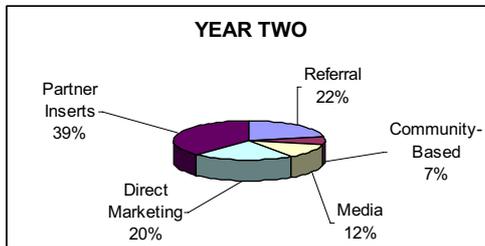


Figure 2: Sources of Home Energy Evaluations for REEP, Year Two (May 2000 – April 2001), n = 1362

Part-way through Year Two of the project, a local utility, Kitchener Wilmot Hydro, provided leadership in the shift to core funding coming from utility companies in Waterloo Region. By the third year of the project, four local utility companies (Kitchener Wilmot Hydro, Waterloo North Hydro, Kitchener Utilities and Cambridge and North Dumfries Hydro Inc) had contributed over \$100K to REEP (over a two-year period). Each of these utilities also helped with the marketing of the project by sending REEP bill inserts to their customers. The financial partnerships also meant that the price for households was still relatively low in the third year (\$35) compared to other communities. The project also directly assisted the utilities by offering a means to identify ways to reduce energy consumption at a time when

energy bills were rising and to offer a response to high bill complaints.

Figure 3 shows the different sources of evaluations during Year Three, where there was a drop in the number of evaluations conducted (approximately 850). In Year Three, there were no staff directly assigned the task of marketing the project. This change in staffing also resulted in a significant drop in community outreach efforts (participation in only 18 events). This resulted in very few evaluations coming from these marketing efforts (1%).

The expansion of partner marketing of the project resulted in 58% of the evaluations coming from partner inserts. Direct marketing (largely with the “Dear Neighbour letter”), generated 14% of the evaluations in Year Three of the project.

Referrals continued to be the second most important source of evaluations (17%). Media stories helped generate 10% of the evaluations.

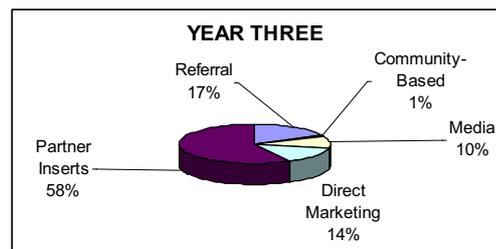


Figure 3: Sources of Home Energy Evaluations for REEP, Year Three (May 2001 – April 2002), n = 727

The cost for all marketing efforts the first year, the bulk of which were funding for a graduate intern and printing costs, was approximately \$41,000. This worked out to approximately \$45 per evaluation.

Year Two had similar marketing (staff and printing) as Year One, but the cost per evaluation declined to \$30 because of the higher number of evaluations conducted.

Year Three had reduced marketing costs as there was no staff person directly involved with marketing efforts. Advanced partnership arrangements and a greater reliance on utility partner inserts partially filled this gap. However, participation rates also declined.

Result

REEP is regarded as a marketing success. The community-based approach successfully delivered the EGH program to residents of Waterloo Region – a region with 1.4% of Canada's population which generated 10% of Canada's EGH evaluations by the end of 2001. Approximately 3,300 households participated in the first three years of the project and it is still going strong.

Local marketing initiatives were found to be much more effective than national advertising campaigns in getting people to book an EGH evaluation. One of the likely reasons for the effective delivery of the national program was the participation of many local partners, including local government authorities, universities, NGOs and utilities. Newsletter-style promotional pieces were more effective than a general purpose pamphlet for direct marketing. GIS analysis was very useful to identify neighbourhoods that were more likely to respond.

Figure 4 shows the evolution of sources of evaluations during the first three years of the project. Marketing priorities and practices changed significantly over three years. Direct bill inserts by partners clearly became the most important source of evaluations, with 58% of the evaluations coming from this source by the third year. This highlights the importance of having strategic marketing partners – in this case local utility companies. Local utilities benefited from the social

marketing of supporting a community environmental initiative where they featured prominently, and also had an avenue to direct customers concerned about their energy bills. The unbiased third party aspect of REEP also helped the utilities address customers' concerns.

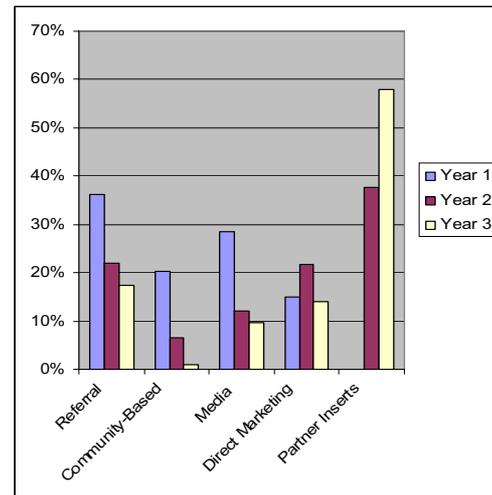


Figure 4: Sources of Home Energy Evaluations for REEP – Years One, Two and Three

REEP's greatest success was its ability to engage multiple stakeholders. Motivated households received information on how to reduce energy consumption, local governments were able to demonstrate their public commitments to climate change or clean air, utilities could refer customers with high energy cost concerns to REEP and the university could create training and employment opportunities for students and collect valuable research information.

Through these efforts, REEP effectively addressed the identified barriers (financial, information, time and trust) that prevent homeowner actions to improving energy efficiency.

Final analyses

REEP's volunteer Management Team designed a project, secured adequate funding, made strategic marketing partnerships and hired enthusiastic staff. The innovative nature of this project, and the research discovered through it, resulted in significant media attention, and proved useful for local marketing of the national EGH product. This project evolved from a two-year CCAF-funded initiative into an ongoing community supported environmental initiative.

The REEP model has been studied by other EGH delivery agents across Canada. Although difficult to replicate entirely, certain aspects are easily adopted in other communities. The priority on broad multi-sectoral involvement, accessing local media and encouraging referrals can be applied to most communities.

REEP's ongoing research also includes monitoring household actions on the recommended changes to quantify the changes households make to their home and the resultant benefits for residential energy efficiency. Follow-up surveys and return visits are made to assess changes and compare them to the identified steps in the initial report. These improvements are where actual gains in energy efficiency and emission reductions will be found.

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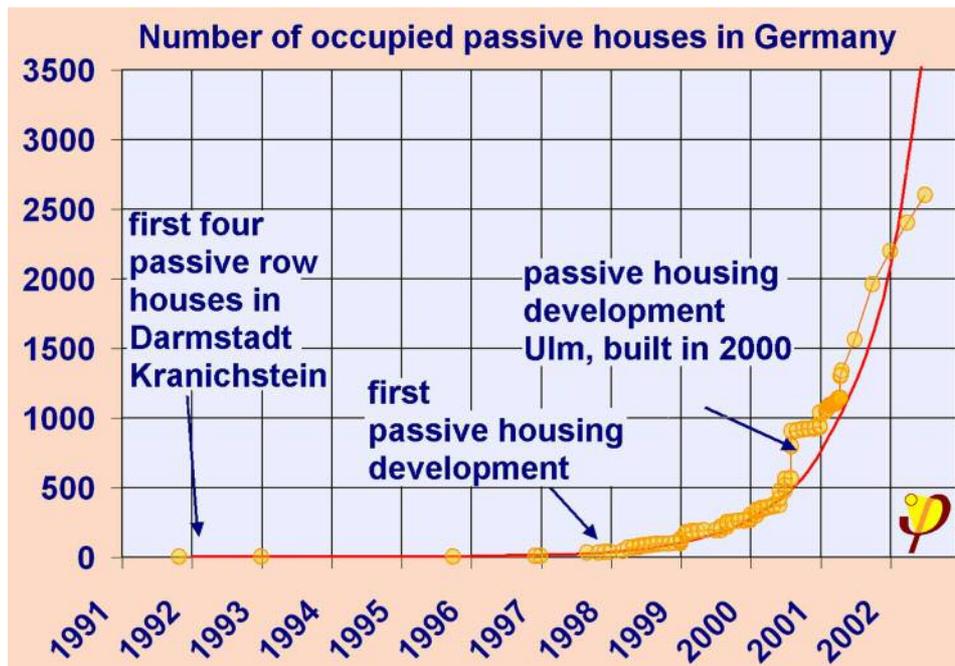
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- ⁱ The *EnerGuide for Houses* program was introduced to the Canadian public by the national government in September 1998. It was designed and developed by Natural Resources Canada (NRCan) in co-operation with the Canadian Mortgage and Housing Corporation and other partners. EGH was designed to help improve the energy efficiency of the Canadian housing stock and, in turn, to help the country reduce its greenhouse gas emissions.
- ⁱⁱ The Green Communities are non-profit, community-based, multi-partner organisations that bring environmental solutions to homes, businesses and institutions in their communities.
- ⁱⁱⁱ In 2002 the REEP office moved to a main street location in downtown Kitchener. While a research office is maintained at UW, most of the operations for the project are conducted out of the more visible downtown location.
- ^{iv} Region of Waterloo Population Statistics, www.region.waterloo.on.ca. Accessed in December 2002.
- ^v Region of Waterloo Planning Department estimate of a number of semi-detached and detached homes in Waterloo Region in 1998. The EGH software does not assess multi-storey apartments.
- ^{vi} Kennedy, R., Parker, P., Scott, D., Rowlands, I.H. 2000. Social Marketing of the Residential Energy Efficiency Project: Effective Community Implementation of a National Program. *Environments* 28(3) 57-72.
- ^{vii} In the first year, the Regional Municipality of Waterloo gave \$15K and the cities of Waterloo, Cambridge and Kitchener each gave \$5K to support the program.
- ^{viii} All dollar values are reported in CND dollars – worth approximately 0.65 USD/EURO.
- ^{ix} Evaluators are trained provincially and certified by delivery agents responsible, typically, for a province. Qualified delivery agents are authorised to offer the service nationally if they have the infrastructure in place to do so, but at present only two of 14 are offering outside of their “home” province.
- ^x Kotler, P. and Roberto, E.L. 1989. *Social Marketing Strategies for Changing Public Behaviour*. London: Collier Macmillan Publishers.
- ^{xi} In the May/June 2000 issue of *Canadian Geographic*, Kitchener was listed as the smoggiest city in Canada for ground level ozone.
- ^{xii} Canada ratified the Kyoto Protocol on 17 December 2002.
- ^{xiii} The residential sector is the third largest consumer of energy and source of greenhouse gas emissions in Canada, according to the Office of Energy Efficiency, 2000.
- ^{xiv} Office of Energy Efficiency. 2000. *Energy Efficiency Trends in Canada 1990 to 1998: A Review of Secondary Energy Use, Energy Efficiency and Greenhouse Gas Emissions*. Ottawa: NRCan.
- ^{xv} The Management Team for REEP consisted of: Dr Paul Parker (UW FES), Dr Ian H. Rowlands (UW FES), Dr Daniel Scott (AIRG) and Don Eaton (ECEE).
- ^{xvi} REEP experienced a very high participation rate for this survey – approximately 65% Year One participants completed and returned the survey. See: Scott, D., Parker, P., Rowlands, I.H. 2000. Determinants of Energy Efficiency Behaviours in the Home: A Case Study of Waterloo Region. *Environments* 28(3) 73-96.
- ^{xvii} “The Climate Change Action Fund (CCAF) was established in 1998 by the federal government to help Canada meet its commitments under the Kyoto Protocol to reduce greenhouse gas emissions. It is intended to support early actions to reduce greenhouse gas emissions and to increase understanding of the impact, the cost and the benefits of the Protocol's implementation and the various implementation options open to Canada. Source: www.climatechange.gc.ca. Accessed in December 2002.
- ^{xviii} Additional funding for students was obtained from the Canadian federal government department, Human Resources Development Canada (HRDC), the Canadian Council for Human Resources in the Environment Industry (CCHREI), and later Social Sciences and Humanities Research Council (SSHRC).
- ^{xix} Staff at NRCan suspect that most households need to have several “exposures” before action is taken in the form of booking an appointment to have an EGH home energy evaluation. This pattern is widely supported in consumer behaviour literature.

