



HOTEL
ENERGY
SOLUTIONS



Factors and Initiatives affecting Renewable Energy use in the Hotel Industry

Hotel Energy Solutions Official Partners



Supported by



**FACTORS AND INITIATIVES AFFECTING
RENEWABLE ENERGY TECHNOLOGIES
USE IN THE HOTEL INDUSTRY**



Legal Disclaimer

The sole responsibility for the content of this publication lies with the authors (the Hotel Energy Solutions official partners). It does not necessarily reflect the opinion of the European Union. Neither the EACI nor the European Commission are responsible for any use that may be made of the information contained therein.

Please cite this publication as

Hotel Energy Solutions (2011), Factors and Initiatives affecting Renewable Energy Technologies use in the Hotel Industry, Hotel Energy Solutions project publications

First edition: 2010

Revised version: October 2011

Copyright notice

© Hotel Energy Solutions (2011)

Reproduction is authorised, provided the source is acknowledged, save where otherwise stated. You may copy, download or print Hotel Energy Solutions (HES) content for your own use and you can include excerpts from Hotel Energy Solutions (HES) publications, website and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that the suitable acknowledgment of Hotel Energy Solutions as source and copyright owner is given.

Where prior permission must be obtained for the reproduction or use of textual and multimedia information (sound, images, software, etc.) such permission shall cancel the abovementioned general permission and clearly indicate any restrictions on use. All requests for public or commercial use and translation rights should be submitted to icr-hes@unwto.org.

Hotel Energy Solutions (HES) Project Basics

Full name: Excellence in Energy for the Tourism Industry – Accommodation sector: SME hotels (EETI)

Contract N°: IEE/07/468/S12.499390

Hotel Energy Official Partners



Project Supported by





FACTORS AND INITIATIVES AFFECTING RENEWABLE ENERGY TECHNOLOGIES USE IN THE HOTEL INDUSTRY



Table of contents

INTRODUCTION	2
SME HOTELS: AN UNTAPPED HIGH ENERGY POTENTIAL	3-6
UN-TAPPING THE ENERGY POTENTIAL OF THE HOTEL SECTOR	7-12
REFERENCES	13

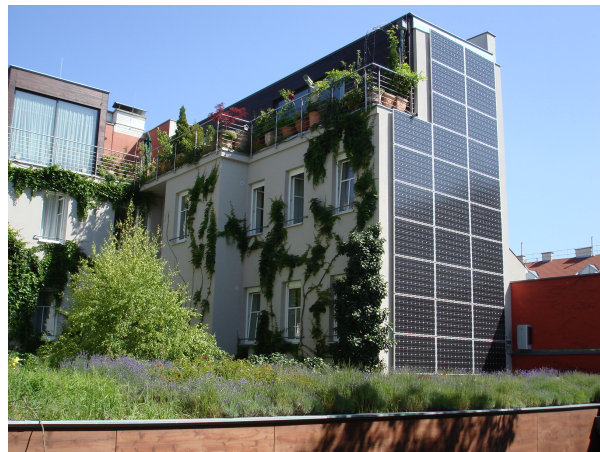
INTRODUCTION

Faced with an economic crisis, along with the challenges posed by climate change, increasing import dependency and the rise in fossil fuel prices, we must find an immediate solution for conserving economic and social livelihoods while maintaining a balanced ecological system. By promoting renewable energy technologies, we are able to tackle both security of supply and climate change, while creating a sustainable economy.

The tourism sector can play a crucial role in contributing to reaching these goals. In fact, as already stated in the report “Key Energy Efficiency Solutions for SME Hotels” for the Energy Efficiency Series, it was estimated that hotel facilities are among the most energy consuming in the tertiary building sector, only after food services and sales, health care and certain types of offices (US EIA, 1998). A great potential is also hidden in hotels as buildings which represent, in general, 40% of EU’s final energy consumption . Technologies which can very substantially reduce the energy consumption of hotel buildings - with a return on investment within the lifetime of the equipment - already exist and offer a clever combination of energy efficiency measures and renewable supply technologies. The investment required can pay for itself in a number of years and certainly well within the lifetime of the building, especially when energy prices remain relatively high.

