

A Comparison Of Five Certification Schemes for the Hotel Sector - Green Globe, Nordic Swan, EU Flower, Green Hospitality Award and LEED-EB.

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Summary

In assessing the impact of global tourism on climate change, emissions from transport receive the most attention although emissions associated with accommodation sector account for more than 20% of the total and are estimated to increase by 170% by 2035.[1] Certification has been heralded as a significant step towards the 'greening' of hotels and there are currently over 100 ecolabel's and certification schemes available worldwide, with Europe alone accounting for over 60 labeling schemes. [2]

The research critically compares the methods of energy accounting, and how other non-energy related factors are weighted, so that the overall impact of energy use (and hence CO₂ emission) can be judged. Four widely used certification schemes are compared Nordic Swan (Scandinavia), Green Globe (Worldwide), EU Flower (European) and Green Hospitality Award (Ireland). A comparison is made with LEED-EB, a well-established environmental certification scheme, not dedicated to the hotel sector. All are for existing buildings and respond to operational performance only. A short description of the criteria and method for each scheme is presented and a table of comparison of the schemes as shown in Appendix A. This comparative approach will expose the strengths and weaknesses of each of the schemes and helps to identify where improvements can be made. A summary of the findings of the comparative study is presented at the end of the paper. It should be noted that this work formed part of my doctoral thesis conducted at The University of Cambridge with Dr. Nick Baker [3] and follows on from research previously presented at SB08. [4] This research will be further developed within the framework of the ZEB centre at NTNU.

Keywords: Hotel sector, CO₂ emissions, Certification, Nordic Swan, Green Globe, EU Flower, Green Hospitality Award, LEED-EB.

1. A Comparison of Five Certification Schemes

A plethora of certification schemes of buildings have been established worldwide assessing various environmental performance indicators, amongst them energy use. These include BREEAM (Building Research Establishment Environmental Assessment Method, launched UK, 1991), LEED (Leadership in Energy and Environment Design, launched US, 1998), GB Tool (Green Building Tool, iiSBE, launched Canada, 2002) and CASBEE (Comprehensive Assessment System for Building Environmental Efficiency, launched Japan, 2002). However, none of these schemes are dedicated to the hotel sector, although BREEAM Bespoke, LEED-EB (Existing Buildings) and LEED-NC (New Construction) can be applied to hotels. To date no hotels have been certified with BREEAM Bespoke so this scheme will not be included in the comparison. The key difference between LEED-EB and LEED-NC is that the former assesses actual energy performance whilst the latter is based on energy performance predictions using EnergyPro software or similar. Since this research is based on actual performance, LEED-NC will not be considered in the comparison. The next section examines the criteria and procedure for four widely used certification schemes.

1.1 Green Globe

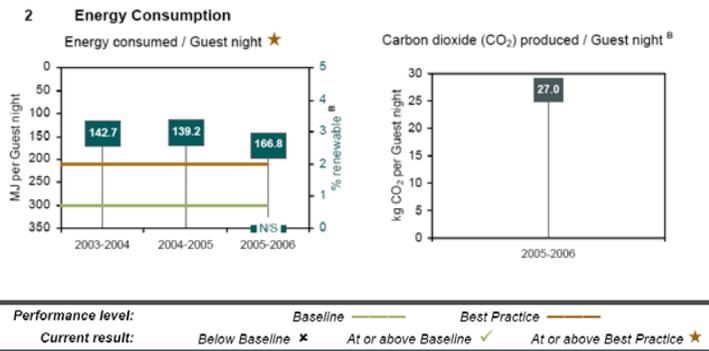
Description of scheme

To date, EC3 Green Globe is the only hotel specific certification scheme that can be applied worldwide. There are four GREEN GLOBE Standards i.e. Company Standard, International Ecotourism Standard, Community / Destination Standard, Design & Construct Standard. Green Globe also certifies airports, airlines, cruise boats, railways, and, more recently, destinations themselves. [5]

