Energy Solutions to Boost Hotels Competitiveness in a Low Carbon Economy

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17 October 2011, Nairobi, Kenya
Map of Bulgaria
Dynamics in the number of establishments and beds

In 2010: 8,4 mil tourist arrivals, 16,3 mil overnights in total
### Quality structure of the accommodation facilities

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>1 &amp; 2 stars</th>
<th>3 stars</th>
<th>4 stars</th>
<th>5 stars</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>establishments</td>
<td>2423</td>
<td>823</td>
<td>250</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>beds</td>
<td>91200</td>
<td>89779</td>
<td>84018</td>
<td>18644</td>
</tr>
</tbody>
</table>

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Only 4% of the surveyed hotels seem to have a determined policy on water saving and in 52% of the hotels no measures for water saving are implemented at all;

70% implement energy efficiency solutions, but there is a considerable share of hotels (17%), which seem to neglect entirely the energy efficiency issue;

More than half of the hotels are not aware of the greenhouse gas emissions of their hotels. Very high is the share of hotels, which do not consider renewable sources of energy (44%);

The waste management is a weak point of the surveyed hotels – 70% do not implement water treatment solutions and 61% do not implement solid waste management;

Nearly half of the hotels are aware that they lag behind in their environmental policy, especially in the implementation of energy and water saving solutions and waste management. None of the hotels implements an Environmental Management System (EMS)
Scope and Methodology

- Cleaner production (CP) assessments of 25 hotels and 5 tourism related enterprises, UNIDO methodology:
  - In-plant assessment
  - Key performance indicators and benchmarking
  - Option generation
  - Action plan and monitoring

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Scope and Methodology

• Energy efficiency and renewable energy audits – 28 accommodation enterprises:
  - mini audits
  - HES e-toolkit pilot test
• Survey among Kuoni contracted hotels in Bulgaria on CP understanding and implemented CP measures – Travelife system;
Results and Discussion

The figures vary significantly depending on:

- level of technologies for heating, ventilation and air-conditioning (HVAC);
- lighting and appliances in the kitchens;
- behavior and level of awareness and commitment of managers and employees.

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Results and Discussion

Water consumption

- similar distribution as energy consumption – varying from 150 to 960 l/guest-night;

- the prevailing number of hotels have consumption around the benchmarks for good performance - 310 l/guest-night for 2- and 3-star hotels and 450 l/guest-night for 4- and 5-star hotels;

- there are 3 exemptions of hotels with very high indicators – more than 600 l/guest-night, with their own water sources;
Results and Discussion

An example result from HES e-toolkit

Current project: Hotel Surmashik

Energy related report

Very poor (E) | Below average (D) | Average (C) | Above average (B) | Excellent (A)

Your energy performance (kWh per m² per year) is: **181,01** and categorize your hotel as: **Excellent (A)**

You use:

- **181.01 kWh per m² per year**
- **294.13 kWh per guest-night**
- **16807.66 kWh per guest room per year**

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Results and Discussion

*Implemented management systems in tourism sector*

<table>
<thead>
<tr>
<th>International Standards</th>
<th>Hotels and restaurants, including catering</th>
<th>Hotels only</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 9001</td>
<td>54</td>
<td>26</td>
</tr>
<tr>
<td>ISO 14001</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>ISO 27001</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>OHSAS</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ISO 22000</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>HACCP</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>87</td>
<td>38</td>
</tr>
</tbody>
</table>

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## Characteristics of the proposed measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Size of investments</th>
<th>Payback period</th>
<th>Freq. in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental policy, energy management, staff training and guests awareness</td>
<td>No cost or low cost</td>
<td>Less than one year</td>
<td>90</td>
</tr>
<tr>
<td>Energy efficient lighting</td>
<td>Medium</td>
<td>2-3 years</td>
<td>90</td>
</tr>
<tr>
<td>Measures for water savings</td>
<td>Low</td>
<td>1-2 years</td>
<td>80</td>
</tr>
<tr>
<td>Use of renewable energy sources and passive cooling</td>
<td>Medium to high</td>
<td>4-7 years</td>
<td>40</td>
</tr>
<tr>
<td>Separate waste collection and recycling</td>
<td>Low</td>
<td>Less than one year</td>
<td>30</td>
</tr>
<tr>
<td>Organizational measures for dosing and maintenance of the equipment</td>
<td>No cost or low cost</td>
<td>Less than one year</td>
<td>30</td>
</tr>
<tr>
<td>Measures for the HVAC systems</td>
<td>Medium to high</td>
<td>3-6 years</td>
<td>30</td>
</tr>
<tr>
<td>Measures in the kitchen</td>
<td>High</td>
<td>5-7 years</td>
<td>20</td>
</tr>
</tbody>
</table>

### Potential: 20 – 50 % reduction of energy and water use; investments needed vary between 3 000 and 50 000 EUR

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Approaches for energy efficiency improvement and energy cost reduction in hotels and guest houses

• Reduction of energy losses by the improvement of building energy performance

Good practice:
As a result of the undertaken measures for wall insulation and windows replacements the owners of Dobrevi guest house in Chernomorets, have achieved 50% reduction of the heating cost.
Approaches for energy efficiency improvement and energy cost reduction in hotels and guest houses

• **Energy Efficiency in Generation and Distribution (Heating, Ventilation and Air-conditioning Installations)**

**Good practice:**
Marina Palace Hotel in Duni Resort installed chillers with heat exchangers for utilization of the heat from the cooling process. The application of this measure has lead to 90% savings of gas oil for domestic hot water heating during the hottest summer days.