“Buildings account for 40% of total energy consumption in the Union. The sector is expanding, which is bound to increase its energy consumption. Therefore, reduction of energy consumption and the use of energy from renewable sources in the buildings sector constitute important measures needed to reduce the Union’s energy dependency and greenhouse gas emissions.”, Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (recast).

Many hotels in the EU have substantially reduced their energy consumption by becoming partly or completely independent of conventional energy sources. In the near future, they could become the cost-competitive standard. Before that, though, a series of obstacles to and distortions of the energy market still have to be overcome. Following a series of interviews with hoteliers from different EU countries who have implemented RES systems and working from some of the main findings reported in the literature referred to in this document, the present report will analyse those factors and initiatives affecting RES use in hotels, particularly focussing on SMEs cases. Recommendations on how to overcome the obstacles detected will also be presented.



Source: Boutiquehotel Stadthalle

SME HOTELS: AN UNTAPPED HIGH ENERGY POTENTIAL



One of the main incentives for renewable technologies: costs

Costs always play a crucial role in a decision-making process and this is particularly so in times of economic crisis. This definitely applies to the renewables sector and, in fact, when asked whether they did or did not go for a particular RES technology, hoteliers' answers were often related to costs.

Determining the costs for installing and maintaining the various RES technologies applicable in a hotel is not such an easy exercise, as results depend on a variety of factors (which often change from country to country) or are considered as confidential and, therefore, not available for the public domain.

As already stated in the report "Key Renewable Energy Solutions for SMEs hotels", in the Renewable Energy series of the HES project, equipment prices vary between suppliers and between countries, are not always available and need to be updated regularly as they evolve quickly. Installation costs also vary greatly between countries (due, for example, to differences in labour costs). Those costs also depend greatly on whether the installation work entails shutting down the hotel or not.

Generally speaking, other influential factors can be the following:

- quality of products and installation;
- ease of installation;
- geographic and climate conditions (e.g. latitude, number of sunny or windy hours, terrain, hydrological conditions, etc.);
- user's distance from the manufacturer (e.g. in case of purchase of wood pellets or wood chips)
- optimal conditions for installations (e.g. good orientation and tilting of collectors in case of solar thermal or photovoltaic panels)

“While planning to install my renewable system, it was really difficult to find a qualified installer!”

The adoption of the European Union’s Climate and Energy Package has set the ambitious energy and climate targets of reaching a 20% reduction of CO2 emissions, a 20% cut in energy use and a 20% increase in renewable energy by 2020. These goals will generate a large up-take of renewable installations in the building sector (and, therefore, in hotels as part of it). Nevertheless, a lack of qualified installers is still a main problem in many EU countries.

In those countries, the installation of specific RES technologies is still performed by professionals, such as plumbers, electricians, roofers, etc. who do not necessarily have the required skills to do so. This certainly affects the final quality of the installation, thus possibly spreading amongst hoteliers and other users the conviction that RES technology is not performing well. Moreover, installation costs might also be negatively affected if the offer of qualified RES installers is not adapted to the market demand.



Source: REH

A long road full of administrative obstacles

“I was really enthusiastic about the new renewables system I was going to install in my hotel, but then I had to undergo a very long and tedious procedure to obtain all the administrative permits and get my system up and running. I was really determined to have my RES system installed, as I already knew all the benefits it would give me. Therefore, I decided to go through the whole procedure, but I must admit that another person in my place might have given up”. This is what was reported by one of the hoteliers interviewed.

The fact is, in many EU countries, or regions within them, administrative procedures to obtain permits or to benefit from government incentives are very long and cumbersome and might discourage hoteliers.

An analysis held within the SUPPORT_ERS project in 2010 stressed that the critical factors that should be optimised are the following:

- large number of authorities involved;
- lack of coordination between different authorities;
- very long lead-times for reducing permits;
- costly and very difficult procedures;
- unclear formal requirements;
- non transparent procedures;
- high risk of failure (non-award of permit);
- possibility of a permit denial
- low awareness of RES benefits among local and regional authorities.

Lack of information about RES prospects and benefits

One important factor that influences the implementation of renewable technologies in SMEs hotels is the lack of awareness of the prospects these applications offer.

