

Summary

Roundtable on renewable energy for island tourism

ITB Berlin Convention

Berlin, Germany, 4 March 2015

Background

In the Malta Communique on Accelerating Renewable Energy Uptake for Islands, Ministers called on IRENA to establish a Global Renewable Energy Islands Network (GREIN) as a platform for pooling knowledge, sharing best practices and seeking innovative solutions for accelerated uptake of clean and cost-effective renewable energy technologies on islands. These solutions will be applicable to island countries, countries with islands and virtual islands.

On 24 March 2013, during the Pacific Energy Summit in Auckland, New Zealand, IRENA launched the first two GREIN global interest clusters: renewable energy technology roadmaps for islands, and renewable energy for power grids on islands. The next cluster to be activated was on renewable energy for island tourism.

Tourism represents an important economic driver for island economies, and is at the same time highly dependent on a reliable, affordable and environmentally friendly energy supply. Energy supply in islands is still dominated by fossil fuels, in particular oil products. As a consequence, this makes the tourism sector – and island economies – vulnerable to the volatility of oil prices, and to the impacts deriving from the use of fossil fuels in a fragile environment.

High energy prices have several direct and indirect impacts on the profitability of the tourism sector, which also affect the social and economic development of islands and SIDS. Tourism operators make use of electricity for cooling, water heating, lighting and other key services provided in hotels and resorts. Energy is also used for transportation and for food preparation. To compensate for increasing energy costs, tourism companies operating in islands are forced to raise the price of accommodation and transport services, producing a direct impact on island tourism competitiveness. RETs can generate significant savings for tourism operators by offsetting or replacing the use of diesel-based electricity. In contrast to volatile diesel-based electricity prices, RETs provide stable operating costs to assist hotels and resorts with long-term business planning. RETs also contribute to improving the state of the environment and support efforts to position islands as sustainable tourism destinations. All of these factors increase the competitiveness of the island tourism sector.

In addition to the economic benefits directly derived from reduced energy costs, case studies indicate that the transition to renewable energy will bring additional gains by attracting eco-friendly travelers who are willing to pay a premium for sustainable tourism experiences. The well-being of island communities will also be improved through the reduction of air and water pollution from fossil fuel combustion and spillages, as well as through the creation of additional employment opportunities for the installation, operation and maintenance of RETs.

Taking advantage of the focused platform provided by the first **Caribbean Tourism Energy Forum**, IRENA hosted a **session**¹ in December 2013 to discuss areas where increased effort is needed in order to accelerate the deployment of renewable energy technology in the tourism sector of islands. Topics for discussion included the factors behind successful diffusion of solar hot water heaters in the Caribbean, what further analysis might be needed to establish the business case for renewable energy options in island hotels, what actions could be taken to cope with the barriers to deployment of these options, what would be the most useful approaches for IRENA's work in the island tourism sector.

¹ <http://grein.irena.org/UserFiles/casestudies/IRENA%20session%20summary%20CTEF.pdf>

In May 2014, IRENA hosted a high-level, two-day event on renewable energy for island tourism. The **Renewable Energy Applications for Island Tourism Event**², held in Cyprus 29-30 May, explored applications and solutions for the energy-intensive tourism sectors of island nations struggling with the high costs of imported fossil fuels.

Organised by the International Renewable Energy Agency (IRENA) and the Cypriot government, the two-day event examined the increasing energy needs of the global island tourism sector and explored renewable energy solutions to provide the necessary energy services.

Some 120 guests and participants from around the globe attended the event, held at the Aphrodite Hills Resort Hotel near the city of Paphos. The key issues discussed included renewable energy for water desalination, electric vehicles for island tourism, the use of algae for biofuels and the increasing use of biofuels for air transportation; solar water heating systems for hotels and resorts; the benefits and advantages of solar air conditioning and sea water air conditioning; the business case for solar photovoltaic systems in island hotels, including both grid-connected and off-grid installations; international funding and cooperation possibilities for renewable energy projects; and the main enabling factors as well as challenges and barriers affecting the broader adoption of renewable energy sources.

In August 2014, on the sides of the Third International conference on Small Island Developing States, IRENA launched its **report on Renewable Energy Opportunities for Island Tourism**³. The report analyses four renewable energy technologies (RETs), namely, solar water heating (SWH), solar air conditioning (SAC), seawater air conditioning (SWAC) and solar photovoltaic (PV) systems. The analysis shows that the use of these systems can boost the competitiveness of the island tourism sector significantly.