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Approaches for energy efficiency improvement and energy cost reduction in hotels and guest houses

• **Energy Efficient Lighting**

**Good practice:**
In hotel Forum, Sofia, 30W halogen bulbs in the corridors, bar and lobby were replaced with 5W LED bulbs. As the premises are illuminated constantly, the energy saving for one year are estimated to be 11 000 kWh.
Approaches for energy efficiency improvement and energy cost reduction in hotels and guest houses

• **End Use Energy Efficiency – Energy Efficient Devices, Behavior Measures**

**Good practice:**
Fairy Hotel in the village of Chiflik elaborated instructions in accordance to the energy efficiency policy of the hotel for the chambermaids and kitchen equipment usage. Energy savings are estimated at 5-7%.

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Approaches for energy efficiency improvement and energy cost reduction in hotels and guest houses

• **Energy Efficiency of SPA Centers and Swimming Pools**

**Good practice:**
In hotel “Premier”, Veliko Turnovo, swimming pool cover is used for the swimming pool when not in use. Energy savings are estimated at 1050 kWh/y, and water savings - 35 m³.
Approaches for energy efficiency improvement and energy cost reduction in hotels and guest houses

• **Use of Renewable Energy Sources**

**Good practice:**
The thermal solar system of park-hotel Continental in Sunny beach resort is the biggest implemented in Bulgaria project for providing domestic hot water with solar energy. The system consists of 300 selective flat-plate solar collectors (645 m²), heating 20 boilers, each 1 500 l and covering the needs of 1000 guests.
Difficulties and training needs in Cleaner Production

What are the main difficulties you are facing when implementing energy/water efficiency and waste handling solutions?

- High Technological Cost: 29%
- Technical Challenges: 14%
- Level of staff to implement such solutions: 14%
- Training of staff: 11%
- Efficiency Control: 16%
- Communication: 8%
- no answer: 8%

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Difficulties and training needs in Cleaner Production

In what area would you like to improve your knowledge?

- Energy Efficient Technologies: 25%
- Water Management and Conservation Techniques: 21%
- Techniques: 4%
- Waste Water Technologies: 8%
- Solid Waste Technologies: 2%
- Regulatory Framework: 17%
- Best Practices – Case studies: 17%
- State of the Art technologies/solutions: 6%
- No answer: 4%

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What are key challenges and opportunities to support tourism to develop more sustainable markets, products and services?

✓ The expenses of the hotels for electricity, water supply, etc. are considerably high and it is necessary to introduce energy and water efficiency measures and technologies in order to achieve savings.

✓ Favorable political context – policies, documents and funds on global, EU and national level – awareness raising.

✓ Pressure on behalf of demand side – changes in the tourists’ perceptions and expectations.

✓ Management of the supply chain – tour-operators’ initiatives for control over suppliers.

✓ Better marketing opportunities – standards, awards and eco-labels.

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What are the existing tools and skills to support the transition to a green tourism economy?

- Stakeholder engagement
- Supply chain management
- Labeling and certification
- Methodological and technical tools – CP, HES e-toolkit, etc.

What kind of additional tools and capacity building support is required to integrate sustainability in the tourism sector?

- Involve hotels in self-assessment and elaboration of options for improvement to increase the number of hotels involved
- Provide full package – assessment report, action plan, financial instruments to support the implementing of measures (grant schemes, special credit lines for small investments)
- Training of NCPCs’ staff in new initiatives, international funds available, new methodological and technical tools, common project development and implementation, exchange of knowledge and best practices

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How to support the promotion of national and regional strategies and actions on sustainable tourism development?

• Development and implementation of national awarding schemes in sustainable operation of tourism enterprises;

• Awareness raising campaigns - regional and local training seminars for hotel representatives

• Promotion of international standards to increase the number of certified tourism enterprises
What are the existing sources of finance available?

In Bulgaria:

• Energy Efficiency Fund – provides low interest loans for financing renovations, fuel changes, RES

• ESCO – energy saving services provided by companies, which can implement energy saving measures and guarantee the results

• Credit line EE and RES of EBRD – loans with 15% grant

• Operational Program “Development of Competitiveness of Bulgarian Economy 2007-2013”, Priority 2 - Increasing efficiency of enterprises and promoting supportive business environment

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The implementation of resource efficiency and cleaner production processes in hotels depends significantly on the commitment of owner, management and personnel, i.e. all operational levels and units.

In the period of economical crisis, increase of energy price and climate change, the hotel managers and the personnel show increasing interest and active involvement in options identification and implementation for improving the image and competitiveness of their hotel.

All participants in the projects realized that the process is continuous; it requires step by step implementation of measures and communication to the local community and guests.
Small and medium sized tourism enterprises need consultancy and expert support to incorporate the resource efficiency and cleaner production practices into their operational management and work.

There is a need of initial impulse for seeking best practices applied in other hotels and to cooperate with hotelier associations and other stakeholders able to facilitate and support this process.

External support is also necessary for ensuring available new technology providers and financial resources.
Thank you for your attention!

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