Marketing Story 3:

THE PASSIVE HOUSE THE ENERGY-EFFICIENT-BUILDING CONCEPTION, GERMANY



The number of passive houses accomplished during the last 10 years. The annual growth today is about 100% per year.

Introduction

Why are passive houses so successful? Since the early 1970s there has been a tendency to build more energy-efficient buildings. Despite opposition against this, the trend was successful: better heat insulation not only saves energy and costs, but it reduces the risk of damage and leads to higher thermal comfort in buildings.

But this cannot explain the extraordinary dynamics in passive houses. In the past any development came slowly: step-by-step U-values of walls and the efficiency of boilers have been increased. In parallel, the national building codes were adapted gradually so that anyone could follow and accept them. Compared to this the passive

house conception does a large step: the energy consumption is reduced by more than 75% compared to standard building codes.

This seemed fantastic at the beginning, but meanwhile these buildings were constructed in great numbers and their behaviour was studied by numerous measurements. The passive house conception proved to be a successful building design.

And the constructed houses proved to be comfortable for the inhabitants: no cold corners and no drafts near the external walls etc.

The basic principles

The physical principle of energy-efficiency in the context of building physics is really simple: the service to get a house comfortably warm for the inhabitant is just an adequate indoor temperature. The correspondent 'energy-service' may be the conventional heating of the house. But this service may be as well a suitable covering of the building to prevent heat losses, hence a heat insulation of walls, roofs and ground floor. These ideas come from the work of Amory Lovins (*Factor of Four*) who stated that for most 'energy-services' we theoretically need no physical energy at all, or practically only a very small amount.

The passive houses conception is hence the transfer of this idea to the real world of building physics and architecture. What do we have to do to reduce the heat energy consumption of a house in a way that is affordable for the inhabitant – investor or tenant – who has to pay for the extra costs? With these ideas in mind we can explain the few principles on which the passive house conception is based:

- Heat losses through the cover of the house should be reduced as much as possible: U-values of walls, roof, and ground floors should be 0.1-0.15 W/ (m²K). U-values of windows should be about 0.8 W/ (m²K).
- Passive solar gains are essential for the passive house. About one-third of the remaining heat losses in winter are compensated by the passive solar gains through south-oriented windows.
- Heat losses by ventilation must be reduced. A mechanical ventilation system with at least 75% heat recovery is essential for passive houses.
- Heat bridges must be avoided.
- The cover of the building must be airtight ($n_{50} \leq 0.6 \text{ } 1/h$). This refers to connections of components: roof, walls, windows, floors, doors and so on.
- The heat load at the minimum design ambient temperature for a passive house is reduced to below 10 W/m².
- If consistent planning is done, this low heat load allows for less conventional heating. The small amount of heat energy

in winter can be supplied to the indoor rooms by the input fresh air which is supplied anyway, so costs can be reduced.

When analysing the resulting 'product', the passive house, we can state that there are some extra benefits for the inhabitants which have been dreamed of for hundreds of years:

- they receive a really warm home – without any cold corners at all
- warm surfaces, especially warm inner window surfaces, avoid condensing, humidity and subsequent problems
- the mechanical ventilation provides fresh air all the time and no windows need to be opened all the winter.

The market development

As mentioned above, the development of the market in the past was step-by-step. In contrast to this, the passive house conception represents a 'non-incremental' step in the development of products for the building market.

But meanwhile, it is evident that any one of the players in the market can take part in the game. Many providers in each sector of the building trade have proved that they can construct products with the high thermal quality needed for passive houses.

This product may seem expensive at first, but the conception helps to save costs, both at the moment of investment and later when the building is in 'operation'.

This cost reduction results in simplification on the construction (see for example the saved heaters mentioned above), and last but not the least, the large amount of saved operation costs due to saved energy.

So the passive house conception is cost-effective. That could be shown with social dwelling houses built as passive houses in the framework of CEPHEUS (Cost Efficient Passive Houses as European Standards).

Promoting the market by spreading information

Anyone can take part in the market and may build passive houses. There are no patents on any of the ideas mentioned above. It was a general decision not to cover the idea by patents, but spread it out to people, who want to participate.

The role of the Passive House Institute (www.passivehouse.com) is to provide information to anyone who wants to take part in an innovative way of constructing buildings.

The high quality products which are essential for building passive houses were developed mainly in Europe (Sweden, Germany, Austria and Switzerland). But it is possible to produce and develop them everywhere. The added value therefore originates in the local country, respectively.

The passive house places Innovation Impulses to a market that was generally shrinking in past years. But the market of passive houses increases today by about 100% a year. So there is a big chance that these innovation products will be successful in the future. It is possible to use them for new buildings as well as for refurbishment. The passive house conception meanwhile spreads all over Europe.

Results and final analyses

The conception is successful because it has met just the right level of quality requirements. On the one hand, the better quality can be realised by the consumer: the extra benefit can clearly be felt by the inhabitant of the passive house.

On the other hand the standard of construction is affordable – NOT cheap! – so that the investor can make a decision. A better product with more benefits can save costs – and heat energy – during the 'lifetime' of the building.

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LITERATURE

See www.passivehouse.com. The website is partly translated into English. There you can get more information about the basic conception, new ideas, and innovative products, manufacturers and suppliers.

Marketing Story 4:

DEWEES ISLAND, SOUTH CAROLINA, USA



PROJECT DATA

Location: Charleston County, South Carolina, USA

Owner/Developer: Island Preservation Partnership

Architect and Land Planner: Burt Hill Kosar Rittelmann Associates, Washington DC

Size: 1,206 acres, 486 hectares

Project Cost: \$20.8 million US

Project Completion: December 1996

Project Scope: 150 homesites for single-family detached permanent and vacation residences

Price: Homesites USD\$320,000 to \$850,000; furnished homes USD\$895,000 to \$1,125,000

Introduction

Deweese Island is an equity-based resort development of the coast of South Carolina near Charleston. 150 homes will be built a few miles north of a wildlife refuge on this 1,200 acre (486 ha) island. A consortium of developers (with John L Knott Jr as the CEO) has tried to create “an opportunity that will prove people can live with the environment”.

The cornerstones of this sustainable development are the strict restrictions placed on construction, density and resource conservation including energy, water use, waste and habitat. Strict restrictions are typically thought to hinder sales; however, the residents are more concerned about the developers remaining true to the guidelines and the environmental mission of the island.

Deweese Island Mission

Ensures that the Dewees Community is built to last. Based on our Dewees Island core values as a private island community: dedicated to environmental preservation; clarify the impact of the transition; proactively communicate with all property owners and staff; and make recommendations to the POA (property owners association) board to help build and maintain a strong community, in which we respect each other and the environment.

STRATEGIES

Resource efficiency

A master planned community, Dewees Island is supported by a series of progressive design guidelines. The



master plan is both a strategic planning tool and a legal document. Site planning considerations of seven geological zones on the island gave high priority to tree preservation, passive solar orientation, prevailing winds and watershed. To minimise habitat disruption, each parcel is allowed a maximum disturbed area of 7,500 sq ft (697 sqm). Building heights are restricted to the height of the tree line and there is no minimum house size, or even a requirement to build one.