Fig. 1 Green Globe Criteria Checklist

earthcheck	Indicator Measure (Benchmark)
1 Sustainability Policy	Policy is produced and in place
2 Energy Consumption	Energy used (MJ / Guest Night)
	Renewable energy used (%) ³
3 Water Consumption	Water used (L / Guest Night)
	% of total water used is that is recycled/captured (%) ³
	Water saving (Checklist rating)
4 Waste Sent to Landfill	Waste landfilled (L / Guest Night)
	% of total waste that is recycled/reused (%) ³
5 Community Commitment	Waste recycling (Checklist rating)
	Local employment (Employees living within 20 km of operation / Total employees) Community contributions (Checklist Rating)
6 Paper Products	Paper product types used (Checklist Rating)
7 Cleaning Products	Cleaning product types used (Checklist rating)
8 Pesticide Products	Pesticide product types used (Checklist Rating)

Fig. 2 An example of a Green Globe energy benchmark



^a Each benchmark has been assessed on a per annum (12 months) basis
^b Indicator is for guidance only and does not affect the overall benchmarking evaluation
^c Represented in litres (L), where 1000 L = 1 cubic metre (m³) or 1 kilolitre (kL)
 N/S = Not submitted

Criteria

The certification process consists of two types of assessments. Firstly, quantitative data (energy, water and waste) is collected from the hotel and used by an independent third party, *earthcheck* [6], to determine how the hotel is performing. This annual assessment of the resort is undertaken using a criteria checklist as seen in Fig. 1.

Performance is measured against benchmarks which are derived from hotels offering similar standards, although these benchmarks are not published. In the calculation of the benchmarks, hotels are separated into five separate sub-sectors: business hotels; vacation hotels; motels; bed and breakfasts; and hostels. The differentiation is in recognition of the varied facilities offered and which vary with location. Baseline and Best Practice performance benchmarks are set with reference to the type of activity and appropriate national and international data which take into account social, geographical and climatic impacts. (Fig. 2) Note the graph on the right does not affect overall benchmarking evaluation so does not contain benchmarks for comparison.

Procedure

To be allowed to use the Green Globe Benchmarked logo the hotel must meet the minimum requirements for up to two submitted categories (Baseline or better performance). Energy is not mandatory. All performance criteria are continuously reviewed, along with the performance levels which hotels have to achieve in order to use the Green Globe Benchmarked logo. If a hotel fails to meet the minimum requirements for up to two submitted categories but achieves Baseline or better performance in all the other categories, then the hotel is allowed to use the Green Globe Benchmarked logo. It is, however, given a maximum of 12 months to improve performance in at least one of the categories to Baseline or better performance. If on the next submission this is not achieved without substantiated evidence that the situation was beyond the control of that operation (e.g., occurrence of a natural disaster), then the right to use the Green Globe Benchmarked logo will be withdrawn. In 2008, three different stages of certification were introduced; Benchmarked Bronze, Certified Silver and Gold (after five years of continuous certification). [7]

1.2 Nordic Swan Description

The Nordic Ecolabel is the official ecolabel for the Nordic countries. In 1989, voluntary measures were introduced by the Nordic Council of Ministers and in 1999 the first criteria document for hotel facilities was produced. The Nordic Ecolabel covers 67 different product groups ranging from washing-up liquid, furniture to hotels. The label is usually valid for three years, after which the criteria are revised and the company must reapply for a licence. [8]

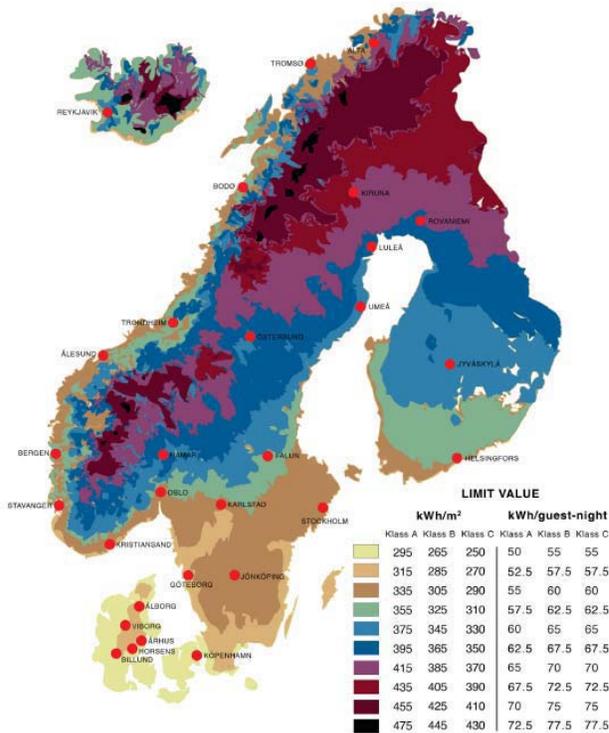


Fig.3 Nordic Swan energy benchmarks (Limit values)

Table 2 Breakdown of points for different categories.