In addition to economic benefits derived from reduced energy costs, a transition to renewable energy can reinforce sustainable tourism marketing strategies, which can increase tourist arrivals and allow for higher room rates. Accelerated deployment of renewables also improves the well-being of island communities by reducing air and water pollution from fossil-fuel combustion and spillages, along with creating employment opportunities.

Rationale behind ITB Berlin roundtable

In order to disseminate the lessons learnt through the work performed on renewable energy in island tourism in 2014, IRENA with the support of the German Federal Government hosted a roundtable at the 2015 ITB Berlin tourism convention, one of the world-leading events for the tourism industry. The focus of this roundtable was examining the barriers to widespread use of renewable energy in island tourism.

IRENA's prior work on renewable energy application in island tourism has identified the need to scale up engagement with large tourism businesses whose main concern in relation to renewable energy seems to be related to green marketing rather than cost savings. Structural challenges have been identified for hotel chains where ownership and management are often divided between different actors. Some innovative ways of addressing this challenge have been created such as leasing agreements (e.g. Starwood-NRG partnership⁴). Under these schemes an energy company designs, builds the system on the

² <http://www.irena.org/menu/index.aspx?mnu=Subcat&PriMenuID=30&CatID=79&SubcatID=429>

³ <http://www.irena.org/menu/index.aspx?mnu=Subcat&PriMenuID=36&CatID=141&SubcatID=444>

⁴ <http://development.starwoodhotels.com/news/1/577-starwood-hotels-resorts-and-nrg-energy-introduce-an-industry-leading-alliance-to-develop-solar-power-at-hotel-properties>

hotel and operates the system selling the lower cost electricity to the hotel through a long term power purchase agreement. This eliminates the large upfront cost to the hotel owner of installing the system and the need for staff with specialized skills to operate the system.

The roundtable at the ITB Berlin brought together key stakeholders from the tourism and energy sectors, including policy makers from islands, tourism associations, representatives of the RE sector and IRENA. The barriers and obstacles for renewable energy use in the tourism sector that were discussed and potential solutions and best practice examples that were highlighted are given below.

Roundtable participants

Opening:

H.E. Rita Schwarzelühr-Sutter, Parliamentary State Secretary, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)

H.E. Eldred E. Bethel, Ambassador of the Commonwealth of the Bahamas to the Federal Republic of Germany

Keynote:

Dolf Gielen, Director, IRENA Innovation and Technology Centre, IRENA

Moderator:

Martin Schöpe, Head of Division, International Affairs of Renewable Energy, German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMUB)

Roundtable panelists:

Dolf Gielen, Director, IRENA Innovation and Technology Centre, IRENA

Dirk Glaesser, Director, Sustainable Development of Tourism, UN World Tourism Organisation (UNWTO)

Andreas Müseler, Chairman of the Sustainability Committee, German Travel Association (DRV)

Martin Putschek, Managing Director, Swimsol GmbH

Opening remarks H.E. Rita Schwarzelühr-Sutter



In her opening remarks H.E. noted that the topic of renewable energy in island tourism is interesting and relevant to the Federal Environment Ministry for at least two reasons. One reason is that renewable energy is a key way to combat climate change and the German government is committed to helping island states, which are strongly threatened by climate change, deploy renewable energy options.

The second reason is that renewable energy can make island tourism more sustainable. This is an important factor as many islands depend on tourism to support their economies and tourism relies on an unspoiled

natural environment. Renewables can help to preserve this environment by reducing the impacts of climate change and eliminating local air, water and noise pollution. Renewable energy can also reduce the high electricity cost on islands that result from the dependence on oil for electricity generation. This oil dependence often requires subsidies from the government reducing the possibilities of investing in development.

As such, taking climate action in the island tourism sector through energy efficiency and renewable energy can strengthen both prosperity and competitiveness of island economies. Success in this area can also serve as a call to action for major green house gas emitters.

It was noted that IRENA has demonstrated how renewables can be used economically in the energy supply of hotels on islands and the audience was encouraged to take this opportunity to engage with IRENA and the roundtable participants to learn more about the renewable energy options for island tourism.

One challenge that was noted by Mrs Schwarzelühr-Sutter was the need to increase the education of tourist on issues of sustainability. A proposed solution was to increase the visibility of renewable energy use in tourism facilities so that guests can be aware of its positive impact and use this information when choosing a destination.

Opening remarks H.E. Eldred E. Bethel



In his opening remarks H.E. Eldred E. Bethel indicated that the growth and success of the Bahamian economy has been primarily based on the tourism industry with 60% of the country's GDP and half of the workforce tied to tourism. This has provided the island with a sustainable economic model that has been replicated by many other island nations. He also noted that the success of tourism based economies is inextricably linked to the environment.