Dispersed homesites were determined to be less disruptive than clusters. The developers maintain that this measure, together with creating additional ponds, triples the water habitat.

Only indigenous plants are permitted for landscaping, allowing for efficient low-drip irrigation to be used from the harvested rainwater. Lawns are prohibited – eliminating the need for pesticides and fertilisers. Impervious landscape materials are prohibited. Roads and paths for electric vehicles only are made of local materials including sand, crushed limestone, crushed oyster shells and pine needle mulch. These materials not only replenish groundwater, but also drastically reduce infrastructure and maintenance costs for the developer. Household water consumption is 30% below the national average and 70% less than comparable homes. The waste water is processed in a closed-loop shared sewage system.

Architectural innovation

A sensitivity to regional architectural character



indicated that houses are built on pilings and have wide overhanging eaves and operable shutters.

Tight construction using structural insulated panels and high-performance windows save additional energy. Transom windows in the interior walls enhance cross-ventilation. The net result of these measures is that the homes are often cooled with ceiling fans. This attention to passive solar climatic design and other energy-saving design features resulted in power consumption 75% below the national average. Additional heat and cooling are provided by vertical closed-loop geothermal heat pumps. All construction materials are purchased from sources that have strict sustainability guidelines and, after construction completion, builders must recycle all possible residues.

Potential barriers

Local realtors doubted that the island would be a commercial success. Conventional thinking

would regard ecological features as negative attributes in the traditional recreation market. There are no golf courses or marinas, petroleum-powered vehicles, no lawns and no pavements.

Public resistance to new concepts and the fear of the unknown is always a barrier. Uninformed people succumb to peer pressure and often sign petitions when the interests of eight or nine people predominate.

Stakeholder involvement and project endorsement by the stakeholders makes a difference and provides credibility.

The professional habits of architects, engineers, developers and planners (and the inertia of their current training and a lack of cross-development practices) are also alleviated by strategic partnerships.

The economics of sustainable development usually result in lack of affordability and increased time for approvals. The developer adopts a risk position. Stressing economic benefits (water resource management), market value, absorption rates and societal savings (EPA research) can provide solutions to economic barriers. Developers become agents of change and community organisers.

The CEO of Dewees Island has also mentioned planning regulations often handcuff the developer who wants to respect the natural environment of the site. Building trust among different groups, organisations and municipalities that have often competed against each other is a both a barrier and requirement of effective development.

MEASURES OF SUCCESS

Economic success

Deweese Island has been a great success. Nearly all homesites have been sold and the residents have nothing but praise for the development. Sales have been high, lot prices have increased and net profits exceeded goals. Lower costs were encountered with sustainable development practices and the opportunity arose to target a sub-group of the recreation market, specifically those with strong environmental values.

Marketing success



The Landings building contains the Welcome Center, Nature Center, a USA Post Office and an electric-cart charging area.

Extrapolating on trends such as increased environmental awareness, the search for connection, cocooning and escapism this development, originally intended as a resort community, can boast that 40% of homeowners say they intend to make Dewees their primary residence. According

to the developer: “People buy land here because they buy the benefits of participating in this way of life, but once they’re here, they buy into the ideals because they see the connection between the benefits and the values”.

The marketing emphasised that the island is dedicated to environmental preservation. Their credibility and media exposure increased with the many awards the developers earned. They used selling points such as private, pristine and preserved and words such as learning, inter-generational and legacy to convey the community values.

By taking what could appear to consumers as negative attributes (lack of traditional amenities and strict regulations) and presenting them as positive benefits, the developer found interested buyers willing to pay a premium for it.

The developers attribute the success to an exclusive, but wide-ranging, marketing campaign. The approach is described as more personal and one-on-one. Ads are placed in specialised publications and a substantial response has come through the website.

The press has given the project USD\$5m dollars worth of free press and media attention, keeping marketing costs to a minimum. Most of the paid advertising has been directed to the upper class who can afford the expensive lots.

Systems integration



The Education Center contains a nature library, a swap shop for children, bio-diversity brochures and exhibits/artifacts found on the island. Here you can learn about sea turtles, and student field trips, or call to arrange an excursion.

As in functional systems, the whole becomes more than the sum of its parts. Dewees Island is no exception. Its attention to systems integration includes resource efficiency and ecological design, as well as a keen sensitivity to core cultural values and social trends. The whole approach is balanced: “What is most important is growing sustainable

cultures, not building sustainable developments or green buildings. We should be thinking in terms of serving our human community first”, said John Knott who was the key developer in the Dewees Island project. “Development is not about sticks and bricks”, he said. “I am a community developer who views my role as serving the five basic human needs – economic, functional, aesthetic, social and spiritual”. Some of the unique features of the community include:

- A wide scope of stakeholder collaboration is utilised:
 - a full-time environmentalist is on the island’s management staff
 - collaboration with local schools for educational field trips
 - partnership with regional environmental groups.
- The inclusion of many neo-cultural functions:
 - educational seminars about sustainable building and environmental issues are held for architects, builders and homeowners
 - scientific research activities about habitat
 - sustainability as an amenity and a key part of the marketing package
 - hosting of school field trips for environmental education

- recreational functions including the island's own environmental assets
- the developer's transfer of 1.5% of proceeds to an environmental fund
- sustainable harvesting of a rare grass native to the island.

Lessons from the developer

Begun in 1996, Dewees Island benefited from a good economy and shifting trends in culture and society. The developers offer four particular concerns among citizens that all developments should acknowledge.

1. The search for a sense of community.
2. Connection to nature.
3. The search for community-lifelong learning.
4. The search for authenticity (realness and truth, tired of the marketing).

Author's note

In today's post-terrorism, post-Enron, post-modern environment, these homeowner concerns will be intensified. The developer advocates a process approach, not an answer approach, as formulas do not account for site-specific concerns.

The opportunity for additional amenities in the built environment has peaked according to many experts. The balanced approach to this development – as exemplified by its emphasis on education and empowerment in a credible and socially responsible way along with its innovative process of architectural and ecological innovation – has afforded the project great success.

The collaborative methodology has resulted in multiple partnerships and synchronicity of site, plan, economics and social and environmental responsibility. Many of the same barriers were encountered and successful outcomes realized nearly 30 years ago in Davis, California. An interesting parallel, around the same time is the emergence of the trans-modern subculture. This market segment has grown steadily since then and continues to be the most educated

and financially secure culture to arrive on the planet. The marketing approach of Dewees Island included this subculture and targeted the appropriate demographic segments for income level and age. This balanced and integrated approach proved to be highly successful socially, ecologically and financially. The competitive advantages of a whole systems approach become apparent in this and many other sustainable developments throughout the USA and the world.

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REFERENCE

A Compendium of Surveys in the US, Guy Holt, November 2002.

Marketing Story 5:

50 SOLAR ENERGY HOUSING ESTATES IN NORTH RHINE-WESTPHALIA**Introduction**

In 1997 three North Rhine-Westphalian (NRW) ministries (Economic Affairs, Housing and Construction, Science and Research) and the NRW State Initiative on Future Energies launched the campaign for the construction of 50 solar energy housing estates in NRW.

The aim of the project is to initiate the construction of about 50 residential areas which, on the one hand, greatly reduce the energy demand through appropriate solar construction methods and, on the other, cover the remaining energy needs with solar energy for the most part.

To motivate the needed key players e.g. municipalities, architects, investors and building companies, the ministries have coordinated their subsidy programs for this project.

The 'thing' that was promoted

The campaign places specific requirements on the construction of solar energy housing estates:

- heat energy consumption: max 15 kWh/m² per annum (Passive House Standard) or max 35 kWh/m² per annum
- production of hot water: the solar energy contribution is to be at least 60% of the energy requirements
- the production of electricity by photovoltaics: at least 1 kWp per housing unit.

At least two of the three requirements are to be fulfilled in order to obtain the status of a 'solar energy housing estate'. Further requirements are described in a planning guide.

Target market

Several demonstration projects throughout Europe show the feasibility and diversity of solutions of energy-efficient buildings. Most of the projects consist of one building and not a whole settlement.

However, due to the long life-time of urban planning, its design should supply the pre-requisite for an energetically sustainable settlement and the options for passive and active use of solar energy. Therefore the target market is housing estates or residential areas in which the urban planning can still be influenced. The project aims to gain experience about how to integrate communities, architects and urban planners, engineering consultants and investors in the planning and realisation process of solar housing estates. One of the main key players is the investor, because they have to finance and sell the houses to the occupants.

At the beginning of the project the solar building, as it is required in this project, is still fraught with barriers for investors. Nevertheless, there exist some chances for investors to participate in the project:

- If the municipalities choose attractive locations there are good marketing opportunities for the investor.
- In addition, many building promoters see an opportunity in the realisation of solar housing estates as the trend is going in the direction of energy-efficient buildings not only in the building regulations in Germany (EnEV). As a result of the fact that building promoters are already gaining experience with the trends of building of the future, they are expecting a competitive advantage in the market.

- Furthermore, many customers associate solar building not only with the low energy consumption and cost but increasingly with comfort issues such as quality of light and good air quality.

The players

The NRW State Initiative on Future Energies coordinates the campaign for the construction of 50 solar energy housing estates in NRW – this was founded six years ago in order to support the development, production and use of innovative technologies in the most important European energy region. As an information and communication platform, it puts the emphasis on innovative technologies for the efficient production and use of energy as well as renewable energies. The activities of the State Initiative concentrate on promoting innovation processes in NRW, paving the way for co-operations and strategic alliances, as well as expediting launches in the market. The municipalities in NRW are the other important key players in the project. A municipality (together with partners e.g. a building company) can propose a possible solar housing estate, then an expert committee decides whether the submitted planning fulfils the requirements of the project or not.