Total Score	Max. Poss. Points	Energy Rel. Points	Energy Rel. Oblig. Req.
Operations/maintenance	25	19	2 out of 3
Hotel premises & purchased products	20	1	1 out of 4
Guest Rooms	13	6.5	0
Kitchen & dining room	7.5	0	0
Cleaning and Laundry	11	2	0
Waste	6	0	0
Transport	3	0	0
Total	85.5	28.5	0
Hotels & restaurant (Extra req)	7.5	4	0
Hotels & conference (Extra req)	6	0	0
Hotels & pools (Extra req)	4	1	0
Total	17.5	5	0
Limit values (bonus)	4	2	0
Energy consumption(bonus)	4	4	0
Labelled restaurant(bonus)	1	0	0
Total'	9	6	0
TOTAL POINTS	98.5	39.5	3 out of 7

Criteria

The scheme is made up of four benchmarks; energy, water, chemical products and waste management. The requirements for Swan certification include submission of a general description of hotel and operational data benchmarks for four categories: energy (*mandatory*), water, chemical products and waste management. In addition to the above benchmarks, the hotel must comply with a number of mandatory and optional point requirements across all categories ranging from on-site sorting of waste, CFC free operation, fittings and inventory. [9]

Achieving the benchmark for energy consumption is mandatory as of 2007 and takes into account the hotels geographical location as shown in Fig.3. The Swan label categorizes the establishments as Class A, B or C depending on the share of the restaurant turnover, the total turnover for restaurant and hotel, the hotel occupancy rate, as well as the availability of pool facilities. [9]

Procedure

To acquire a Nordic Swan label, at least one benchmark, over and above energy consumption must be fulfilled. If a hotel complies with several benchmarks or surpasses the benchmark for energy consumption, extra points are awarded. In addition to the mandatory requirements, the hotel must accomplish a minimum of 65% (At least 50% for Icelandic hotels) of all point requirements and 60% of all point requirements in the Operations and Maintenance section. All environmental management requirements must be met. Finally, the hotel must be audited and actions approved by Nordic Swan. [9]

1.3 EU Flower

Description

The EU Flower was created in 1992. It is a voluntary scheme and is valid across EU, Norway, Iceland and Liechtenstein. It is certified by an independent third party. Like Nordic Swan, the scheme differs from Green Hospitality Award, LEED and EC3 Green Globe in that it is not specific to tourism accommodation only, certifying everything from tissue paper, to laptops to washing up liquid, each with its own set of criteria. However, EU Flower differs from all the other schemes as it is a process *only* based scheme and does not use benchmarks to assess performance.

Table 3 Breakdown of mandatory & optional points

EU Flower 84 Criteria		
Categories	37 Mandatory Requirements	47 Optional Points
Energy	10	17
Water	10	7
Chemicals	2	5
Management	8	5
Waste	5	5
Other	2	8

Criteria

The scheme is made up of six categories; energy, other, waste, water, management and chemicals. The criteria are divided into two levels of requirement, mandatory criteria and optional criteria as shown in Table 4.3 below. The Energy category accounts for 10 out of 37 Mandatory points and 17 out of 47 optional points (*at least 16.5 points must be achieved in this section*). [10]

Procedure

To receive the EU Flower, the hotel must meet the mandatory and optional criteria set out above. The specific assessment and verification requirements are indicated within each criterion. Where appropriate, competent bodies may require supporting documentation and may carry out independent verifications. The implementation of recognized environmental management schemes, such as EMAS or ISO 14001, when assessing applications and monitoring compliance with the criteria. (Note: it is not required to implement such management schemes.) A new Commission Decision was made on the 9th July 2009 and the 2003 criteria [10] are valid until the 31st October 2009.