Various groups are involved in this process, including:

1. Hoteliers: they certainly play a predominant role in the implementation of RES systems in hotels, particularly in the case of small and medium structures, where the decision-making process is simplified and swifter if compared to larger hotels. Too often, hoteliers do not know which renewable energy technologies are most suitable in their case and what the advantages are after implementation of such systems. Thus, they are unaware that they can save significant amounts of energy – and therefore money –, and do not know they can receive tax incentives from their local, regional or national government – and, again, save money – once the system is implemented and operational.
2. Hotel personnel: once the RES system is in place, many employees in the hotel are not aware of how the system works. A correct “energy behaviour” by employees can definitely contribute to enhancing the hotel’s overall energy performance.
3. Hotel guests: in too many cases, they are not aware of the difference it can make to stay in a hotel equipped with RES technologies, in terms of both energy and CO2 savings (while enjoying the same or even higher level of comfort).
4. Administrators: they are very often not familiar with renewable energy issues; hence they are unable to give the relevant information to the hotelier who would like to apply for the implementation of a RES system.

Technical barriers

Some of the hoteliers interviewed reported about technical barriers hindering the implementation of RES systems in their hotel. This was mainly the case of bigger city buildings which structure, it was said, could not allow the installation of a renewable technology.

Actually, some technical barriers exist which limit RES applications or their optimal performance. Herewith, just a non-exhaustive overview of the most relevant ones per technology:

- Biomass (i.e. wood chips and wood pellets): the biomass boiler cannot be connected to a chimney; the hotel building does not have any place to store the wood chips/wood pellets neither in its premises nor in an external storage.
- Combined Heat and Power (also known as cogeneration): the hotel building does not have enough space to store a (micro-) cogenerator.
- Geothermal energy: the hotel is not well insulated and it cannot dispose of an outside area large enough to locate ground-source heat pumps.
- Small-Hydropower: the hotel is not located in the proximity of a river nor the river has a suitable drop in level (i.e. the 'head')/flow of water so as to allow hydro turbines to convert water pressure and kinetic energy into mechanical energy, which can be used to drive an electricity generator.
- Solar energy (both photovoltaic and solar thermal): some obstacles (such as trees, buildings, or the like) shadow the solar panels; panels face north and are not tilted; the hotel does not have a suitable area where to locate a number of panels necessary to meet the energy hotel needs.
- Wind: the hotel is not located in a windy area nor it has a suitable area where to locate the wind turbine.

UN-TAPPING THE ENERGY POTENTIAL OF THE HOTEL SECTOR



Renewable technologies: long term investments rather than just costs!

“Factors and initiatives affecting Energy Efficiency use in the Hotel Industry” has already underlined how the reduction of operational costs stems as one of the main drivers for hoteliers to increase their environmental responsibility. This factor can also be applied to their willingness to install any RES technology on their hotel. A consideration in that sense is, then, worth as renewable technologies have often be reported as costly. This is partly true if we only consider the initial cost to get the RES system installed and totally functional. Many forget, though, the energy savings associated to such installations also represent investments on both the medium and long terms. As their cost, the so-called “pay-back period” (i.e. the period in which the cost of the RES system is paid back) of RES technologies can vary greatly dependin9g on the local context and on the hotel initial situation. Nevertheless, the following has to be considered once a RES system has been installed:

- Energy costs are substantially reduced
- Governmental incentives at national/regional/local level can support the hotelier’s investment and help him/her to reduce their payback time period
- Consulting an energy expert or an ESCO can be essential for the hotelier to be guided towards the most cost-effective investment

Qualifying the RES workforce

As already seen above, the ambitious 20-20-20 by 2020 objectives as set by the EU as part of the Climate and Energy Package implies, amongst others, the deployment of a large number of RES installations in buildings. Hotels can certainly play a main role in this direction, as far as both construction of new buildings or refurbishment of old ones are concerned. Reaching these goals, though, requires the increase in number of the qualified workers who are involved in the building sector. Of those, it is worth mentioning people who install, maintain and troubleshoot RES systems and who make sure these are all well adapted to the individual requirements of each customer.