The action taken

The project was announced and promoted in the whole of NRW (therefore different measures were taken):

- workshops for municipalities
- brochures with the main information
- articles in newspapers.

The following incentives were developed for municipalities and building companies to realise the solar energy housing estate:

- competitions for the urban design of solar energy housing estates are subsidised
- the assessments of the solar quality of an urban design are subsidised
- energy concepts for solar housing estates are subsidised.
- the realisation of special technologies and buildings standards are subsidised (therefore the ministries have coordinated their subsidy programs for this project)
- a selected number of solar energy housing estates were and will be scientifically supported, monitored and evaluated to avoid possible mistakes in future settlements.

Results (Degree of success)

There are nearly 50 project proposals from communities and 27 of these projects attained the status of a solar energy housing estate. The first six estates are built in Steinfurt-Borghorst, in Gelsenkirchen, in Cologne and in Lydinghausen.

Final analyses

Up to now the project start has been very promising, and the prognosis for the projects which are planned or under construction is positive. Due to the holistic approach and the continuous accompanying of the project it is known beyond the borders of NRW, and in other European regions activities have also started to develop similar projects.

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Marketing Story 6:

HOUSES WITHOUT HEATING SYSTEM IN LINDÅS, GÖTEBORG, SWEDEN



The project

In Lindås, south of Göteborg, Sweden, Egnahemsbolaget (a non-profit community-owned company) built 20 attached row houses without normal heating system. The houses were designed by EFEM arkitektkontor.

The heat losses are minimised by using good and thick isolation, a heat exchanger for the ventilation with efficiency of 85–87%, and very good windows and doors with a U-value of 0.85 W/m²K. The internal gains – as body heat, heat losses from refrigerator/cooking/washing/lighting, TVs, computers and stereos – is enough to create a comfortable indoor climate even in the middle of the winter. At most times of the year the

warm air is exhausted through a roof/window in order to protect the house from overheating. The results of the first season show that the indoor climate is close to that predicted.

The marketing of the houses was very easy: low-cost living in a very attractive area, close to the sea, only 30 minutes by bus to the centre of Göteborg and with low living costs. Few of the inhabitants moved into the houses because of the special design of the energy system.

New built Swedish houses are often very energy efficient anyway, so the step from a standard house to one without a heating system is not very large.

The market for these buildings will grow. There is work going on to change the Swedish building rules in order to make new buildings more energy-efficient. In 20 years all new buildings will be built in accordance with the Swedish Building Code: that means 'houses without heating systems'.

Target market

The energy prices are very low in Sweden, and people are generally well informed and conscious about environmental problems. As mentioned, people bought the houses because of the lack of dwellings in Göteborg and the houses are very well situated in the city.

The players

The non-profit community-owned company has a queue of people who want to buy one-family houses. There was one advertisement in *Göteborgs Posten*, the biggest newspaper in west Sweden (the second in Sweden). Unfortunately the Swedish building industry has not understood the potential in the technology, or they could have been building these types of houses for two decades.

The action taken

The first step was to convince the Egnahemsbolaget about the project. This was not difficult at all. EFEM arkitektkontor had an ongoing cooperation with the company for many years. A common study tour was made to Darmstadt and other cities in Germany, looking at passive house projects. After looking at these convincing projects there was no doubt about starting a similar venture in Sweden.

Results

The success was that common people bought the houses and feel comfortable in them. Most of the inhabitants had thought about their own energy situation and tried to save energy in their own lives anyway. The other success is that the houses were produced to a price according to the common prices on the building market.

Final analyses

The houses are very satisfactory and there were no problems during their construction. Seventy percent of the homebuyers are very satisfied with their living conditions, and no-one is unsatisfied due to an investigation made by Uppsala Universitet. The only unsatisfactory point is that the Swedish building industry did not construct these types of buildings years ago.

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Marketing Story 7:

THE WWF SELLS SUSTAINABILITY IN HOUSING IN THE NETHERLANDS



Introduction

Several years ago, the Dutch branch of the World Wildlife Fund for Nature (WWF) started a campaign to stimulate the construction of sustainable housing in the Netherlands. This culminated in a working co-operation between the WWF, five major property developers and energy experts. They developed the WWF label for housing. Under this label some 10,000 homes were built throughout the Netherlands. As a continuation of the WWF initiative, the National Certificate for Solar Housing has now been developed.

The WWF label requires that houses are almost 50% more energy efficient in heating than the building requirements.

Because only established techniques are used, high extra costs are avoided and no subsidies are needed.

The well-known WWF logo and the low extra costs ensure interest from both property developers and buyers for low-energy and sustainable housing.

WWF housing

The Program of Requirements to attain the WWF logo for a housing project defines ambitious goals for energy efficiency and sustainability. It leaves, however, a great deal of freedom in the achievement of these goals, and thus ensures a variety of types of housing with the WWF logo.

The Program of Requirements contains five main issues. The implementation of the measures, defined in the Program of Requirements, should cost no more than €4,500.

1 Low energy consumption: the Dutch housing requirements set down limits for the energy consumption of newly built housing (the EPN). The (theoretical) energy consumption is determined through a standardised calculation using all physical parameters of the construction. For an average household, this corresponds to a natural gas use of 930 m³/year. The WWF Program of Requirements sets down a limit of 500 m³/year –almost 50% better than the legal requirement.

2 Solar energy: both active and passive solar energy is utilised in the WWF houses. A good orientation of the houses ensures the use of passive solar energy. Furthermore, either a solar water heater or solar panel must be used. This contributes to the development of a sustainable energy supply.

3 Sustainable construction: in the Netherlands a National Package of sustainable construction measures is defined. For WWF housing these measures must be utilised. This ensures that the housing is not just low in energy use, but also more sustainable than regular housing.

4 FSC wood: all wood used in the WWF houses must be certified by the FSC (Forest Stewardship Council). This certification ensures sustainable production and processing of the wood.

5 Quality control: of the final product, i.e. the house, is checked by an independent consultant who verifies the energy efficiency and quality of the finished construction. A report is drawn up and a copy is sent to the WWF.

Target market

The Dutch market situation is defined by a large demand for housing. The demand is greater than the supply in nearly all types of housing. This is especially true in the urban and close-to-urban areas. It therefore seems unnecessary to approach homebuyers

with a marketing scheme to buy certain houses; most houses that are built are sold very quickly.¹

The marketing of the WWF houses is therefore not just a strategy to convince buyers to buy these houses, but as much a marketing scheme for developers to build energy-efficient and sustainable housing.

The players

Within the scope of the WWF housing project the following players can be identified:

1. the WWF
2. property developers
3. local authorities
4. house buyers
5. national government.

Throughout the project, at several levels, energy consultants and sustainable building experts were involved.

The WWF: the WWF is an organisation with a large support and an excellent image worldwide. WWF stands for nature preservation and sustainable development. Many companies and individuals contribute to the WWF. Using the WWF panda bear logo for housing gives the houses themselves an image of nature preservation and sustainable development, without the need for elaborate and technical information. All parties simply *trust* a product under the WWF logo.

¹ Recently, due to the world economic situation the demand in housing seems to be falling. It is not clear if this effect is temporary or will be long lasting. If the latter is true, the Dutch housing situation will change drastically.

Property developers: the companies who were invited to take part in the WWF initiative are all well-known and have a significant market share. Furthermore, they all had some experience in the field of energy-efficient and sustainable housing. They had several good reasons for joining the WWF program:

1. The positive WWF image is associated with the company.
2. The projects generate a lot of free publicity.
3. It provides an opportunity to work with new (but proven) techniques.
4. It provides an opportunity to make new contacts with local authorities.

Local authorities: local authorities play a major part in deciding where, when and what is built in the Netherlands. In general, they are very positive towards energy-efficient and sustainable construction. However, they have very little means to enforce this type of construction. Therefore, property developers with sustainable building projects can generally count on support from local authorities.

House buyers: as stated before, in the Netherlands, the demand for housing is much greater than the supply. As the prices of the WWF houses are not much higher than normal prices, no problems were suspected or encountered in the sale of the houses. As in most countries, house buyers in general do not list the environment high on the agenda when buying a new house. However, most house buyers were very positive about the panda bear logo and thought it gave their newly bought homes extra value (though not necessarily money-wise).

National government: the WWF wanted this project to be a market initiative and therefore did not invite governmental organisations to participate. Nor was there any claim on government subsidies, other than the national green mortgage, which offers a low interest on sustainable investments (up to an investment of approximately €35,000).

Some important public figures, such as the Secretary of State for Housing and the Environment, were invited and took part in publicity events. Although not formally involved, national government is very keen on these types of market initiatives and tries to stimulate them whenever possible.

The action taken

Five leading market parties were invited by the WWF to participate in a project to build houses according to WWF standards. All companies accepted this invitation, and at an early stage the co-operation was formalised by the directors of the participating companies to ensure top-down support.

A group was set up with members of all participating organisations and energy consultants to define the boundary conditions for the building projects. Each of the property developers was to develop a site of about 40 homes at different locations throughout the Netherlands. The property developers were required to find local authorities willing to make a building site available. The extra costs associated with the WWF measures would not be more than €4,500 per home. These costs could be recovered within 10 years through lower energy costs. To minimise the risk of failure, only proven techniques would be used. Besides the Program of Requirements for the houses listed before, a complete package of measures was formulated to optimise the sustainability of the building process. Amongst others, environmental care on the building site, waste recycling and efficient transport contributed to the whole process. Furthermore, to ensure the correct use of the elements in the house, a good instruction manual for the occupants was developed.