1.4 Green Hospitality Award

Description

The Green Hospitality Award is largely based on the EU Flower scheme however, the schemes differ from each other in that energy, waste and water benchmarks are included but are used for reference purposes only. The Green Hospitality Award is granted based on performance in Environmental Management Systems, Waste Management, Water management and Energy management. The Green Hospitality Award has four levels: Bronze (Introductory), Silver (Good Practice in operation), Gold (Generally Best Practice in operation) and Platinum (World Class Performance) which lays the basis for achieving the EU Flower Accreditation level. [11]

Table 4 Breakdown of mandatory & optional points

Green Hospitality Award				
Bronze/Silver/Gold /Platinum Awards	Mandatory Achieved	Additional Mandatory Requirements		
	Bronze	Silver	Gold	Platinum
Environmental Management System	Yes	5	5	6
Waste Management	Yes	4	6	8
Water Management	Yes	4	8	10
Energy Management	Yes	8	10	13
Optional Score Req.	N/A	20	30	40

Criteria

The four main categories of the scheme are Energy Management System (EMS), Energy Performance, Water and Waste. As part of the mandatory requirements, the hotel must submit data for the current and previous year. A key part of the scheme is the audit which reviews the information, documentation and reported data. The scheme awards four levels of certification as indicated in Table 4. [11]

Procedure

The mandatory categories for the Bronze Award require compliance across all categories and are rigorous. Requirements range from submitting completed audits, benchmark workbooks and back up verification, evidence of EMS, monitoring energy consumption and identifying major energy using equipment. Every award level above Bronze has increasing mandatory requirements and a requirement to have implemented a number of further actions which are detailed in the optional section of the programme.

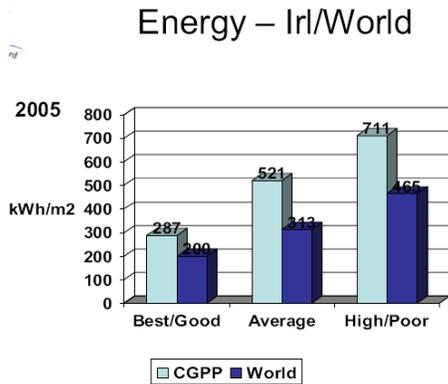


Fig.4 Green Hospitality Award Energy benchmarks

In addition to the mandatory and optional score criteria, the hotel consumption data is collected and compared against International benchmarks. This is used for guidance only and achieving the benchmark level is not a requirement for certification. The benchmarks (*World*) were derived from Green Globe, IHEI, Benchmarkhotel.com, Canadian Hotels, US Hotels, Accor, Nordic Swan and an average as opposed to a range was calculated. [12] The energy benchmarks for the Green Hospitality Award (*CGPP*) are derived primarily from the data for 40 hotels using verified data only. [13]

1.5 LEED for Existing Buildings: O&M (Operations & Maintenance)

Description

LEED for Existing Buildings: O&M (Operations and Management) is a certification scheme for the ongoing operations and maintenance of existing buildings. It differs from all the other schemes discussed here as it is not hotel specific however, it has been included in this comparison since eight hotels in the US have become certified to date with almost 200 awaiting certification. LEED is a third-party certification programme which assesses building performance against a wide range of environmental and sustainability issues covering a number of categories. It is one of a suite of published LEED rating schemes which includes LEED-NC, for New Buildings and Major Renovations; LEED-EB, for Existing Buildings (operations & maintenance); LEED-CI, for Commercial Interiors; and LEED-CS for Commercial Core and Shell projects, LEED for Homes, Retail, Schools, Healthcare and Neighbourhood Development. [14]

Criteria

To achieve LEED-EB certification, the building must meet all prerequisites in the rating system and earn a minimum of 34 points in the optional point section of each category. LEED for Existing Buildings: O&M (September, 2008) award levels are determined according to the following point thresholds: Certified - 34-42 points, Silver - 43-50 points, Gold - 51-67 points, Platinum - 68-92 points. [15]