In addition to pushing for more growth in its tourism sector the Bahamas has also placed great emphasis on the deployment of renewable energy technology to lower the cost of electricity and lessen carbon emissions. The push for renewables to reduce oil imports is a winning economic strategy. In 2008, the value of oil imports accounted for approximately half of the Bahamas' tourism revenue.

Private tourism providers in the Bahamas have demonstrated leadership in renewable energy. In mid-2013, the micro-grid at the Over Yonder Cay resort achieved a major milestone of generating one million kilo watt hours of wind energy. This eliminated the release of more than 840 tons of carbon dioxide into the atmosphere and saved 291,000 litres of diesel fuel.

With the support of the Inter-American Development Bank and the Global Environment Facility, the Bahamas is promoting of renewable energy through two pilot projects with solar water heaters and photovoltaics that provided useful evidence on removing of barriers to the use of renewable energy technologies in the Bahamas market.

The Bahamas, through the Ministry of Environment and Housing has released The Bahamas National Energy Policy 2013-2033, which identified a number of key areas where action is needed to support

renewable energy and committed to have a minimum of 30% renewable energy penetration by 2030. The first program of this new energy policy, the Residential Energy Self Generation program, is in the process of implementation and will open up opportunities for the deployment of renewable energy in grid-connected hotels and other facilities.

The Bahamas looks forward to strengthening their relationship with IRENA and its allies as they aim to develop renewable energy deployment strategies and advance a sustainable energy future.

Roundtable insights



The key note address from Dolf Gielen of IRENA set the stage for the roundtable discussion by noting several of the key drivers for the use of renewable energy in the island tourism sector. It was noted that the majority of island power systems in the world are dependent on diesel fuel, which results in a high electricity costs that can harm the competitiveness the local tourism sector. This is a critical factor for islands as many depend on the tourism sector for a significant share of GDP and economic growth, in the last decade island tourism has increased by 30%.

The key note address stated that renewable energy offers a lower cost option for island tourism facilities and gave four examples of renewable energy technologies that are applicable to the tourism sector: solar water heating, solar air conditioning, seawater air conditioning and solar photovoltaics. While many hotels are already deploying renewable energy systems there remain challenges to be overcome to enable the widespread use of renewables in the tourism sector. For example, electricity demand varies greatly between hotel types, citing a study from the Caribbean he showed that smaller hotel electricity demand is driven by water heating while larger hotels primarily use electricity for air conditioning. The roundtable panelist were encouraged to identify viable business models for overcoming the barriers. It was emphasized that islands can serve as test beds for systems enabling high levels of renewable energy generation and could offer insight for the rest of the world in overcoming the challenges of a renewable energy based electricity system.

Roundtable panelist: Andreas Müseler Chairman of the Sustainability Committee, DVR



Moderator Martin Schöpe asked the panelist Andreas Müseler “What are the key drivers for renewable energy in the tourism sector?” Mr. Müseler indicated that based on the economics of diesel power generation, renewable energy should be the standard solution in islands and remote areas. However he indicated that the key obstacle in the tourism sector was that hotel chains and tourism operators do not own local facilities, but have contracts running only three to six years with facility owners. These short term contract limit the interest of major tourism operators in investing in renewable energy as these project can have a longer payback periods. In addition, the major tourism companies are

generally not responsible for the upkeep and operating of the facilities as this handled by the local owner. Although the local owners could directly benefit for renewable energy systems, even with longer payback periods they typically do not have the same access to financing as large tourism operators.

He noted that hotel guests offered an option for leveraging both hotel owners and large tourism companies to embrace renewable energy. He noted that even when vacationers do not specifically ask for a sustainable vacation package they want a non-polluted environment and he suggested that they be educated to understand that this is supported by renewable energy. He suggested direct communication efforts with hotel guests such as in room screens showing current electricity use from renewable energy versus traditional sources to add value to the guest experience and make them aware of the impact of energy choices.

He noted that many tourism facilities depend on public utilities for their electricity and said that these utilities should be encouraged to invest in renewable energy so that tourism operators will have the option of purchasing renewable energy without the need to directly invest in systems themselves.

Roundtable panelist: [Martin Putschek, Managing Director, Swimsol GmbH](#)



Moderator Martin Schöpe asked Martin Putschek about his companies experience with selling renewable energy systems to tourism operators. Mr. Putschek provided a summary of his company Swimsol, which offers floating PV platforms as alternative for land constrain island resorts to deploy renewable energy. He noted that Swimsol successfully deployed such a system to a Four Seasons resort in the Maldives.