Within the building process there remained a considerable freedom of choice for developers. This is illustrated by the great variety existing in WWF

houses. To ensure the requirements of the WWF standard were met before, during and after the building process, independent experts carried out quality checks.

It was ensured that the building sites were spread out over the Netherlands. The local authorities involved all signed a statement of intent and participated in the communication campaign. Within the communications campaign, key figures were used to create press interest. These figures included the Secretary of State, the chairman of the building union, a well-known urban developer and the chairman of the Dutch branch of the WWF. This approach and the panda bear logo all gave the project a very distinctive and attractive appearance, which gained a lot of interest from other property developers. After the start of the first five projects, other property developers joined with other housing projects. In total, almost 10,000 WWF houses were built in the Netherlands.

The success of the WWF houses was such that a national guideline is now under development, which includes the basic concept of the WWF Program of Requirements. The guideline will be known as the solar housing certificate.

Results

As a direct result of the WWF efforts, 10,000 low-energy houses have been constructed in the Netherlands. Furthermore, because of the success, the basic concept of the Program of Requirements has been included in the national guideline to attain a solar housing certificate. Already the first houses have been built with this label, which still carries the WWF approval and the panda bear logo.

Final analyses

The use of the WWF image to sell energy-efficient and sustainable housing is an incredibly powerful marketing tool, which can be utilised in many different marketing situations. The WWF is a non-threatening organisation, trusted by all parties. Government intentions in the field of sustainability are often distrusted by building parties and seen as intrusive. On the contrary, the WWF requirements are judged positively. Furthermore, the price of 'sustainability' in this project is low, as the investment can pay itself within 10 years. This removes a possible obstacle in selling the house. It should be stressed that the panda bear logo does not merely help to sell the house to the homebuyer. It also stimulates property developers, local authorities and other players to develop such projects.

In conclusion, it can be stated that the success of this project is not limited to the Dutch market situation, but could be achieved in many different countries.

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Marketing Story 8:

ENERGUIDE FOR HOUSES, CANADA

Introduction

EnerGuide for Houses is a service that helps Canadian homeowners understand how to improve the energy performance of their homes. Implemented as a market transformation program, it is intended that the service remain viable over the long-term, therefore it has been established in the marketplace as a 'for fee' service, similar to a home inspection. The program is the only Canadian program targeted at improving the efficiency of the existing housing stock. EnerGuide for Houses' strength comes from its positioning as a tool that merges the interests of three powerful groups – homeowners, industry professionals and the Government of Canada – to a common end.

Homeowners are seeking information from an independent source to:

- lower their energy bills
- find solutions to comfort problems
- build low investment, high return energy upgrades into home renovations.

The renovation and home inspection industry wanted:

- commitment from the Government during the development of the service product
- consistency in the methodology
- flexibility in service delivery.

The Government of Canada wanted to:

- create mechanisms/tools to accurately count and track carbon reduction
- contribute to a system that leveraged funding to build industry expertise and support job growth
- meet the needs of the Canadian population.

Marketing comfort

The marketing concept was to form a network of qualified professionals capable of delivering a consistent quality service from coast-to-coast. The service was first outlined and then pilot tested for the year preceding its launch.

NRCan consciously developed a flexible framework around marketing, recognising that several different models could function well. Flexible marketing has allowed this network to weave EnerGuide into the fabric of the delivery of other business models. It has proved to be an optimal mechanism for engaging diverse industry groups.

The key marketing goal in the first years of the service was in establishing a nationwide brand for energy-efficiency expertise about houses. EnerGuide for Houses (and another recent program EnerGuide for Vehicles) has been able to benefit from the existence of a respected brand in the marketplace – EnerGuide for Appliances. This labeling system provides customers with information to encourage their purchase of energy-efficient appliances, and has allowed for faster understanding and pick-up of the EnerGuide for Houses brand by homeowners.

EnerGuide for Houses

EnerGuide for Houses is an information service for homeowners and industry professionals. It promotes the value of information in understanding the complex ways that homes work in an extreme climate.

The main target audience for EnerGuide for Houses is homeowners. There is also a considerable effort being made to target industry influencer groups, notably:

- home inspectors – to whom the service is marketed as an add-on to a time of sale home inspection or as a post move-in service to aid renovation planning
- realtors – to whom the service is typically used to prove the value of upgrades
- contractors and renovators – to whom the service works as a partnership. A homeowner who has been educated with energy-improvement recommendations is likely to do more work.

While homeowners in Canada have the option to call in engineering companies to assess comfort problems caused by specific mechanical or structural failings, few do. Most people don't know the sources of problems and don't know how to solve them. EnerGuide for Houses experts fill a knowledge gap in the market.

The market opportunity for EnerGuide for Houses is that of providing a wide segment of the population access to an inexpensive, technical analysis of a wide range of systems in the home. It comes with quality assurance that ensures recommendations will provide helpful cost-effective solutions that will lead to energy savings. It also provides a benchmark to prospective homeowners, allowing them to compare different homes based on a quantitative measure before purchasing a home. This aspect will become more important as the market penetration and brand recognition of the EnerGuide rating for the home increases.

Research tells us that homeowners typically undertake a major renovation/repair within the first two

years of home ownership and then regularly every few years thereafter. With the boom in the housing market and record low mortgage interest rates, EnerGuide for Houses is well positioned to penetrate this market segment.

Recognising Canada's ratification of the Kyoto accord, there is an opportunity to tie comfort and savings issues to good environmental choices.

Though energy prices remain low in Canada in comparison with Europe, recent changes in the energy supply industry have resulted in sharp fluctuations in residential energy costs. Consequently, there has been a surge in interest on the part of homeowners to reduce their consumption.

EnerGuide has been able to benefit from the existence of a respected brand in the marketplace, EnerGuide for Appliances. This labeling system, that has over the past two decades encouraged the purchase of energy-efficient appliances, has allowed for faster understanding and pick-up of the brand by homeowners.

Market barriers included:

- insurance and liability concerns
- evidence of a long-term commitment by the Government to prove to industry the value of buying-in
- industry perception that energy issues were of little concern to homeowners
- customer perception that a low price for the service equates to a low value
- national delivery of service requiring rural and small urban (lower demand, high investment) as well as large urban (high demand, lower investment) delivery.

The players

In order to provide the service nationally with the minimum of training and maximum industry buy-in, the program decided to involve large organisations that already had an administrative infrastructure and energy expertise as regional delivery agents.

Delivery agent organisations included community groups, energy suppliers, industry associations, engineering companies and provincial housing/energy organisations.

These agents coordinate the delivery of the program in their region and are in regular contact with NRCan personnel. A region is typically a province or territory, but may be smaller or larger depending on the agent and/or needs of the customer base.

Agents select and train energy advisors, manage scheduling and local quality assurance, as well as all payments and billing within their region and with NRCan.

NRCan trains trainers, provides agents with software and software support for advisors and pays a set fee per data file to support the agent's delivery.

NRCan methodology is used and NRCan quality assurance technicians check sample files to ensure customer satisfaction and adherence to the process.

Initial strengths included:

- willingness to work cooperatively on the part of most regional delivery agent groups
- broad general agreement on methodology and software
- recognition of the value of marketing.

Initial weaknesses included:

- large number of disparate organisations lacked commitment to branding

- wide range of marketing techniques resulted in a regionally 'scattered' approach
- lack of hard incentives to encourage people to do the recommended renovation/repair
- occasional regional support for short-term energy cost rebates to lower impact of high energy prices reduced homeowner incentive to implement recommendations
- small national marketing budget, and little or no funding for regional projects.

The marketing story

The service was evaluated at \$300 (based on 4-5 hours at \$60-75/hr). This included homeowner booking, pre-visit advisor phone call, travel, site visit, data input, data modeling, development of upgrade recommendations, explanation of results to homeowner, delivery of report and label and follow-up questions with homeowners as required.

National newspaper, magazine and TV advertising campaigns have been implemented over the duration of the program to support national branding. This also complemented local advertising as local agents typically did not have budgets for large-scale advertising.

NRCan focussed on industry awareness support, circulating a tradeshow booth between 10 and 12 national industry shows annually.

Each delivery agent was supplied with a portable pop-up exhibit to showcase the program at regional consumer or industry tradeshows, presentations and meetings. Each delivery agent has been offered marketing funding support for a regional media launch.

EnerGuide for Houses brochures with regionalised contact information have been supplied by NRCan to ensure universality, consistency and official

language compliance. Additional products such as kit folders, posters, information books and brochures, have also been prepared for agent use.

To benefit from economies of scale, delivery agents are encouraged to suggest products that can be developed by NRCan for regional use.

Articles that promote the benefits of the service are distributed three times annually through news media.

A media partnership with a consumer home renovation magazine provides a standing two-page column on energy issues, for which NRCan supplies content under the ultimate editorial control of the magazine.

Two recent pilots by energy supply companies have offered small cash rebate incentives to homeowners for the replacement of older furnaces. Analysis of the success of these pilots in the use of incentives to encourage homeowners to undertake higher-cost, high-return energy saving activities in their homes may prove useful in determining the direction of future program partnerships.

NRCan continues to evaluate new avenues for national marketing, including development of a national radio show segment for free use by news radio stations. As well, a pilot is underway to evaluate the success of province-wide postal drops in postal codes that contain a large percentage of older houses.

Results

Since 1998 over 50,000 Canadians participated, both to benefit themselves and to help fight climate change. Those who have followed up with EnerGuide recommendations are saving on average 2.5 tonnes of carbon, per household, per year and have reduced their energy bills by an average of 19%.