Table 5 Breakdown of mandatory & optional points

LEED for Existing Buildings (Operations & Maintenance)		
Categories	Mandatory Requirements	Optional Points
Sustainable Sites	0	9
Water Efficiency	1	4-10
Energy & Atmosphere	3	13-30
Materials & Resources	2	9-14
Indoor Environmental Quality	3	16-20
Innovation in Operation (IO)	0	4-7
Total	85 Possible Base Points (plus 7 for IO)	

LEED-EB is divided into five categories: site, water, energy, materials and indoor environmental quality. For each category, one or more 'credits' are available when specific levels of performance or process are achieved as shown in Table 5. After a review of all documentation, the total number of points obtained determines the final LEED score, which results in a rating ranging from Certified, Silver, and Gold to Platinum. [15]

Table 6 Breakdown of mandatory requirements (prerequisites) and optional points.

Energy & Atmosphere (13 - 30 pts) <i>Optional Points</i>		
Prerequisite 1C	Fundamental Building Systems Commissioning	Required
Prerequisite 2D	Minimum Energy Performance <i>At least 2 points EA Credit 1.0</i>	Required
Prerequisite 3D	Refrigeration Management: Ozone Protection	Required
<i>Credit 1.0</i> <i>2-15 points</i>	<i>Optimize energy performance (2points mandatory)</i>	
<i>Credit 2.1-2.3</i>	<i>Existing Building Commissioning 2-6 points</i>	
<i>Credit 3.1-3.3</i>	<i>Performance Measurement 1-3 points</i>	
<i>Credit 4.1-4.4</i>	<i>Renewable Energy: Off/On-site 1-4 points</i>	
<i>Credit 5.0</i>	<i>Refrigeration Management 1 point</i>	
<i>Credit 6.0</i>	<i>Emissions Reduction Reporting 1 point</i>	

In the Energy & Atmosphere section, there are 3 mandatory requirements and 13-30 optional points can be achieved. It is mandatory that 2 of these 30 points are earned in the points in the 'Optimize energy performance section.' [15]

Procedure

LEED-EB uses an external rating system EnergyStar (2008) which is based on primary energy and accounts for the impact of weather variations as well as key physical and operating characteristics of each building. Buildings rating 75 or greater may qualify for the ENERGY STAR label and ratings of 69 or more qualify for LEED-EB points. A full 12 months of continuous measured energy data is required. [16]

2. Comparison of the individual schemes; strengths and weaknesses

Due to the diversity of the schemes, each has its own merits and drawbacks. A comparison of the essential characteristics of the schemes is shown in Appendix A. For example, process based schemes such as EU Flower have been criticised as being onerous and time consuming due to the requirement to complete a 152 page verification document, however, this necessitates a hotel becoming familiar with its own operations and maintenance thus enabling it to assess its own performance over time. On the other hand a scheme such as Green Globe which has been heralded as a major step forward relies solely on the use of benchmarks to assess energy performance and does not oblige a hotel to meet such specific and detailed mandatory and optional requirements. Or indeed, as also identified by Shaviv [17] in the case of LEED the objective of the scheme may result in it becoming no more than a 'point hunting' exercise based on mechanical and electrical systems rather than promoting passive or bioclimatic design.

1) Commonalities between the schemes

There are some commonalities between the schemes. A mandatory energy management system and back up documentation is common to all the schemes. An independent on-site audit is required by three out of five of the schemes. They all are hotel specific and are based on operational (delivered energy in use) data only apart from LEED-EB which is not hotel specific and is based on primary energy only. All the schemes include a range of categories (4 minimum to 8 maximum) for certification but all include criteria for energy and water consumption and waste consumption/management. Energy is a mandatory category for all the schemes except Green Globe, which is a key failing particularly of a scheme purporting to be a measure of sustainability. Energy is only mandatory as of 2007 in Nordic Swan which is surprising considering the Swan label has been around for a over a decade. The rigorousness of energy performance criteria is good (***) or excellent (****) in all schemes apart from EU Flower (*) which only uses a process based criteria. (See Appendix 1 for the star rating criteria) Nordic Swan and Green Hospitality Award require an on-site audit but this is not independently verified.