He noted that in the Maldives that the majority of resorts currently depend on diesel for 24-hour power and that annual fuel consumption can reach 2 million liters per year or higher. He noted that PV systems provide electricity at a lower cost than diesel allowing resorts to reduce diesel consumption. However, resorts often cover an entire small island and due to land and roof space constraints most resorts can meet only a small percentage of electricity demand with the available area.

He offered Swimsol's offshore floating PV platform as a solution to these constraints noting that while floating PV increases cost versus traditional PV (due to the floating platform, undersea cable and upgraded panels for the aggressive environment) it is still cheaper than diesel power generation and offers a much greater deployment and fuel saving potential to island resorts. Mr. Putschek, indicated that Swimsol has deployed 15kWp pilot project in Maldives and is currently working with the resort and its owner company to expand this to 500kWp.

He stated that approaching resorts was difficult despite a clear business case for reducing electricity costs. This is partly because electricity often constitutes only 8% of resort's budget. He indicated that the 15kWp project was successfully deployed only after a two and half years of building a personal relationship with the resort's general managers. Mr. Putschek noted that on resorts there are three key players you need to fully engage to get support for a PV project:

- 1) General management, responsible for profit
- 2) Chief engineer: will be the one operating the system,
- 3) Owners: not hotel chain but owner of the local resort

He also indicated that a proven product with clear case studies showing its success in other resorts is needed for convincing resort managers and owners.

Roundtable Panelist: Dirk Glaesser, Director, Sustainable Tourism, UNWTO



Moderator Martin Schöpe asked Mr. Glaesser about the drivers and challenges for renewable energy in island tourism. Mr. Glaesser noted that energy is one of many resources needed to support the tourism sector also noting the importance of water and biodiversity. He indicated that a broader perspective including local employment and development would help to understand the options for deploying renewable energy in island tourism.

He indicated that data availability is a major challenge asking “Is there reliable data for local authorities to make a decision regarding renewable energy, is there data available to determine the impact of these decisions, and is there data on the potential use of renewable energy in an island tourism context?” He stated that there is a need for evidence of the impact of renewable energy at a destination level.

He also emphasized that just having a successful business case for renewable energy does not work in the tourism sector because tourism and renewable energy project have an impact across the entire local community. He noted that the process for deploying renewable energy projects must be participatory and engage the local population. The benefits of the project for local population, not just wealthy foreign visitors, need to be made clear or there is a risk losing local support.

Questions and follow up:



Mr. Gielen noted that the business case for cost savings from renewable energy is clear but that engagement of the necessary decision making parties can be difficult. He asked if there are other models

that make this process easier and cited as any example grouping islands or hotels together for cost reduction. The moderator then collected the following questions from audience:

A professor of tourism management noted that she has been examining renewable energy deployment on El Hierro in the Canary Islands and asked if renewable energy systems can serve as viable tourism attractions.

A tourism consultant asked if the renewable energy and tourism sectors could collaborate as industries promoting peace and inquired about how IRENA is working to support to support RE in tourism.

Klaus Lengefeld, Senior Advisor Sustainable Tourism, GIZ stated that he was skeptical about renewable energy applications in the island tourism sector for the following reasons: He stated that there is still a technological challenge with renewable energy systems, citing cost issues with seawater air conditioning and the potential impact on sea life from floating PV shading. He also said that falling technology costs mean people don't want to invest in renewable energy now because if they wait it will be cheaper. He also noted the issue of local utilities often having monopolies that prevent any private generation, including onsite generation from renewable energy at private resorts.

In response to these questions Mr. Glaesser of UNTWO stated that the focus should be on the informing and empowering the consumer so they understand and request renewable energy.

Mr. Putschek of Swimsol noted that turnkey floating PV system are more cost effective when included in new hotel construction as they can be folded into total cost. He also indicated that power purchase agreements can pass from one owner to the next, helping to overcome the issues with short term contracts. He indicated that the floating platform were deployed minimize impact on sea life and would not be deployed over coral reefs. Regarding the involvement of the broader community he noted that Swimsol's next project aimed to involving all local stakeholder and specifically to use lower cost local labor to make the system more affordable and create local employment opportunities.

Mr. Müsseler stated that business case is there for renewable energy to reduce energy costs and preserve the local environment that attracts tourism. He noted that 20-40% of tourists express interest in sustainable tourism options, so renewable energy offers the opportunity for green marketing to attract these customers. He agreed that it is easier to include renewable energy in new tourism infrastructure and as such those interested in encouraging renewable energy in tourism should target destinations, as the ones that will benefit in the long term from deployment of renewable energy, so that renewable energy is included from the beginning when planning the infrastructure, tailored case by case for each destination.