In this context, the European Union is characterised by a heterogeneous situation in which not all the workforce has the same (high level) competences and skills. The same regards education and training in this field and the set up of certification and/or equivalent qualification schemes accordingly.

This is the reason why the European Union has taken action and has started a series of activities that boost a change in this sense.

From the one hand, through art. 14 of the Directive on the promotion of the use of energy from renewable sources (the so-called RES Directive) published in 2009, the EU has asked Member States to “ensure that certification schemes become or are available by 31 December 2012 for installers of small-scale biomass boilers and stoves, solar photovoltaic and solar

thermal systems, shallow geothermal systems and heat pumps” and to also make sure those schemes are mutually recognisable.

From the other hand, in the framework of two flagships initiatives of the European Commission called “Europe 2020 – A Resource-efficient Europe” and “An agenda for new skills and jobs”, in 2011 Executive Agency for Competitiveness and Innovation (EACI) launched “BUILD UP Skills – the EU Sustainable Building Workforce Initiative”, within the Intelligent Energy Europe (IEE) programme. BUILD UP Skills aims to continue the education and training of craftsmen and other on-site construction workers and systems installers of energy efficiency and renewable energy applications in buildings. More in particular, the initiative wants to kick off a dialogue amongst national relevant stakeholders in the aforementioned fields through “National qualification platforms and roadmaps to 2020”. Based on this, new qualification and training schemes will be sought afterwards.

Furthermore, in order to provide professionals with up-to-date information on training courses, green careers, capacity building projects and much more, the European ManagEnergy initiative – supported by the Intelligent Energy Europe programme - has also launched the Vocational Training Corner database. Hoteliers could also benefit from this portal by being redirected to national associations and organisations that could provide them with a list of qualified RES installers in various EU countries.



Source: <http://learn-energy.net/training/#2>

The role of national/regional/local governments: overcoming administrative barriers

As stressed in the SUPPORT_ERS project (2010), in order to reduce the administrative barriers for RES projects implementation, the following would be recommended:

- Increase or fix the existing financial support schemes for a longer period of time;
- Establish individual support-schemes for different technologies;
- Establish a special authority for RES projects, where all relevant people from institutions involved in permitting process would meet at regular occasions (i.e. once a week) to resolve potential issues among themselves and investors;
- A better coordination between the involved authority

A better information on the potential benefits of RES systems in hotels

A behavioural change as well as an increase in investment decisions is key to enhance a spread adoption of renewables (and energy efficiency) measures in hotels. Hoteliers and their staff should be tackled, not forgetting to also include tourists and administrations, as main (but not the only) target groups. Awareness-raising programmes and the facilitation of best-practice exchange are soft but essential measures to create a constant dialogue on the benefits and cost-effectiveness of RES applications in hotels.

More in particular,

- hoteliers should be informed on the prospects they can have by applying RES systems in their hotel and so in terms of: energy saved; incentives they could receive from the local/regional/national government for the RES installation and also after that, for the production of green energy (mainly electricity) – please also refer to Box X for more details on how to get information in the different EU countries; increase in visibility and marketing perspectives; raise in motivation and sense of responsibility by involving their staff in a new sustainable energy approach; and, last but not least, their contribution to fight against climate change.
- Hotel staff should be informed about the RES technology/ies applied in the hotel they work for and should be trained on the best energy approach they should have to optimise its/their functionality. By doing this, their sense of involvement in the hotel activities can be improved and their professional motivation increased even more.
- Hotel guests should be provided with demonstration diagrams showing how the RES technology/ies work/s. By doing this, they would feel more motivated and responsible for the hotel they are staying in. Moreover, they will appreciate the efforts they are contributing to in preserving our environment (without changing the level of comfort they are benefiting from).
- Administrations should be more aware about the fiscal incentives foreseen at a governmental level in order to support the installation of RES systems and the production of green energy and on all the related paperwork that is needed to get those. The author of this document also thinks they should work in tight collaboration with local/regional/national energy agencies as an information point to raise awareness of people (hoteliers, in this case) and assist them in the necessary steps to have a RES system up and running.

Where can I find information on RES applications in my country?