2) Energy

Energy is a mandatory category for all schemes apart from Green Globe which in this case is clearly at odds with a logo that suggests to the guest that the hotel has a low environmental impact. All the schemes use different normalisations i.e. per square metre or per guest night, which makes cross comparison of energy benchmarks very difficult unless additional information is

available. For example, energy performance in LEED-EB is measured in (kBtu/ft²), Nordic Swan (kWh/m² or kWh/guest night), Green Hospitality Award (kWh/m²) whereas Green Globe is measured in (MJ/guest night). Apart from energy, performance benchmarks are also used for water and waste consumption in Green Globe, Nordic Swan and Green Hospitality Award and are typically measured as litres per guest night for water consumption and kilogram's per guest night for waste production. Green Globe measures waste production as litres per guest night.

3) Adding delivered units of electricity to delivered fuels

The most serious error in all schemes analyzed is the adding together of delivered electricity to heating without first converting the figures to primary energy (or CO₂ emissions) before adding together. As a result, the energy performance indicators used by the majority of hotels and certification schemes are erroneous. In many cases, when asked for raw data, the only figures provided by a hotel were these performance indicators with no separate breakdown for delivered electricity or heating in which case neither the performance nor the CO₂ emissions of the hotel could be reliably calculated.

4) Weighting of categories in awarding credits for certification

Energy consumption is one of the most significant areas of environmental impact yet this is not reflected in the weighting of energy against other categories in any of the selected schemes. Most schemes involve four or more assessment categories yet success in only one or two categories (energy is not always mandatory) enables a hotel to become certified despite having poor environmental performance. In 2007, Nordic Swan made energy performance a compulsory category. EC3 Green Globe includes an indicator for CO₂ emissions and Renewable energy used (expressed as a percentage) but this does not affect the overall benchmarking evaluation. In LEED-EB, it was found that five of the ten *least* popular (and most difficult to achieve) credits were made up entirely from the Energy & Atmosphere category, which deals directly with CO₂ emissions.[18] Where LEED has been used for hotels there is some uncertainty as to what building type is being used to establish the benchmarks against which the subject hotel is being judged.

5) Weighting of CO₂ emissions

A common problem with all the schemes is that key CO₂ emissions reduction criteria are weighted the same as criteria that have no direct impact. For example, in EU Flower, one can be awarded 4 optional points for the use of eco-labelled detergents whereas in the energy category only 1.5 optional points is awarded for using Combined Heat and Power, 1.5. optional points for heating from renewable energy sources, insulation of existing building (2 optional points) and finally only 2 optional points for hotels built to bioclimatic architectural principles (although this is poorly defined). All of the above have a considerable impact in reducing energy consumption and the resulting CO₂ emissions yet this is not reflected in the awarding and weighting of points. Nordic Swan awards the presence of a waste paper basket in the bathroom (1 point) or non smoking rooms (1 point) whilst at the same time awarding only 1-3 points depending on the proportion of electricity and heat which comes from renewable energy sources or waste industrial heat/heat pumps. Clearly, the weighting of points does not reflect the environmental impact in terms of emissions reduction. The same weighting problem is seen in Green Hospitality Award where a participant can be awarded 2 optional points for the use of eco-labelled detergents, 1 optional point for avoiding bottled water, 1 optional point for donating recyclable office items for charity, whereas in the energy category 2 optional points for using Combined Heat and Power, 1.5. optional points for heating from renewable energy sources, and 2 optional points insulation of existing building. Only two out of the five schemes i.e. LEED-EB and EU Flower include key CO₂ emissions reduction criteria in the mandatory category. Examples of key criteria include proportion of electricity and/or heat from renewable resources, new boiler efficiency of >90%, photovoltaic and wind generation and insulation of existing buildings.

If the true aim of a scheme was to reduce environmental impact then these specific energy related criteria should be more heavily weighted to reflect their environmental impact and emissions reduction. Furthermore, criteria which play a crucial role in reducing the environmental impact should be included in the mandatory section and not awarded optional points only. From this point of view one can see that is quite possible for an assessment to be rigorous but then to weighted low against other categories. Green Globe calculates electricity and non-electricity separately (MJ

per guest night) which is good. It uses a third party to develop the country specific energy benchmarks (baseline and best practice) for different hotel sub-sectors which is excellent. It also accounts for the number of day guest equivalent (people who stay at the hotel for at least four hours) and includes resident staff in its guest night calculations which is also excellent. In 2007, it introduced separate Spa Performance Benchmarks (MJ per treatment hour) which is a good improvement to the scheme however the problem is that it is not mandatory to benchmark spa facilities separately which means that the energy consumption figures are inclusive of spa consumption figures in some hotels and not in others which has an impact on whether or not a hotel is able to achieve the benchmark.