Final analysis

Implementation took longer than had been anticipated.

A business delivery system, including such tools for local booking and responding to homeowner inquiries, would have proved valuable. However, to have ventured into these systems before the program was fully established would have been premature. Four years into the program we are now in a better position to develop these systems with the cooperation of existing agents and other industry input, and we are doing so.

There was a poor commitment to brand recognition on the part of several agents for very different reasons. The commitment to brand recognition should be a fundamental discussion to which all partners buy-in before launch.

Energy experts are not necessarily marketers. Regional agents may need access to a central agency (and source of funds) to obtain expertise and some funding towards regional projects.

Overall, we believe EnerGuide for Houses has been a great success and NRCan is building on that success.

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Marketing Story 9:

PLUG & PLAY SOLUTIONS – SOLAR PANELS IN THE NETHERLANDS



Solar system of 560 Wp on an extension from the 1980s of a typical Dutch semi-detached house from the 1930s.

Introduction

Nowadays, driving through the Netherlands you will notice solar systems on and around houses from all periods. Solar panels have been subsidised nationally and also by some councils and power companies. The success of the solar panels is, however, not only due to the subsidies. Companies have been selling all-in packages for a do-it-yourself mini solar power plant.

Several suppliers in the Netherlands offer sustainable energy in a truly plug and play manner. Say yes to them and they supply everything – solar panels, a rooftop-construction kit, inverters and the (standard) plug to feed the panels into the grid. They even send you all the paperwork to apply for the subsidies.

Do-it-yourself

The rooftop system can be installed easily by the homeowner. The package comes with a do-it-yourself manual. Furthermore, no permits have to be attained for non-monumental buildings. Only systems greater than 600 Wp have to be installed by a professional.

Solar panels

Different types of solar panels can be ordered from different suppliers. Inverters are easily connected to the solar panels. The inverters themselves can simply be plugged into the main grid. Systems greater than 500 Wp have to be connected via a separate fuse to the main grid.



Roof-top construction system

Both for sloping tiled roofs (as for flat roofs) a relatively simple do-it-yourself construction kit is supplied. The system for flat roofs (shown here) contains about 80 kg of ballast which can also be included in the delivery.

Plug & Play

Inverters are easily connected to the solar panels. The inverters themselves can simply be plugged into the main grid. Systems greater than 500 Wp have to be connected via a separate fuse to the main grid.

Inverters

Usually each pair of solar panels requires one inverter. Inverters are easily coupled. A light on the inverter indicates if it is supplying electricity to the main grid.



Plug

The inverters are simply plugged into the main grid. The wheel, indicating power use on older meters, can be seen running backwards.

Technical Specifications

Item	Specifications	Cost
solar panel	80–50 Wp yield ≈ 0,6 kWh/Wp annually panels are connected in series per inverter	≈€6,50 per Wp
roof-top construction system	<u>flat roofs:</u> plastic container for ballast, the solar panel is mounted on the slanted, open side <u>slanted roofs:</u> metal construction system, which can be adapted for the different tiled roofs, the system is mounted on the battens	≈€20 – per panel
ballast (flat roofs)	the supplied ballast is gravel, sand is not an option as it is washed away by rainwater; tiles or bricks are also an option; 70–80 kg per panel is required (up to a height of 8 m)	≈€1 – per kilo
inverters	a typical inverter can take a maximum load of 450 W, i.e. three large panels; separate inverters are connected in series	usually included in the price of the solar panels
grid connection	the (coupled) inverters are connected to the grid, from 500 Wp installed power; the connection should be made via a separate fuse	–

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Marketing Story 10:

EPA (ENERGY PERFORMANCE ADVICE) A RETROFIT UPGRADING PROGRAM IN THE NETHERLANDS



Introduction

The existing housing stock has great potential for energy savings. The Dutch Government therefore started a program in 2001 to stimulate homeowners, both professional and private, to upgrade the energy efficiency of the existing housing stock. The program consisted of a service where a consultant visited a home, measured the size of the rooms of the house, investigated the status concerning insulation and collected information on energy use. From this, within a couple of days the client received a report with possible energy-efficiency measures and how this would affect the energy bill.

The EPA consulting service cost approximately €200 – and was completely subsidised. Furthermore, existing subsidies on energy-efficiency products and installation of these products increased 25% when an EPA had been done.

Action taken

In order to introduce the service, the Government had to take several actions:

- a training program for consultants was developed
- a software tool was developed
- a subsidy program was developed

- a large-scale advertising campaign was launched
- consulting companies were certified to ensure a good service.

The software made it possible to calculate quickly the possible energy savings of a home and produced a standard report for the owner. Input for the software: the house characteristics (type of walls, type of glass etc), the exact measurements, and the history of energy use. Because of this efficient and easy-to-use tool, it was possible to offer the (completely subsidised) service for the relatively low price of €200.

Goals

The EPA program was developed for houses that pre-date 1998. Mainly older houses were targeted. The idea behind the program was that homeowners would participate, either when the owner would plan renovation or construction work on the house, or when a home changed owners. The program also aimed to stimulate homeowners to start renovation work on a house. Both private homeowners and building associations were targeted.

Goals were set for the number of EPAs in each year (direct goal). Furthermore, each EPA should result in energy-efficiency measures that would reduce CO₂ emissions by one ton per year per home (indirect goal).

Marketing

Building associations were targeted through formal channels, direct mailings, professional seminars and conferences etc. Private homeowners were targeted, amongst others, through TV commercials, items in do-it-yourself (DIY) programs on TV and in the DIY shops. Many local governments also started independent marketing campaigns to promote EPA.

Financial incentive

Until October 2003, private homeowners were subsidised up to 100% of the costs of an EPA. Furthermore, they received additional subsidies on measures following the EPA. These subsidies included DIY measures as professional installed measures. Until 2002, housing associations could also benefit from these subsidies.

Results: for 2002

EPAs were carried out for 150,000 homes. Housing associations in particular used the EPA as a tool to upgrade their housing stock. 27,000 EPAs were performed for private homeowners. The results were:

- 80% of the private homeowners followed the advice with at least one of the advised measures
- the EPA stimulated 60% of the private homeowners to do more of the advised measures than were initially planned
- the other 40% were not stimulated to do more measures – they only participated to attain the extra subsidy on energy-efficiency measures which were already planned (extra subsidy

was received after having done an EPA)

- 25% of the housing associations say that the EPA was a deciding factor in implementing energy-efficiency measures
- 50% of the housing associations invested in already planned measures – they only used the EPA to attain the extra subsidisation.

Results: for 2003

After the financial incentives fell away in October 2003, there was a drastic decline in the number of EPAs. As subsidies on energy-efficiency products also fell away, private homeowners in particular stopped participating in the program.

Conclusions

The EPA program was successful in the Netherlands. Many energy-efficiency measures were taken. However, results show that many only participated to attain the extra subsidies.

A change in political choices in the Netherlands resulted in the cancellation of the complete subsidy program for EPA and energy-efficiency measures. Because of this there has been a large decline in the number of EPAs.

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Marketing Story 11:

STRATEGIES AND MEASURES FOR ACCELERATING THE MARKET DEPLOYMENT OF SUSTAINABLE HOUSING IN AUSTRIA

Introduction

Strategies and measures for accelerating widespread market deployment of *Sustainable Housing* have been receiving greater attention in recent years as the market for energy-saving building constructions – as well as for renewable energy technologies (mainly solar thermal and biomass heating) – accelerate. It is important that people understand the advantages of using energy-efficient houses in the context of the full range of their benefits, in contrast to the environmental and other consequences of using energy derived from fossil fuels because of their apparently lower cost.

Since 1967 the building standards – related to the building envelope insulation – changed remarkably to lower space heat demand. For illustration, the share of low-energy housing in new building constructions increased remarkably in the last five years (see Figure 1). Also new Building Codes have influenced the market for low-energy buildings significantly in the last few years. The changes in the building sector were not only the consequence of public

funding, but were also due to energy-economic solutions in this sector. Other contributing factors were as more interest and attention from buyers and tenants for environmentally sound, higher performing, more comfortable and healthier buildings. Realised projects show that it is possible to reduce the fuel supply up to 30% compared to 'standard' buildings by better building insulation with nearly the same investment costs.

Target market

The realisation of a strategy for widespread deployment of *Sustainable Housing* will require:

Increased public awareness of the values and benefits of *Sustainable Housing*, and of the gains to be made by their significant market success.

Continuing innovation and research programmes to reduce costs, improve performance and establish market confidence.

Characteristically U-values for the building envelope U, [W/m ² , K]					
Building part	Standard-House	Energy-Saving House	Low-Energy House	Passive House	Plus-Passive House
Outside wall	≤0.40	≤0.25	≤0.20	≤0.15	≤0.10
Outside window	≤1.80	≤1.30	≤1.10	≤0.70	≤0.60
Upper floor	≤0.50	≤0.20	≤0.15	≤0.10	≤0.08
Ceiling/basement	≤0.50	≤0.30	≤0.20	≤0.13	≤0.10
Market Share in New Housing (Estimates)					
Until 1995	≥ 95%	≈ 4%	≈ 1%		
1995 - 2000	≈ 90%	≈ 7%	≈ 3%		
2000 - 2003	≈ 85%	≈ 10%	≈ 4%	≈ 1%	
2003-2004	≈ 75%	≈ 14%	≈ 8%	≈ 2%	≈ 1%

Fig. 1: Building standards in Austria and market share

Significant investment by governments to support development of appropriate policy frameworks, market infrastructure and consumer demand, leading to confidence by the private sector in the stable and rapid growth of markets.