- **Ask your local, regional or national Energy Agency:** energy agencies are widely spread in all EU countries and they can provide you with information and guidance on how best exploit RES systems.

The European ManagEnergy initiative can help you to find the agency that is closest to your hotel.

Just visit: http://www.managenergy.net/energyagencies_map.html

- **Consult an Energy Service Company (ESCO):** Energy Service Companies play a crucial role in the implementation of sustainable energy systems, as many other sectoral companies do. Nevertheless, they also: guarantee the energy savings and/or the provision of the same level of energy service at a lower cost; they are remunerated according to the energy saving they allow you to achieve; and they can provide you with a savings guarantee, thus helping you to finance or arranging the financing for operating your energy system.

More information on the European Association of Energy Service Companies website:

http://www.eu-esco.org/index.php?article_id=25&clang=0

- **Ask other stakeholders for specific questions:** many other actors at EU, national, regional or local level can give you hints and guide you towards the implementation of an optimal RES system in your hotel.

Visit <http://www.managenergy.net/actors/search>



Source: <http://www.managenergy.net>

Other initiatives to raise hoteliers' energy awareness



Renewable Energy for Tourist Accommodation Buildings (RELACS): this IEE project was launched at the end of May 2010 and involves partners from 10 different EU countries.

Its main goal is to stimulate investments in renewables and energy efficiency applications in at least 60 accommodation buildings throughout Europe, thus aiming at reducing their energy use and CO2 emissions.

Source: <http://www.relacs.eu/>

RELACS will do so by creating appealing marketing tools for hotels, such as:

- a European tourist resort network,
- a sustainable energy logo,
- information tools (website, European Catalogue, national brochures, etc) on RELACS itineraries
- a final prize.

Moreover, the RELACS Consortium will ensure a set of free energy services to the interested hotels, namely:

- e-mail and hotline assistance;
- "light" energy audits in their premises;
- training workshops on sustainable energy use for hotel management and staff;
- creation of large purchasing groups to overcome cost barriers associated with technologies.



Source: <http://www.solarge.org/>

More information, on the project website: Enlarging Solar Thermal Systems in Multi-Family Houses and Hotels in Europe (SOLARGE): from January 2005 to December 2007, this project – also co-funded by the Intelligent Energy Europe programme of the Executive Agency of Competitiveness and Innovation (EACI) - was set up to open large solar thermal plants markets also to multi-family dwellings, hotels, public and social buildings, thus focussing on installations bigger than 30 m2 collector area and supplying domestic hot water as well as supplementary heating and cooling. More in

particular, it intended to compensate the imbalance created in most European countries by the development of small solar thermal systems mainly in private buildings. Through information, training and communication measures, SOLARGE showed the enormous potential of the Collective solar thermal systems (CSTS) and the fact that overall cost efficiency is generally increasing with the size of the system. Project activities were intended to motivate investors, suppliers and decision-makers in politics and administration to acknowledge and utilise the market potential of large solar thermal installations. More information, on the project website: <http://www.solarge.org/>

Ask an energy expert: how to surmount technical obstacles

As already seen, technical barriers exist that might impede the installation of one or the other renewable technology. Nevertheless, a wide range of solutions can be envisaged in order to solve these kinds of problems. In this case, the best would be to ask an energy expert to do so, be it an energy consultant, an expert from a national/regional/local energy agency or from an Energy Service Company (ESCO) – see more details on this in section “Where can I find information on RES applications in my country?”.

Greener tourists...greener hoteliers?

Although reported by certain¹ to represent a niche driver for hoteliers and only playing a role when other, more substantial, factors intervene, some of the interviewed hoteliers have reported that: “we deeply believe that nature is one of our most precious belongings, and that we are responsible of its preservation for future generations”; “It is in our philosophy to take responsibility for the next generation and to create a better and liveable world”; “We have always been interested in environmental issues and decided to make a difference with Krägga when we started working there”. In certain cases, sensitivity to climate change and, in general, environmental issues from hoteliers’ can contribute to their decision to opt for RES systems. In other cases, though, this seems to only be an indirect reflex of other main reasons. For example, the incentives and energy savings that accompany the implementation of a RES system are crucial in the hotelier’s decision-making process. Another factor might be represented by the possibility to increase the number of visitors by also including the so-called “green tourists” or “responsible tourists” who seem to be increasing in number. As stated in the “Consumer Demand and Operator Support for Socially and Environmentally Responsible Tourism” (2005), by the International Ecotourism Society, although passive, responsible tourism is strong and growing. According to that survey, many travellers “are interested in patronizing hotels that are committed to protecting the local environment, and increasingly view local environmental and social stewardship as a responsibility of the businesses they support”.