6) Renewable Energy (On-site and Off-site)

In LEED-EB out of a maximum of 85 possible base points (plus 7 for Innovative Operations) either 1-4 points are awarded for on-site renewable energy OR off-site RECS. However, it is not clear how points are awarded if both off-site and on-site are used nor how and if is quantified?[15] Out of a maximum total point score of 85.5 points in Part A of Nordic Swan, 1-3 optional points are awarded for proportion of heat which comes from renewable energy sources or waste heat/heat pumps. 1-3 optional points are awarded for proportion of electricity which comes from renewable energy sources. Ecolabeled electricity is included as 100% renewable energy and awarded 3 points. [9] However, it has been found that many certified hotels rely on claims of zero carbon or neutrality based on purchasing 'green' electricity, which is not accredited. Ecolabeled electricity can only lead to additional low or zero carbon power generation if 'additionality' is proven. [3,4]

7) Passive Solar or Bioclimatic Architectural Design

There are no points awarded in any of the schemes apart from EU Flower which awards 2 points if the building is built according to bioclimatic architectural principles although there are difficulties in defining these.

3. Conclusions

The overall conclusion is that existing schemes do not properly account for CO₂ emissions and do not in general lead to a reduction in emissions. This is largely due to incorrect accounting (*adding delivered units of electricity to delivered fuels leading to erroneous delivered energy performance benchmarks*) and key CO₂ emissions reduction criteria being weighted the same as criteria that have no direct impact on emissions reduction. Due to the complexity of the schemes and their heterogeneity, particularly in the level and varying criteria to be satisfied, it was not possible to make a detailed comparison.

Energy and CO₂ emissions need to be made mandatory categories in all schemes that purport to be a measure of environmental impact. In order to assess improved performance, energy and emissions need to be measured. The weighting of the award of points between energy and non-energy related criteria needs to be rigorous and increased points awarded for key CO₂ emissions reduction criteria which should be mandatory. The percentage of renewable energy used needs to be accounted for perhaps by introducing a points system similar to that used in Nordic Swan, EU Flower and more recently in Green Hospitality Award but this should be done in such a way that increasing use might correlate with increasing award of points. Where zero carbon electricity is claimed, this must only be allowed when the criterion of 'additionality' can be proven. A physical description of the hotel needs to be included in the submission documentation. This description should be linked to the evaluation of the building in order to give incentive to both hotel designers and clients to incorporate passive design features into their designs in order to reduce the building's impact on the environment. Moreover, lifestyle and behavioural changes need to be included in the criteria required for certification to give incentives to managers and guests alike to take a proactive approach to emissions reduction.

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Appendix A. Table of comparison of five certification schemes.