Significant investment by the private business and financial sectors in technology, manufacturing and supporting businesses – as well as projects to improve performance and costs and to provide necessary infrastructure – have hastened the point where commercial competitiveness is achieved.

In the past decade the demand for fuel for space heating, as well as for hot water preparation, could be reduced remarkably by energy-saving building constructions and by energy-efficient heating systems. Practical research in and demonstration of low-energy buildings (as well as new technologies for the heating of buildings), have resulted in a number of economical and marketable solutions in the building sector.

The market development of sustainable housing requires the interest and active contributions of industry in cooperation with research institutions for the development of cost-effective technologies. These are needed both for energy saving building constructions and solar thermal and heating systems based on renewable energy sources. High quality could be achieved in the solar thermal sector and in advanced environmentally-friendly biomass heating systems with optimised combustion technology in the last decade. Test results in particular have led to technical improvements in technologies as well as to common standardisation.

The marketing of energy-efficient houses is not only a strategy to convince buyers to buy them, but as much a marketing scheme for developers to build energy-efficient and sustainable housing.

Market introduction and dissemination of innovative concepts and technologies in the building sector (highly efficient insulation, use of solar energy, mechanical ventilation systems, securing of indoor air quality) is strongly influenced by different obstacles and supporting factors such as technical, legal, sociological, psychological, ecological and economical ones.

An essential impediment to the market introduction of innovative residential buildings is that most planners, builders, building contractors and residents have only very low level of specific knowledge concerning energy and resource-efficient buildings. The lack of information held by potential users of these buildings also causes a low demand for such dwellings.

The action taken

The Austrian research and technology programme *Building of Tomorrow* is a part of the Austrian programme on technologies for sustainable development. It has been developed by the Austrian Federal Ministry of Transport, Innovation and Technology (BMVIT) with the goal of initiating and supporting trend-setting research and development projects and the implementation of exemplary pilot projects. The programme pursues clearly defined emphases, selects projects by means of tendering procedures and is characterised by networking between individual research projects and by accompanying project management.

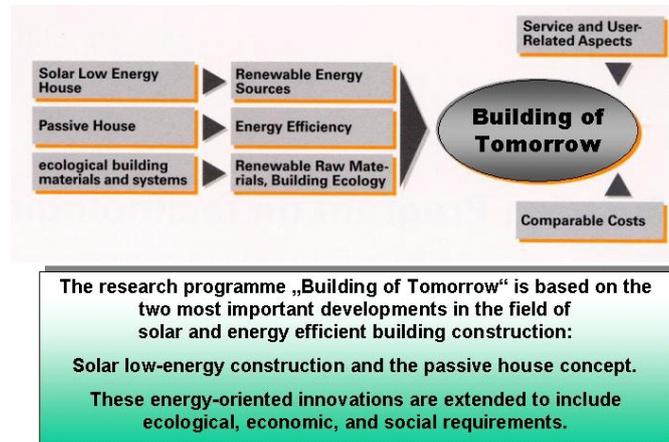


Fig. 2: The Austrian research programme “Building of Tomorrow”

The research and technology programme *Building of Tomorrow* makes use of the two most important developments in solar and energy efficient building: the passive house and the low-energy solar building method. For the purposes of the *Building of Tomorrow* programme, these energy centred innovations are expanded to take in ecological, economical and social concerns (see Figure 2).

To introduce the programme *Building of Tomorrow* the BMVIT at the beginning of the project in the year 2001 initiated an architectural competition of realised projects. Examples of objects which received an award are illustrated in Figure 3.

The *Building of Tomorrow* research programme has a planned duration of five years (2000–2005), and a total budget of 120 million Euros. It comprises the following elements:

- technology and component development
- development of innovative building concepts for residential and office buildings
- setting up and evaluating demonstration projects
- market diffusion of the *Building of Tomorrow* programme.

Final analyses

Measures to overcome market barriers for innovations in the building sector

An essential supporting factor concerning the market introduction of innovative residential buildings is the engagement of single technically and/or ecologically motivated actors who push projects forward with a high degree of personal commitment. Further motives for dwellers to choose a highly innovative building are the expectance of a very comfortable and healthy dwelling environment, but also the wish to present something special to the outer world and thus gain status. The acceptance of innovative residential buildings is strongly supported by a high level of identification with the building, which mainly depends on the degree of participation during planning and building and the status of ownership. Pilot and demonstration systems have made essential contributions, and have apparently contributed to partially overcoming the market barriers for innovative building concepts.

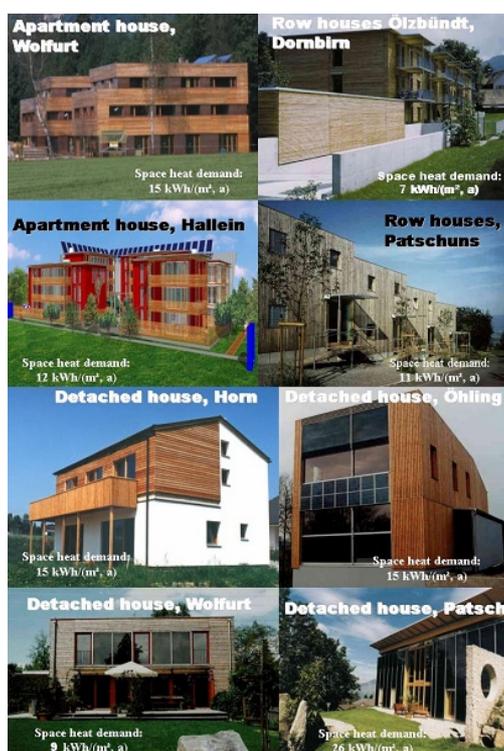


Fig. 3: Austrian architectural housing competition "Building of Tomorrow"

Economics of sustainable solar housing

A comparison of costs between existing housing and energy systems employing different primary energy sources (such as oil, gas, nuclear energy) and new energy systems with renewable sources of energy is basically a trade-off between capital-intensive projects with low fuel prices and projects with relatively small capital investments and high fuel costs. In general, sustainable solar housing is freer from future fluctuations in energy prices, but is more capital-intensive compared with conventional energy systems such as those using fossil fuels. Therefore, capital costs and fuel prices have been the key factors in determining the relative economy of sustainable solar housing.

Specific cost estimates can only be carried out when based on concrete examples, and it should be clearly borne

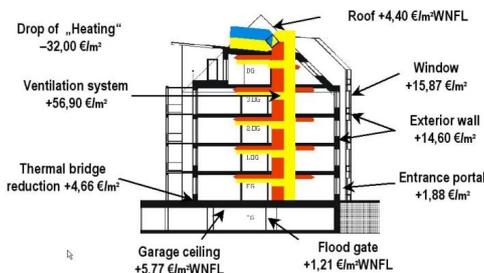
in mind that cost estimates are basically site-specific.

Based on a planned building project, various questions which are highly relevant for the introduction of the Passive House Standard in the social housing construction have been analysed (see Figure 4). The background of the project is the published results of already established passive houses, in particular from the CEPHEUS project (see Figure 5). The following points were identified as substantial planning objectives:

- High cost-efficiency
- Extra costs <75 Euro/m² effective living area
- Construction costs <1,055 Euro/m² effective living area
- Low energy consumption – Passive House Standard
- Heating energy demand <15 kWh/(m², a)
- Heating load <10 W/m²
- Air tightness n₅₀ <0,6/h
- Primary energy demand <120 kWh/(m², a)
- High user comfort
- Controlled ventilation, acoustics, hygienic, user acceptance.

The costs of the Passive House Standard for social housing in relation to the low-energy housing standard in Vienna amount to about an extra 73 Euros per square meter of effective living area. Compared to ordinary social housing construction costs this means 7% extra costs. The improved constructional quality of the building envelope and the highly efficient ventilation in passive houses require additional investments. Standard costs for the construction of social housing on the other hand (1,055 Euro per square meter of effective living area) could be kept by optimising components, integrated performance simulation and integral planning.

Apartment House, Vienna Southern front



Extra construction costs for passive house in social housing, per square meter of effective living area, exclusive sales tax, basis 2003

Fig. 4: Constructional extra costs for the passive house standard

Extra construction costs for a passive house – per square meter of effective living area, exclusive sales tax, basis 2003 – in social housing are illustrated in Figure 4.

Results/recommendations

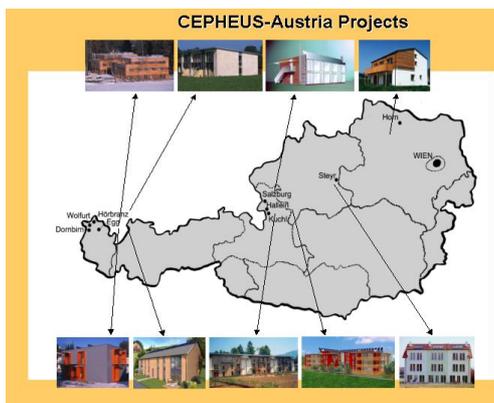
To achieve more rapid diffusion and further development of innovative residential buildings, measures from the federal and provincial governments have to be taken. Regulations prescribing significantly higher insulation standards are expected to be very effective and to play a key role in triggering other technologies whose acceptance and economic application depends on an optimised building envelope. The development of certified standardised single components and complete solutions, for which producers can give warranty, will also speed up the diffusion of innovative buildings. Individual options for the supply of remaining heat demand which fulfil the criteria of *sustainability* on

the one hand, and support a high degree of identification for the user on the other, should be offered. Energy savings must have an effect on the energy bill of a resident, and must not be weakened by collective billing arrangements in

centralised systems. A high degree of personal identification with the building should be one of the major goals when dwellings are allocated within the scope of “social housing”. This can be achieved if the potential future resident may have the choice between an apartment in the innovative building and another apartment in a more “conventional” building. The way residential buildings are subsidised has to be re-thought. Subsidies should be based on a least cost strategy, with minimisation of energy consumption and a sustainable supply of remaining heat demand as the major objectives and be harmonised on a national level. Subsidies should only be given if independent information centres, whose task is to supply and spread information offensively (which still have to be created), are already integrated in the planning stage of a building.