Every cloud has a silver lining

In certain geographical areas, such as islands or remote mountainous regions, local conditions only allow to get energy from storage systems (e.g. generators, gas bottles, etc.). This unfavourable situation has turned into a beneficial one for those hoteliers who have reported to have just tried with renewable energy solutions as an alternative because they “were fed up to always have to buy expensive and cumbersome gas bottles”. After the implementation of their RES system, those hoteliers were very happy with the results they had got, in terms of both energy and economic savings as well as for the easiness of the maintenance and use of their system.

¹ Despretz (2001), *The Green Flag for greener hotels Project*

REFERENCES



1. The Smart-e Buildings Consortium (2010), European Campaign for Smart Energy Buildings – Our vision
2. The Smart-e Buildings Consortium (2010), European Campaign for Smart Energy Buildings –Forging a Common Industrial Position on Smart Energy Buildings
3. Moiá-Pol, Michaelis Karagiorgas, V. Martínez-Moll, R. Pujol, Carles Riba-Romeva (2005), Evaluation of the Renewable Energy application in Mediterranean Hotels: Case study: the Balearic Islands Hotels
4. European Commission (2010), Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (recast)
5. European Commission (2010), COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS - Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage
6. European Commission (2009), DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC
7. EACI (2011), BUILD UP Skills – the EU Sustainable Building Workforce Initiative http://ec.europa.eu/energy/intelligent/call_for_proposals/doc/BUILD_UP_Skills_leaflet_March11.pdf
8. M. Karagiorgas, T. Tsousos, V. Drosou, S. Pouffary, T. Pagano, G. Lopz Lara, J.M. Melim Mendes (2006), HOTRES: renewable energies in the hotels. An extensive technical tool for the hotel industry. Renewable and Sustainable Energy Reviews 10.
9. EREC (2010), Renewable Energy in Europe – Markets, trends and technologies. EARTHSCAN.
10. The Smart-e Buildings Consortium (2010), Forging a Common Industrial Position on Smart Energy Buildings. www.takeyourenergyback.eu
11. The QualiCert Consortium (2011), QualiCert Manual – A common approach for certification or equivalent qualification of installers of small-scale renewable energy systems in buildings. <http://www.qualicert-project.eu>
12. The SolarCombi+ project (2008) Report on Market Potential & Relevant Consumers for Solar Combi+. <http://www.solarcombiplus.eu>
13. Z. Chafe, M. Honey (2005) Consumer Demand and Operator Support for Socially and Environmentally Responsible Tourism. Center on Ecotourism and Sustainable Development (CESD) & The International Ecotourism Society (TIES)
14. SUPPORT_ERS Consortium (2010), Strengthening Administrative Capacities. The SUPPORT_ERS project. http://www.support-ers.eu/fileadmin/pics/Documents/Downloads/WP4_draft_report_02.pdf
15. SUPPORT_ERS Consortium (2010), Assessment of Administrative Structures and Procedures. http://www.support-ers.eu/fileadmin/pics/Documents/Downloads/WP3_final_report_oct.2009_BG_01.pdf
16. SOLARGE - Enlarging Solar Thermal Systems in Multi-Family Houses, Hotels, Public and Social Buildings in Europe (2007), Project Report & Key, Results. http://www.solarge.org/uploads/media/SOLARGE_Project_Report_and_Key_Results.pdf

Contact
World Tourism Organization
ICR-HES@unwto.org

42, Capitan Haya
28020 Madrid SPAIN
Tel: +34 91 5679 305
www.unwto.org

Hotel Energy Solutions Official Partners



Supported by