	Green Hospitality Award	EC3 Green Globe	Nordic Swan	EU Flower	LEED-EB (Operations & Maintenance)
Region	Ireland Only	Worldwide	Scandinavia Finland, Sweden, Norway, Iceland, Denmark	Europe 15 + Norway, Iceland, Liechtenstein	International, mostly US
Hotels Specific	√	√	√	√	X
Operational Data Only	√	√	√	√	√
Mandatory Energy Management System	√	√	√	√	√
Back Up Documentation Required	√	√	√	√	√
Independent On-Site Audit	X	√	X	√	√
Award Levels	Bronze Silver Gold Platinum	Bronze Silver Gold	One Level	One Level	Certified Silver Gold Platinum
Does Increased Award Level Indicate Increased Environmental Performance?	√	X ¹	One Level	One Level	√
Categories	1) Environ. Management System 2) Water Management 3) Waste Management 4) Energy Management	1) Sustainability Policy 2) Energy Consumption 3) Water Consumption/Saving 4) Waste sent landfill/Recycling 5) Community 6) Paper Products 7) Cleaning Products 8) Pesticide Products	1)Energy Consumption 2)Water Consumption 3)Waste Consumption 4) Waste Management	1) Energy 2) Water 3) Chemicals 4) Management 5) Waste 6) Other	1) Sustainable Sites 2) Water Efficiency 3) Energy & Atmosphere 4) Materials & Resources 5) Indoor Air Quality 6) Innovations in Operations
Energy Mandatory Category	√	X	√ (since 2007)	√	√
Rigorous Energy Accounting ²	***	****	***	*	****
Are key CO ₂ emissions reduction criteria included in Mandatory section? ³	X	N/A	X	√	√
Are key CO ₂ emissions reduction criteria weighted the same as criteria that have no direct impact? ⁴	√	N/A	√	√	√
Number of Categories required for certification	4	2	2	6	6
Obligatory Requirements & Optional Points Score in each category?	√	N/A	√	√	√
Use of Benchmarks?	√	√	√	X	√ External Rating System
Benchmarks Published in Public Domain	√	X	√	N/A	X
Is certification Awarded on the basis of passing Benchmarks Only?	X	√	X	X	X
CO ₂ Benchmark	X	X	X	N/A	X
Reporting CO ₂ emissions	X	√ Optional	√ Optional	X	√ Mandatory
Mandatory Energy Benchmark	X	X	√	N/A	√
Key Energy Performance Indicator	kWh / m ²	MJ / guest night	KWh/m ² or kWh/guest night	No calculation	EPA Rating 1-100 (kBTU/ft ²)
Energy Benchmark	3 Best / Good Average High/Poor	2 Baseline Best Practice	One benchmark	N/A	√ External Rating System
Energy Benchmark vary with Geographical Location	N/A	√	√	N/A	√
One day guest equivalent (staying at hotel for at least 4 hours)	Calculates per square metre	0.3 guest nights	0.5 guest night	No calculation	Calculates per square foot
1 Conference Guest equivalent (Guests staying 1 day & part day)	Calculates per square metre	x	1.5 guest nights	No calculation	Calculates per square foot
1 Restaurant guest equivalent (Hotel Occupancy >60% Restaurant Turnover >45% total)	Calculates per square metre	x	0.25 guest night	No calculation	Calculates per square foot
Accounting of resident staff in guest night calculation	Calculates per square metre	√	x	No calculation	Calculates per square foot
Additional optional points scored for % renewable resources	√ Platinum	X	√	√	√
Additional optional points scored for insulation of existing building	√	X	X	√	X
Additional optional points scored for use of energy efficient light bulbs	√	X	√	√	X
Boiler Efficiency >90%	√ Gold & Platinum	X	X	√	X
Energy Consumption Sub-Metering	√ Gold & Platinum	x	√ ⁵	√	√
Extra Optional Points (ENERGY RELATED) for Hotels with Laundry, Leisure Centre, Conference	√ Gold & Platinum	x	√ ⁶	√	x
Are extra points explicitly awarded for passive or bioclimatic architectural design principles?	x	x	x	√	x
Additional Features	x	2007: Separate Spa Performance Benchmarks (MJ per treatment hour)	Consumption for banqueting, catering and spa facilities may be deducted from total.	x	x

1 A gold award signifies the hotels has been certified continuously for over five years.

2 Rigorous Energy Accounting:

- **** = Use of Primary Energy AND/OR Electricity & non-electricity calculated separately AND/OR CO₂ accounted for (kgCO₂ per guest night or per square metre)
- *** = Electricity & non-electricity calculated separately
- ** = Energy consumption calculated quantitatively
- * = Process based schemes, energy not calculated quantitatively
- 0 = Energy not considered.

3 Key (CO₂ emissions reduction) Energy Criteria, for example, Energy analysis, Proportion of electricity or heat from renewable resources, Boiler efficiency (new) >90%, Use of energy efficient light bulbs, Combined Heat & Power, Heat Recovery, Sub-metering, Automatic switching off of lights and air-control, photovoltaic and wind generation, insulation of existing buildings.

4 i.e. presence of waste paper basket in the bathroom or no smoking in rooms.

5 Non-Swan labeled Kitchen energy consumption is measured and recorded separately (1 optional point)

6 Water and/or energy consumption metered separately for the pool facilities (0.5-1 optional point)