Last, but not least, the ecological relevance of tax systems has to be improved. The inclusion of external costs in the price of fossil energy carriers enables an objective economic comparison between fossil and renewable sources of energy.

Successful dissemination will in the long run depend on better matching of technical and planning concepts to the needs and expectations of users. The improvement of low energy house technologies has to be organised as a mutual learning process of component producers and users (users in a wide sense, i.e. professionals, companies, building societies, etc).



Conclusions

New technologies and products in the building and heating sector offer new business opportunities. The worldwide markets for buildings are changing. Buyers and tenants are demanding higher performing, and more comfortable and healthier buildings. Forward-looking business, communities and energy companies are searching for ways to respond to customer demand. People want houses, offices, apartments and communities in which sound environmental principles are integrated into building architecture and surrounding amenities. New ideas and products are being developed on the worldwide market to respond to their changing demands. Many examples show that it is possible to reduce the fuel supply in buildings by better building insulation standards, as well as efficient heating systems with nearly the same investment costs.

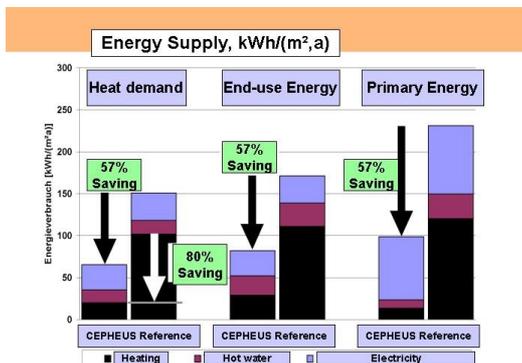


Fig. 5: Results of the research programme CEPHEUS

There is a general need for increased public awareness and understanding of *Sustainability Housing*, especially for the main players involved in planning decisions (planning officers, local communities, pressure groups, etc). Greater consideration needs to be given to the potentially useful role that *energy-efficient buildings* and *renewables* could play in meeting these targets and of ways of encouraging their development and deployment. Encouragement needs to be also given to increase research in this area and to improve sharing of information on this topic.

Pilot and demonstration systems have made essential contributions and have apparently contributed to partially overcoming the market barriers for innovative building concepts.

The remarkable market development of *Sustainable Housing* and renewable energy technologies in Austria has only been possible because Austrian firms have (in cooperation with research centres) developed cost-effective technologies, both for energy saving building constructions and solar thermal and heating systems based on renewable energy sources. High quality could be achieved in the solar thermal sector, and in advanced environmentally friendly biomass heating systems, with optimised combustion technology. Test results, in particular, led to technical improvements in technologies as well as to common standardisation.

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APPENDIX B: SHC Task 28 / ECBCS Annex 38: Sustainable Solar Housing

TASK DESCRIPTION

Duration: April 2000 – April 2005

Objectives: The goal of this Task is to help participating countries achieve significant market penetration of sustainable solar housing by the year 2010, by providing home builders and institutional real estate investors with:

A **Task Website** which illustrates built projects that are exemplary in design, living quality, low energy demand and environmental impact.

Documentation sets of **Exemplary Sustainable Solar Housing** as a basis for local language publications to communicate the experience from built projects and motivate planners to develop marketable designs.

A handbook – **'Marketable Sustainable Solar Housing'** – with guidelines, graphs and tables derived from building monitoring, lab testing and computer modelling.

Demonstration Buildings with press kits for articles and brochures in local languages to increase the multiplication effect beyond the local region.

Workshops after the Task conclusion presenting the results of the Task.

Work force:

Sharing the work of the Task during this period were experts from 16 countries:

Austria	Canada	Italy	Norway
Australia	Czech Republic	Japan	Sweden
Belgium	Finland	The Netherlands	Switzerland
Brazil	Germany	New Zealand	UK/Scotland

APPENDIX C:

Implementing Agreement: SHC Solar Heating and Cooling

The International Energy Agency (IEA) was established in 1974 as an autonomous agency within the framework of the Economic Cooperation and Development (OECD) to carry out a comprehensive program of energy cooperation among its 25 member countries and the Commission of the European Communities.

An important part of the Agency's program involves collaboration in the research, development and demonstration of new energy technologies to reduce excessive reliance on imported oil, increase long-term energy security and reduce greenhouse gas emissions. The IEA SHC's R&D activities are headed by the Committee on Energy Research and Technology (CERT) and supported by a small Secretariat staff, headquartered in Paris. In addition, three Working Parties are charged with monitoring the various collaborative energy agreements, identifying new areas for cooperation and advising the CERT on policy matters.

The following countries are involved in IEA–SHC:

Australia	European Commission	Mexico	Spain
Austria	Germany	Netherlands	Sweden
Belgium	Finland	New Zealand	Switzerland
Canada	France	Norway	United Kingdom
Denmark	Italy	Portugal	United States

Collaborative programs in the various energy technology areas are conducted under Implementing Agreements, which are signed by contracting parties (government agencies or entities designated by them). There are currently 42 Implementing Agreements covering fossil fuel technologies, renewable energy technologies, efficient energy end-use technologies, nuclear fusion science and technology, and energy technology information centres.

The Solar Heating and Cooling Programme was one of the first IEA Implementing Agreements to be established. Since 1977, its 20 members have been collaborating to advance active solar, passive solar and photovoltaic technologies and their application in buildings.

A total of 36 Tasks have been initiated, 21 of which have been completed. Each Task is managed by an Operating Agent from one of the participating countries. Overall control of the program rests with an Executive Committee comprised of one representative from each contracting party to the Implementing Agreement. In addition, a number of special ad hoc activities – working groups, conferences and workshops – have been organised.

To receive a publications catalogue or learn more about the IEA Solar Heating and Cooling Programme please contact:

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APPENDIX D:**Implementing Agreement:
Energy Conservation in Buildings and Community Systems**

Approximately one-third of primary energy is consumed in non-industrial buildings such as dwellings, offices, hospitals and schools where it is utilised for space heating and cooling, lighting and the operation of appliances. In terms of the total energy end-use, this consumption is comparable to that used in the entire transport sector. Hence energy use in buildings represents a major contributor to fossil fuel use and carbon dioxide production. Following uncertainties in energy supply and concern over the risk of global warming, many countries have now introduced target values for reducing energy consumption in buildings. Overall, these are aimed at reducing energy consumption by between 15-30%. To achieve such a target, international co-operation (in which research activities and knowledge can be shared) is seen as an essential activity.

In recognition of the significance of such energy use, the International Energy Agency (IEA) has established an Implementing Agreement on Energy Conservation in Buildings and Community Systems (ECBCS). The function of ECBCS is to undertake research and provide an international focus for building energy efficiency. Tasks are undertaken through a series of annexes that are directed at energy saving technologies and activities that support their application in practice. Results are also used in the formulation of international and national energy conservation policies and standards.

ECBCS undertakes a diverse range of activities both through its individual annexes and through centrally organised development and information exchange. ECBCS countries are free to choose which Annexes to take part in. Activities usually take the form of a 'Task Shared' Annex in which each country commits an agreed level of effort. Occasionally an Annex may be either jointly or part jointly funded. More informal activities take place through Working Groups.

ECBCS participating countries: Australia – Belgium – Canada CEC – Czech Republic – Denmark – Finland – France – Germany – Greece – Israel – Italy – Japan – Netherlands – New Zealand – Norway – Poland – Portugal – Sweden – Switzerland – Turkey – UK – USA

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This marketing guide is produced from material developed in the course of IEA SHC Task 28/ECBS Annex 38: Sustainable Solar Housing. The guide has been overseen by two implementing agreements: Solar Heating and Cooling (SHC) and Energy Conservation in Buildings and Community Systems of the International Energy Agency (IEA). Sustainable Solar Housing is a joint venture between these two IEA bodies. Operating Agent was Robert Hastings from Switzerland. This venture brought together some 50 experts from 14 countries.

For more information: www.iea-shc.org/task28

Other publications from SHC Task 28/ECBS Annex 38: Sustainable Solar Housing:

- Design of high-performance housing, a reference book (James & James 2006).
- Sustainable housing in warm climates, learning from innovative projects (James and James 2005).
- Brochures of exemplary projects: www.iea-shc.org/task28/
- Innovative components and systems: www.iea-shc.org/task28/
- Design insights from the analysis of 50 sustainable solar houses (Technical Report No. IEA28-STD-TR, Fraunhofer ISE, Freiburg i.B., 2005).

The Norwegian University of Science and Technology (NTNU) and Sintef (the largest independent research organisation in Scandinavia) will use this marketing guide to help implement the solutions developed through their common Smart Energy-efficient Buildings (SMARTBYGG) project in the marketplace. This book is a sub-project of SMARTBYGG and has been funded by the Norwegian State Housing Bank.

The Housing Bank has also provided financial support for Norwegian participation in IEA SHC Task 28/ECBS Annex 38, together with The Norwegian Research Council and Enova SF. Enova SF is a public enterprise owned by the Royal Norwegian Ministry of Petroleum and Energy.

Segel is a consultancy that assists small and medium-sized companies in entering new markets as part of their business development. Segel intends this book to demonstrate how to work practically and systematically with market development.